

CHAPTER

73

**ENGINE FUEL AND
CONTROL**

(CFM56 ENGINES (CFM56-7))

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

CHAPTER 73 ENGINE FUEL AND CONTROL

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-EFFECTIVE PAGES			73-MAINT MSG INDEX (cont)			73-00 TASKS (cont)		
1 thru 6	Oct 15/2023		O 124	Oct 15/2023		219	Oct 15/2021	
73-HOW TO USE THE FIM			O 125	Oct 15/2023		R 220	Oct 15/2023	
1	Oct 15/2021		O 126	Oct 15/2023		O 221	Oct 15/2023	
2	Oct 15/2021		O 127	Oct 15/2023		O 222	Oct 15/2023	
3	Oct 15/2021		O 128	Oct 15/2023		O 223	Oct 15/2023	
4	Oct 15/2021		O 129	Oct 15/2023		O 224	Oct 15/2023	
5	Oct 15/2021		O 130	Oct 15/2023		O 225	Oct 15/2023	
6	Oct 15/2021		O 131	Oct 15/2023		O 226	Oct 15/2023	
73-FAULT CODE INDEX			O 132	Oct 15/2023		O 227	Oct 15/2023	
101	Oct 15/2021		O 133	Oct 15/2023		O 228	Oct 15/2023	
102	Oct 15/2021		O 134	Oct 15/2023		O 229	Oct 15/2023	
103	Oct 15/2021		O 135	Oct 15/2023		O 230	Oct 15/2023	
104	Oct 15/2021		O 136	Oct 15/2023		O 231	Oct 15/2023	
73-MAINT MSG INDEX			R 137	Oct 15/2023		O 232	Oct 15/2023	
101	Oct 15/2021		O 138	Oct 15/2023		O 233	Oct 15/2023	
102	Oct 15/2021		O 139	Oct 15/2023		O 234	Oct 15/2023	
103	Oct 15/2021		O 140	BLANK		O 235	Oct 15/2023	
104	Oct 15/2021		73-00 TASKS			O 236	Oct 15/2023	
105	Oct 15/2021		201	Oct 15/2021		O 237	Oct 15/2023	
106	Oct 15/2021		202	Oct 15/2021		R 238	Oct 15/2023	
107	Oct 15/2021		203	Oct 15/2021		R 239	Oct 15/2023	
108	Oct 15/2021		204	Oct 15/2021		O 240	Oct 15/2023	
109	Oct 15/2021		205	Oct 15/2021		O 241	Oct 15/2023	
110	Oct 15/2021		206	Oct 15/2021		242	Oct 15/2021	
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112	Oct 15/2021		208	Oct 15/2021		244	BLANK	
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114	Oct 15/2021		210	Oct 15/2021		201	Oct 15/2021	
115	Oct 15/2021		211	Oct 15/2021		202	Oct 15/2021	
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R 119	Oct 15/2023		215	Oct 15/2021		206	Oct 15/2021	
O 120	Oct 15/2023		216	Oct 15/2021		207	Oct 15/2021	
O 121	Oct 15/2023		217	Oct 15/2021		208	Oct 15/2021	
O 122	Oct 15/2023		218	Oct 15/2021		209	Oct 15/2021	
O 123	Oct 15/2023							

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73-EFFECTIVE PAGES

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

CHAPTER 73 ENGINE FUEL AND CONTROL

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-05 TASKS (cont)			73-05 TASKS (cont)			73-06 TASKS (cont)		
210	Oct 15/2021		246	Oct 15/2021		211	Feb 15/2023	
211	Oct 15/2021		247	Oct 15/2021		R 212	Oct 15/2023	
212	Oct 15/2021		248	Oct 15/2021		213	Feb 15/2023	
213	Oct 15/2021		249	Oct 15/2021		214	Feb 15/2023	
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216	Oct 15/2021		252	Oct 15/2021		R 217	Oct 15/2023	
217	Oct 15/2021		253	Oct 15/2021		218	Feb 15/2023	
218	Oct 15/2021		254	Oct 15/2021		R 219	Oct 15/2023	
219	Oct 15/2021		255	Oct 15/2021		R 220	Oct 15/2023	
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222	Oct 15/2021		258	Oct 15/2021		223	Feb 15/2023	
223	Oct 15/2021		259	Oct 15/2021		224	Feb 15/2023	
224	Oct 15/2021		260	Oct 15/2021		225	Feb 15/2023	
225	Oct 15/2022		261	Oct 15/2021		226	Feb 15/2023	
226	Oct 15/2021		262	Oct 15/2021		227	Feb 15/2023	
227	Oct 15/2021		263	Oct 15/2021		228	Feb 15/2023	
228	Oct 15/2021		264	Oct 15/2021		229	Feb 15/2023	
229	Oct 15/2021		73-05 TASK SUPPORT			230	Feb 15/2023	
230	Feb 15/2022		301	Oct 15/2021		231	Feb 15/2023	
R 231	Oct 15/2023		302	Oct 15/2021		232	Feb 15/2023	
232	Oct 15/2021		303	Oct 15/2021		233	Feb 15/2023	
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234	Oct 15/2021		305	Oct 15/2021		235	Feb 15/2023	
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236	Oct 15/2021		73-06 TASKS			237	Feb 15/2023	
237	Oct 15/2021		201	Oct 15/2021		238	Feb 15/2023	
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241	Oct 15/2021		205	Oct 15/2021		242	Feb 15/2023	
242	Oct 15/2021		R 206	Oct 15/2023		243	Feb 15/2023	
243	Oct 15/2021		207	Feb 15/2023		244	Feb 15/2023	
244	Oct 15/2021		208	Feb 15/2023		245	Feb 15/2023	
245	Oct 15/2021		209	Feb 15/2023		246	Feb 15/2023	
			210	Feb 15/2023				

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73-EFFECTIVE PAGES

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

CHAPTER 73 ENGINE FUEL AND CONTROL

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-06 TASKS (cont)			73-21 TASK SUPPORT			73-22 TASKS (cont)		
247	Feb 15/2023		301	Oct 15/2021		R 234	Oct 15/2023	
248	Feb 15/2023		302	BLANK		235	Oct 15/2021	
249	Feb 15/2023		73-22 TASKS			236	Oct 15/2021	
250	BLANK		201	Oct 15/2021		73-22 TASK SUPPORT		
73-06 TASK SUPPORT			202	Oct 15/2021		301	Oct 15/2021	
301	Oct 15/2021		203	Oct 15/2021		302	Oct 15/2021	
302	Oct 15/2021		204	Oct 15/2021		303	Oct 15/2021	
303	Oct 15/2021		205	Oct 15/2021		304	BLANK	
304	Oct 15/2021		206	Oct 15/2021		73-23 TASKS		
73-07 TASKS			207	Oct 15/2021		201	Oct 15/2021	
201	Oct 15/2021		208	Oct 15/2021		202	Oct 15/2021	
202	Oct 15/2021		209	Jun 15/2022		203	Oct 15/2021	
203	Oct 15/2021		210	Feb 15/2022		204	Oct 15/2021	
204	Oct 15/2021		211	Feb 15/2022		205	Oct 15/2021	
205	Oct 15/2021		212	Feb 15/2022		206	Oct 15/2021	
206	BLANK		213	Jun 15/2022		207	Oct 15/2021	
73-07 TASK SUPPORT			214	Feb 15/2022		208	Oct 15/2021	
301	Oct 15/2021		215	Feb 15/2022		209	Oct 15/2021	
302	BLANK		216	Feb 15/2022		210	Oct 15/2021	
73-11 TASKS			217	Feb 15/2022		211	Oct 15/2021	
201	Oct 15/2021		218	Feb 15/2022		212	Oct 15/2021	
202	Oct 15/2021		219	Feb 15/2022		213	Oct 15/2021	
73-21 TASKS			220	Feb 15/2022		214	Oct 15/2021	
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202	Oct 15/2021		222	Feb 15/2022		216	Oct 15/2021	
203	Oct 15/2021		223	Feb 15/2022		217	Oct 15/2021	
R 204	Oct 15/2023		224	Feb 15/2022		218	Oct 15/2021	
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206	Oct 15/2021		226	Feb 15/2022		220	Oct 15/2021	
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208	Oct 15/2021		228	Oct 15/2021		222	Oct 15/2021	
209	Oct 15/2021		229	Oct 15/2021		223	Oct 15/2021	
210	Oct 15/2021		230	Oct 15/2021		224	Oct 15/2021	
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213	Oct 15/2021		233	Oct 15/2021				
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73-EFFECTIVE PAGES

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

CHAPTER 73 ENGINE FUEL AND CONTROL

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-23 TASK SUPPORT			73-24 TASKS (cont)			73-24 TASKS (cont)		
301	Oct 15/2021		228	Oct 15/2021		264	Oct 15/2021	
302	Oct 15/2021		229	Oct 15/2021		265	Oct 15/2021	
303	Oct 15/2021		230	Oct 15/2021		266	Oct 15/2021	
304	Oct 15/2021		231	Oct 15/2021		267	Oct 15/2021	
305	Oct 15/2021		232	Oct 15/2021		268	Oct 15/2021	
306	Oct 15/2021		233	Oct 15/2021		269	Oct 15/2021	
307	Oct 15/2021		234	Oct 15/2021		270	Oct 15/2021	
308	BLANK		235	Oct 15/2021		271	Oct 15/2021	
73-24 TASKS			236	Oct 15/2021		272	Oct 15/2021	
201	Oct 15/2021		237	Oct 15/2021		73-24 TASK SUPPORT		
202	Oct 15/2021		238	Oct 15/2021		301	Oct 15/2021	
203	Oct 15/2021		239	Oct 15/2021		302	Oct 15/2021	
204	Oct 15/2021		240	Oct 15/2021		303	Oct 15/2021	
205	Oct 15/2021		241	Oct 15/2021		304	Oct 15/2021	
206	Oct 15/2021		242	Oct 15/2021		305	Oct 15/2021	
207	Oct 15/2021		243	Oct 15/2021		306	Oct 15/2021	
208	Oct 15/2021		244	Oct 15/2021		307	Oct 15/2021	
209	Oct 15/2021		245	Oct 15/2021		308	Oct 15/2021	
210	Oct 15/2021		246	Oct 15/2021		309	Oct 15/2022	
211	Oct 15/2021		247	Oct 15/2021		310	BLANK	
212	Oct 15/2021		248	Oct 15/2021		73-25 TASKS		
213	Oct 15/2021		249	Oct 15/2021		R 201	Oct 15/2023	
214	Oct 15/2021		250	Oct 15/2022		R 202	Oct 15/2023	
215	Oct 15/2021		251	Oct 15/2021		R 203	Oct 15/2023	
216	Oct 15/2021		252	Oct 15/2022		R 204	Oct 15/2023	
217	Oct 15/2021		253	Oct 15/2022		R 205	Oct 15/2023	
218	Oct 15/2021		254	Oct 15/2021		R 206	Oct 15/2023	
219	Oct 15/2021		255	Oct 15/2022		R 207	Oct 15/2023	
220	Oct 15/2021		256	Oct 15/2021		R 208	Oct 15/2023	
221	Oct 15/2021		257	Oct 15/2021		R 209	Oct 15/2023	
222	Oct 15/2021		258	Oct 15/2021		R 210	Oct 15/2023	
223	Oct 15/2021		259	Oct 15/2021		R 211	Oct 15/2023	
224	Oct 15/2021		260	Oct 15/2021		O 212	Oct 15/2023	
225	Oct 15/2021		261	Oct 15/2021		R 213	Oct 15/2023	
226	Oct 15/2021		262	Oct 15/2021		R 214	Oct 15/2023	
227	Oct 15/2021		263	Oct 15/2021		O 215	Oct 15/2023	
						R 216	Oct 15/2023	

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73-EFFECTIVE PAGES

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

CHAPTER 73 ENGINE FUEL AND CONTROL

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-25 TASKS (cont)			73-26 TASKS (cont)			73-27 TASKS (cont)		
217	Oct 15/2021		R 218	Oct 15/2023		231	Oct 15/2021	
218	Oct 15/2021		73-26 TASK SUPPORT			232	Oct 15/2021	
219	Oct 15/2021		301	Oct 15/2021		73-27 TASK SUPPORT		
220	Oct 15/2021		302	Oct 15/2021		301	Oct 15/2021	
R 221	Oct 15/2023		303	Oct 15/2021		302	Oct 15/2021	
222	Oct 15/2021		304	BLANK		303	Oct 15/2021	
R 223	Oct 15/2023		73-27 TASKS			304	Oct 15/2021	
224	Oct 15/2021		201	Oct 15/2021		305	Oct 15/2021	
R 225	Oct 15/2023		202	Oct 15/2021		306	Oct 15/2021	
R 226	Oct 15/2023		203	Oct 15/2021		73-28 TASKS		
R 227	Oct 15/2023		204	Oct 15/2021		201	Oct 15/2021	
R 228	Oct 15/2023		205	Oct 15/2021		202	Oct 15/2021	
R 229	Oct 15/2023		206	Oct 15/2021		203	Oct 15/2021	
R 230	Oct 15/2023		207	Jun 15/2023		204	Oct 15/2021	
73-25 TASK SUPPORT			208	Jun 15/2023		205	Oct 15/2021	
301	Oct 15/2021		209	Oct 15/2021		206	Oct 15/2021	
302	Oct 15/2021		210	Oct 15/2021		207	Oct 15/2021	
303	Oct 15/2021		211	Jun 15/2023		208	Oct 15/2021	
304	BLANK		212	Oct 15/2021		209	Oct 15/2021	
73-26 TASKS			213	Oct 15/2021		210	Oct 15/2021	
R 201	Oct 15/2023		214	Oct 15/2021		211	Oct 15/2021	
R 202	Oct 15/2023		215	Jun 15/2023		212	Oct 15/2021	
R 203	Oct 15/2023		216	Jun 15/2023		213	Oct 15/2021	
O 204	Oct 15/2023		217	Jun 15/2023		214	Oct 15/2021	
O 205	Oct 15/2023		218	Jun 15/2023		215	Oct 15/2021	
O 206	Oct 15/2023		219	Oct 15/2021		216	Oct 15/2021	
O 207	Oct 15/2023		220	Oct 15/2021		217	Oct 15/2021	
O 208	Oct 15/2023		221	Oct 15/2021		218	Oct 15/2021	
O 209	Oct 15/2023		222	Oct 15/2021		219	Oct 15/2021	
O 210	Oct 15/2023		223	Oct 15/2021		220	Oct 15/2021	
O 211	Oct 15/2023		224	Oct 15/2021		221	Oct 15/2021	
O 212	Oct 15/2023		225	Oct 15/2021		222	Oct 15/2021	
O 213	Oct 15/2023		226	Oct 15/2021		223	Oct 15/2021	
O 214	Oct 15/2023		227	Jun 15/2023		224	Oct 15/2021	
O 215	Oct 15/2023		228	Oct 15/2021		225	Oct 15/2021	
R 216	Oct 15/2023		229	Oct 15/2021		226	Oct 15/2021	
R 217	Oct 15/2023		230	Oct 15/2021		227	Oct 15/2021	

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73-EFFECTIVE PAGES

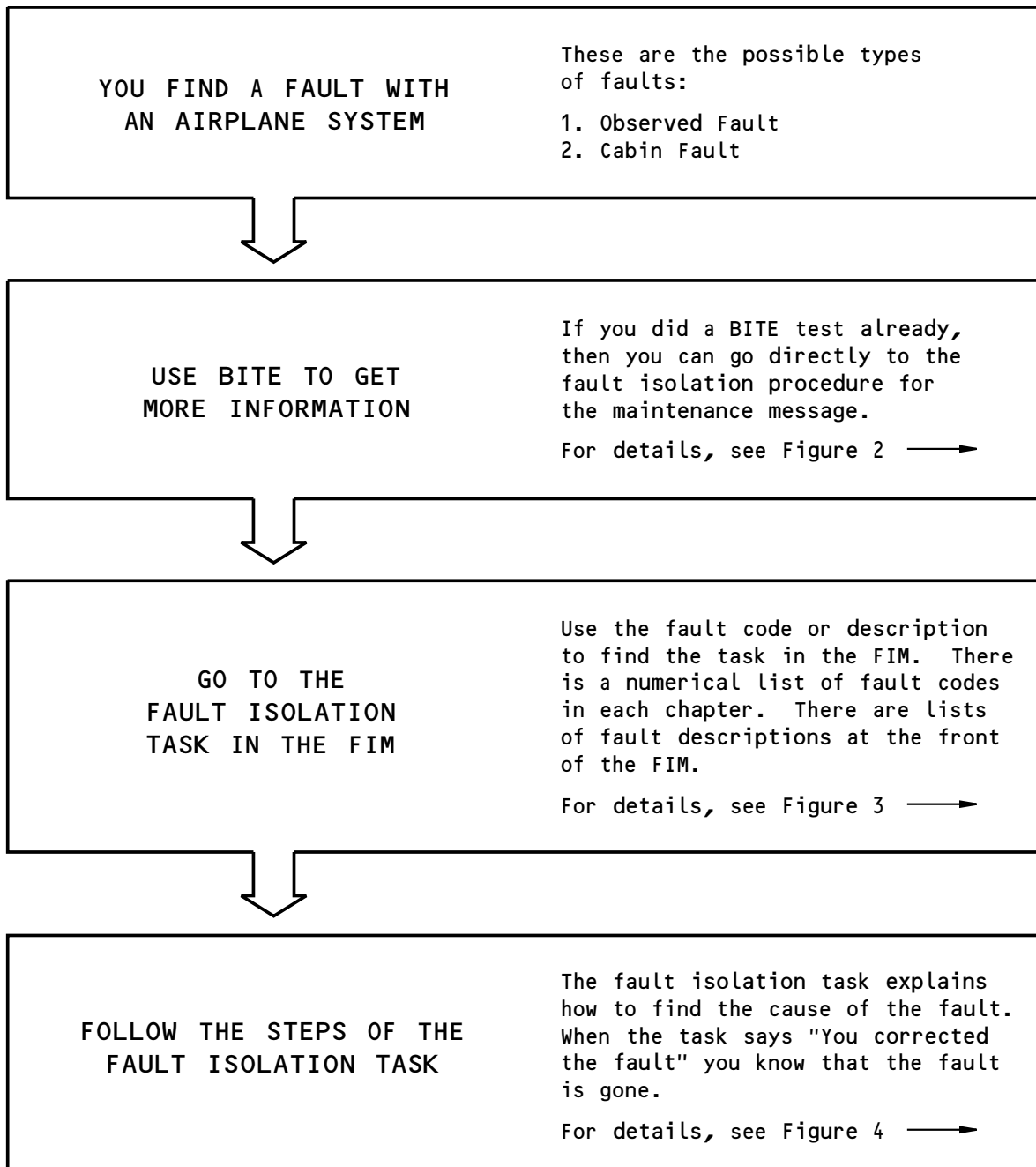
**737-600/700/800/900
FAULT ISOLATION MANUAL**

**CHAPTER 73
ENGINE FUEL AND CONTROL**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
73-28 TASKS (cont)								
228	Oct 15/2021							
229	Oct 15/2021							
230	Oct 15/2021							
231	Oct 15/2021							
232	Oct 15/2021							
233	Oct 15/2021							
234	Oct 15/2021							
235	Oct 15/2021							
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237	Oct 15/2021							
238	BLANK							
73-28 TASK SUPPORT								
301	Oct 15/2021							
302	Oct 15/2021							
73-31 TASKS								
201	Oct 15/2021							
202	Oct 15/2021							
203	Oct 15/2021							
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205	Oct 15/2021							
206	Oct 15/2021							
207	Oct 15/2021							
208	Oct 15/2021							
209	Oct 15/2021							
210	Oct 15/2021							
73-31 TASK SUPPORT								
301	Oct 15/2021							
302	Oct 15/2021							

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73-EFFECTIVE PAGES

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

G04902 S0000148576_V1

**Basic Fault Isolation Process
Figure 1****EFFECTIVITY**
SIA ALL**73-HOW TO USE THE FIM**

D633A103-SIA

Page 1
Oct 15/2021

**737-600/700/800/900
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

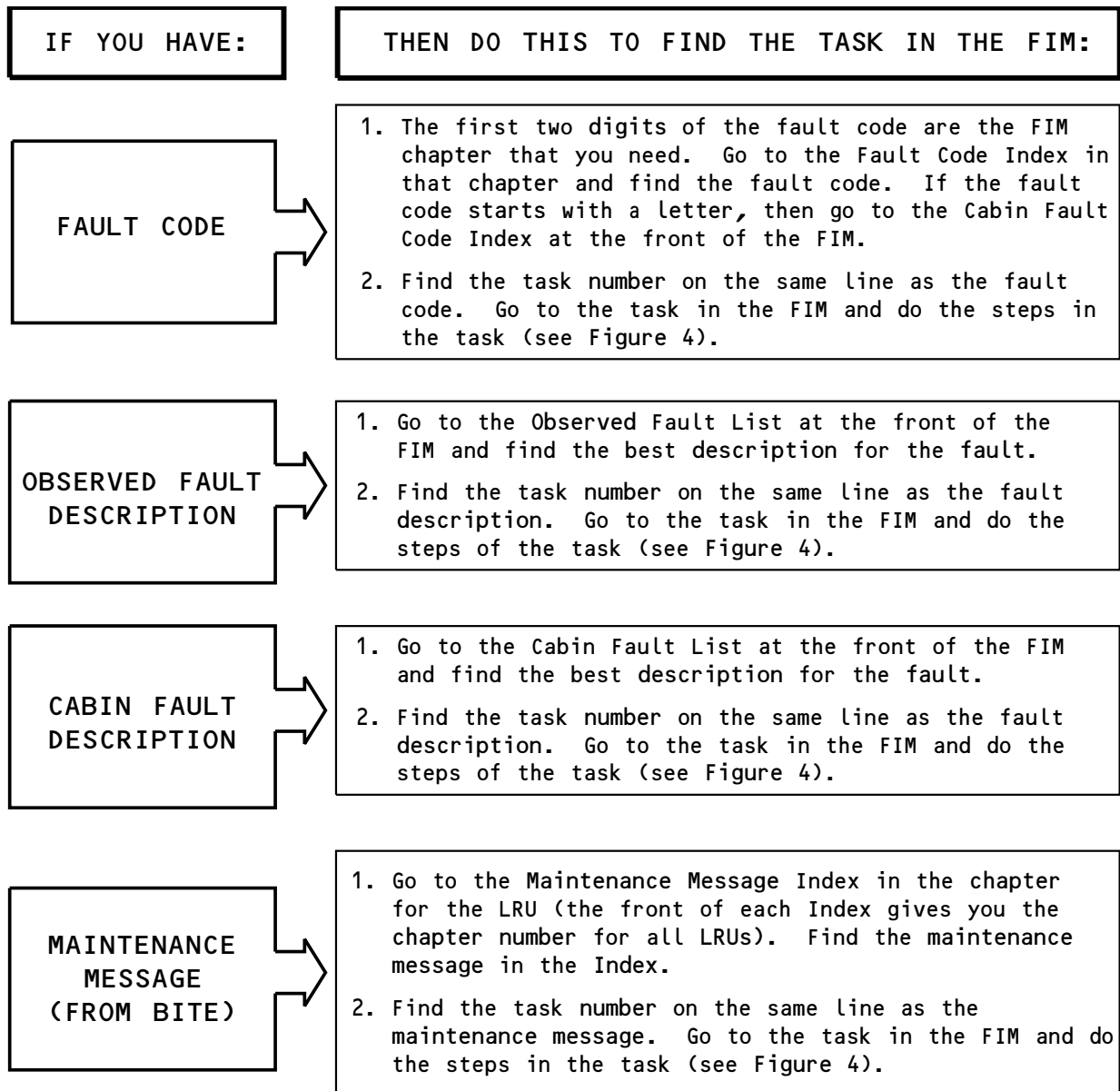
EFFECTIVITY
SIA ALL

73-HOW TO USE THE FIM

D633A103-SIA

Page 2
Oct 15/2021

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



G04979 S0000148579_V2

Finding the Fault Isolation Task in the FIM
Figure 3

EFFECTIVITY
SIA ALL

73-HOW TO USE THE FIM

D633A103-SIA

Page 3
Oct 15/2021

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

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

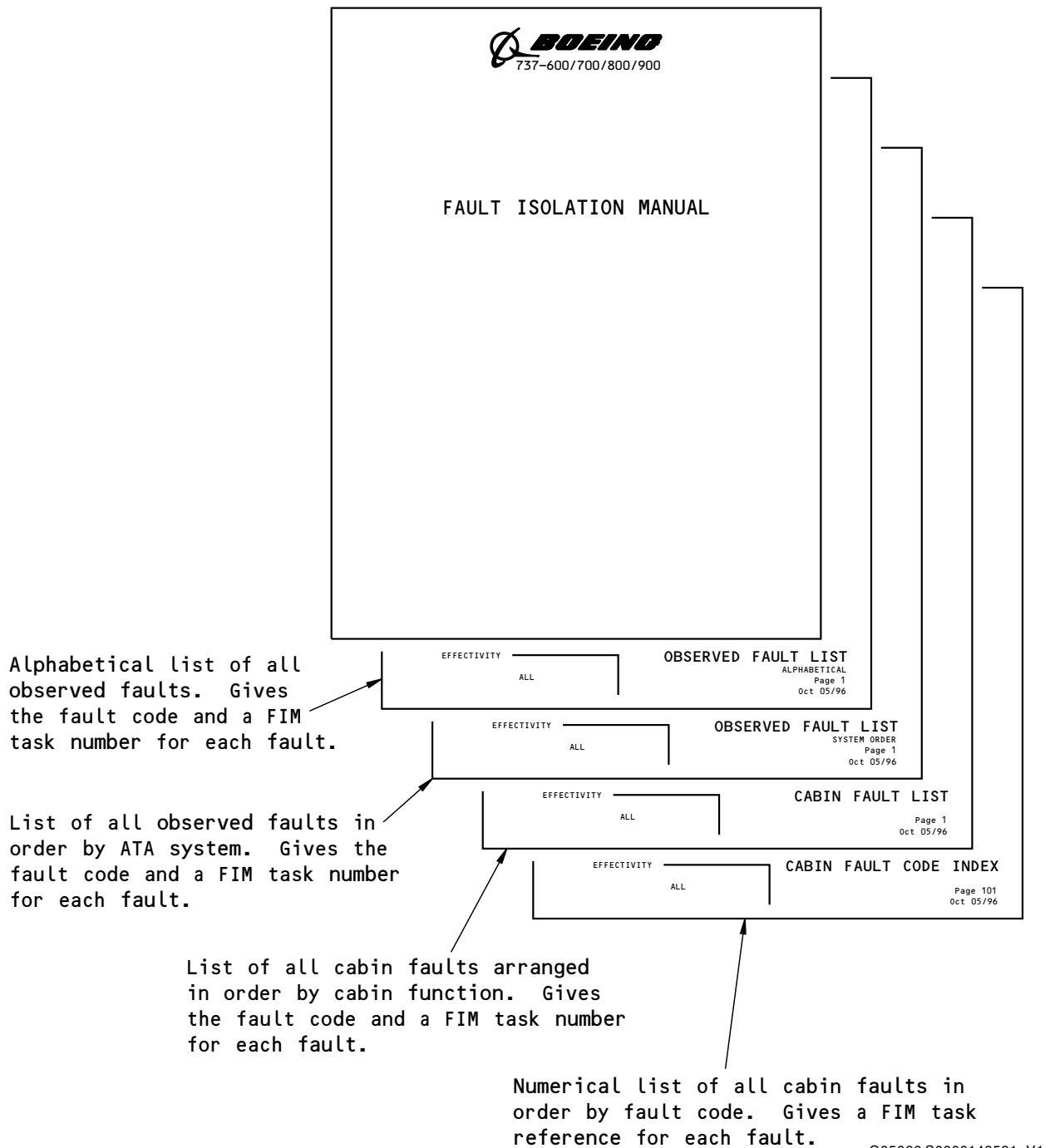
EFFECTIVITY
SIA ALL

73-HOW TO USE THE FIM

D633A103-SIA

Page 4
Oct 15/2021

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



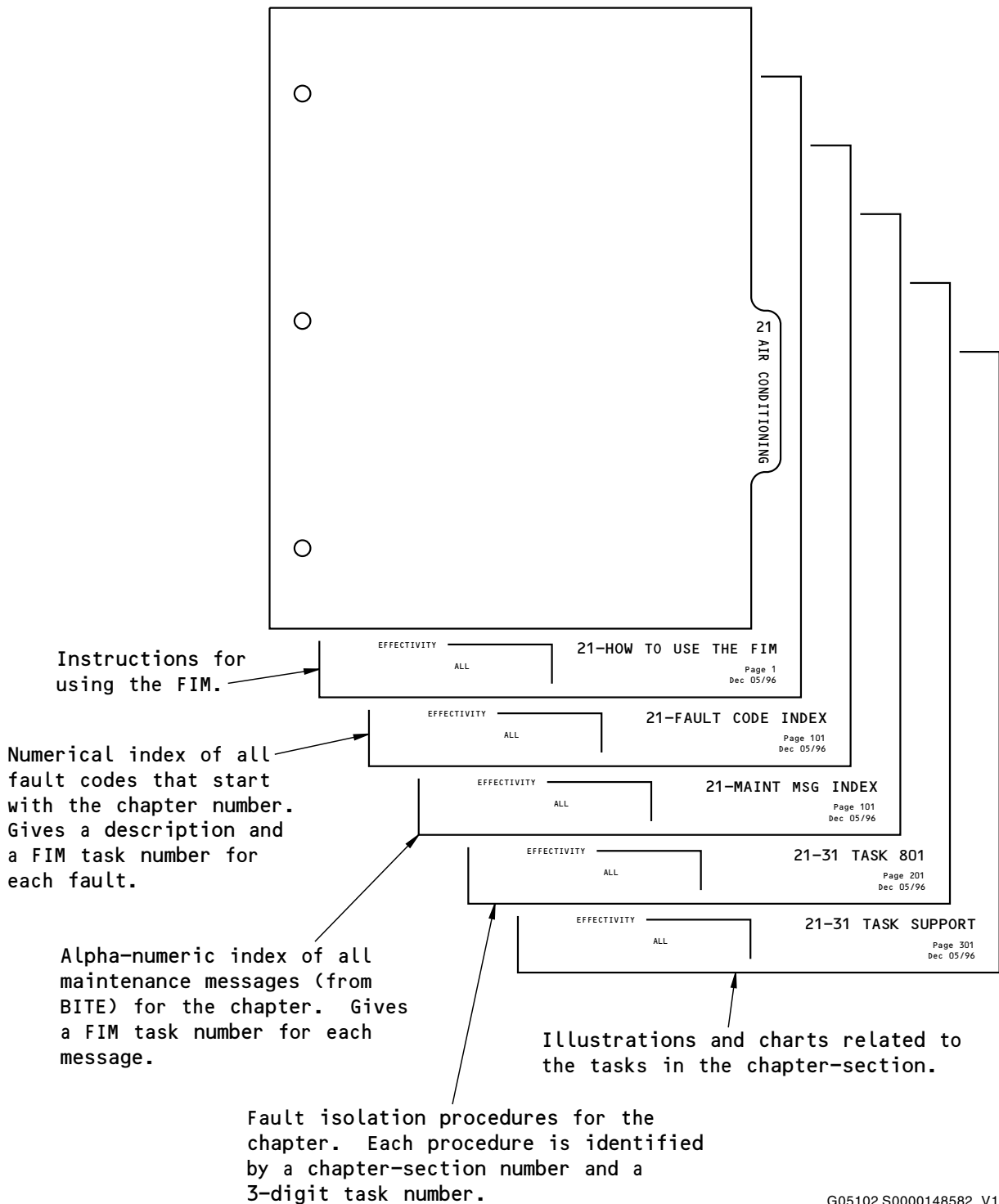
EFFECTIVITY
SIA ALL

73-HOW TO USE THE FIM

D633A103-SIA

Page 5
Oct 15/2021

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



G05102 S0000148582_V1

**Subjects in Each FIM Chapter
Figure 6**

EFFECTIVITY
SIA ALL

73-HOW TO USE THE FIM

D633A103-SIA

Page 6
Oct 15/2021

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

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
730 010 51	ENGINE CONTROL light: light on - engine 1.	73-06 TASK 801
730 010 52	ENGINE CONTROL light: light on - engine 2.	73-06 TASK 801
730 020 51	ENG FAIL message shows over EGT indication - engine 1.	73-05 TASK 805
730 020 52	ENG FAIL message shows over EGT indication - engine 2.	73-05 TASK 805
730 030 51	ENG VALVE CLOSED light: slow to go from Bright to Dim when the Start Lever is moved to CUTOFF - engine 1.	73-06 TASK 804
730 030 52	ENG VALVE CLOSED light: slow to go from Bright to Dim when the Start Lever is moved to CUTOFF - engine 2.	73-06 TASK 804
730 035 51	Engine: Slow to shut down when start lever moved to CUTOFF - left engine.	73-06 TASK 804
730 035 52	Engine: Slow to shut down when start lever moved to CUTOFF - right engine.	73-06 TASK 804
730 040 51	ENG VALVE CLOSED light: slow to go from Bright to OFF when the Start Lever is moved to IDLE - engine 1.	73-06 TASK 803
730 040 52	ENG VALVE CLOSED light: slow to go from Bright to OFF when the Start Lever is moved to IDLE - engine 2.	73-06 TASK 803
730 050 51	ENG VALVE CLOSED light: Stays off or bright when start lever moved to CUTOFF - engine 1.	73-06 TASK 804
730 050 52	ENG VALVE CLOSED light: Stays off or bright when start lever moved to CUTOFF - engine 2.	73-06 TASK 804
730 060 51	ENG VALVE CLOSED light: Stays ON bright when the Start Lever is moved to IDLE; Engine start is normal - engine 1.	73-06 TASK 805
730 060 52	ENG VALVE CLOSED light: Stays ON bright when the Start Lever is moved to IDLE; Engine start is normal - engine 2.	73-06 TASK 805
730 061 51	ENG VALVE CLOSED light: Stays off for all start lever positions - engine 1.	73-06 TASK 815
730 061 52	ENG VALVE CLOSED light: Stays off for all start lever positions - engine 2.	73-06 TASK 815
730 070 51	Engine automatic acceleration with no thrust lever movement - engine 1.	73-06 TASK 806
730 070 52	Engine automatic acceleration with no thrust lever movement - engine 2.	73-06 TASK 806
730 080 51	ALTN mode light for the EEC: light on - engine 1.	73-05 TASK 811
730 080 52	ALTN mode light for the EEC: light on - engine 2.	73-05 TASK 811
730 090 51	Engine flameout: engine restart OK; record suspected cause of flameout - engine 1.	73-06 TASK 807
730 090 52	Engine flameout: engine restart OK; record suspected cause of flameout - engine 2.	73-06 TASK 807
730 100 51	Engine flameout: engine restart not OK, F/F low - engine 1.	73-06 TASK 808
730 100 52	Engine flameout: engine restart not OK, F/F low - engine 2.	73-06 TASK 808

EFFECTIVITY
SIA ALL

73-FAULT CODE INDEX

D633A103-SIA

Page 101
Oct 15/2021

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

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
730 110 51	Engine flameout: engine restart not OK, F/F zero - engine 1.	73-06 TASK 808
730 110 52	Engine flameout: engine restart not OK, F/F zero - engine 2.	73-06 TASK 808
730 120 51	Engine flameout: engine restart not OK, VIB high - engine 1.	71-05 TASK 808
730 120 52	Engine flameout: engine restart not OK, VIB high - engine 2.	71-05 TASK 808
730 130 51	Engine flameout: engine restart not OK, low windmill N2 - engine 1.	73-06 TASK 808
730 130 52	Engine flameout: engine restart not OK, low windmill N2 - engine 2.	73-06 TASK 808
730 140 51	Engine flameout: engine restart not OK, unknown/other reasons - engine 1.	73-06 TASK 808
730 140 52	Engine flameout: engine restart not OK, unknown/other reasons - engine 2.	73-06 TASK 808
730 150 51	Engine flameout: engine restart not attempted; record engine condition - engine 1.	73-06 TASK 808
730 150 52	Engine flameout: engine restart not attempted; record engine condition - engine 2.	73-06 TASK 808
730 160 51	Engine fuel indication: FF, N1, N2, and EGT read low or fluctuate - engine 1.	73-06 TASK 809
730 160 52	Engine fuel indication: FF, N1, N2, and EGT read low or fluctuate - engine 2.	73-06 TASK 809
730 170 51	Engine fuel indication: fuel flow is high, engine parameters (EGT, N1, N2) normal - engine 1.	73-07 TASK 802
730 170 52	Engine fuel indication: fuel flow is high, engine parameters (EGT, N1, N2) normal - engine 2.	73-07 TASK 802
730 180 51	Engine fuel indication: fuel flow is intermittent or blank, engine parameters (EGT, N1, N2, and fuel used) normal - engine 1.	73-07 TASK 802
730 180 52	Engine fuel indication: fuel flow is intermittent or blank, engine parameters (EGT, N1, N2, and fuel used) normal - engine 2.	73-07 TASK 802
730 190 51	Engine fuel indication: fuel flow is zero or low, engine parameters (EGT, N1, N2, and fuel used) normal - engine 1.	73-07 TASK 802
730 190 52	Engine fuel indication: fuel flow is zero or low, engine parameters (EGT, N1, N2, and fuel used) normal - engine 2.	73-07 TASK 802
730 200 51	Engine fuel indication: fuel flow is zero or low, engine parameters (EGT, N1, N2) not normal and fuel used is low - engine 1.	73-06 TASK 809
730 200 52	Engine fuel indication: fuel flow is zero or low, engine parameters (EGT, N1, N2) not normal and fuel used is low - engine 2.	73-06 TASK 809
730 210 51	Engine fuel indication: fuel used indication not normal, fuel flow normal - engine 1.	73-07 TASK 801

 EFFECTIVITY
SIA ALL

73-FAULT CODE INDEX

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

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
730 210 52	Engine fuel indication: fuel used indication not normal, fuel flow normal - engine 2.	73-07 TASK 801
730 220 51	Engine idle speed: Approach idle speed high - engine 1.	73-05 TASK 806
730 220 52	Engine idle speed: Approach idle speed high - engine 2.	73-05 TASK 806
730 230 51	Engine idle speed: Approach idle speed low, ENG ANTI-ICE switch at ON - engine 1.	73-07 TASK 803
730 230 52	Engine idle speed: Approach idle speed low, ENG ANTI-ICE switch at ON - engine 2.	73-07 TASK 803
730 240 51	Engine idle speed: Approach idle speed low, landing flaps selected - engine 1.	73-07 TASK 804
730 240 52	Engine idle speed: Approach idle speed low, landing flaps selected - engine 2.	73-07 TASK 804
730 250 51	Engine idle speed: Approach idle speed low, landing flaps selected and ENG ANTI-ICE switch at ON - engine 1.	73-07 TASK 803
730 250 52	Engine idle speed: Approach idle speed low, landing flaps selected and ENG ANTI-ICE switch at ON - engine 2.	73-07 TASK 803
730 260 51	Engine idle speed: minimum idle speed high - engine 1.	73-05 TASK 807
730 260 52	Engine idle speed: minimum idle speed high - engine 2.	73-05 TASK 807
730 270 51	Engine idle speed: minimum idle speed low - engine 1.	73-05 TASK 807
730 270 52	Engine idle speed: minimum idle speed low - engine 2.	73-05 TASK 807
730 280 51	Engine takeoff thrust: low - engine 1.	73-05 TASK 808
730 280 52	Engine takeoff thrust: low - engine 2.	73-05 TASK 808
730 300 51	Engine thrust loss (automatic deceleration): With no movement of thrust levers, engine parameters normal - engine 1.	73-06 TASK 812
730 300 52	Engine thrust loss (automatic deceleration): With no movement of thrust levers, engine parameters normal - engine 2.	73-06 TASK 812
730 310 51	Engine thrust loss (automatic deceleration): With no movement of thrust levers, engine parameters not normal (VIB high) - engine 1.	71-05 TASK 808
730 310 52	Engine thrust loss (automatic deceleration): With no movement of thrust levers, engine parameters not normal (VIB high) - engine 2.	71-05 TASK 808
730 320 51	FILTER BYPASS light: light on - engine 1.	73-05 TASK 801
730 320 52	FILTER BYPASS light: light on - engine 2.	73-05 TASK 801
730 330 51	ENGINE CONTROL light: light does not come ON during the EEC Test - engine 1.	73-06 TASK 813
730 330 52	ENGINE CONTROL light: light does not come ON during the EEC Test - engine 2.	73-06 TASK 813
730 340 51	FILTER BYPASS light: light does not come ON during the EEC Test - engine 1.	73-05 TASK 812

EFFECTIVITY
SIA ALL

73-FAULT CODE INDEX

D633A103-SIA

Page 103
Oct 15/2021

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

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
730 340 52	FILTER BYPASS light: light does not come ON during the EEC Test - engine 2.	73-05 TASK 812
730 350 51	ALTN mode light for the EEC: light does not come ON during the EEC Test - engine 1.	73-05 TASK 810
730 350 52	ALTN mode light for the EEC: light does not come ON during the EEC Test - engine 2.	73-05 TASK 810
730 400 51	Engine BITE: CH A EEC DATA NOT AVAILABLE shows on the CDU - engine 1.	73-05 TASK 803
730 400 52	Engine BITE: CH A EEC DATA NOT AVAILABLE shows on the CDU - engine 2.	73-05 TASK 803
730 410 51	Engine BITE: CH B EEC DATA NOT AVAILABLE shows on the CDU - engine 1.	73-05 TASK 803
730 410 52	Engine BITE: CH B EEC DATA NOT AVAILABLE shows on the CDU - engine 2.	73-05 TASK 803
730 420 51	Engine BITE: BITE INOP shows on the CDU - engine 1.	73-05 TASK 802
730 420 52	Engine BITE: BITE INOP shows on the CDU - engine 2.	73-05 TASK 802
730 430 51	EEC: does not power-up - engine 1.	73-05 TASK 804
730 430 52	EEC: does not power-up - engine 2.	73-05 TASK 804
730 440 51	Engine BITE: ENGINE MAINTENANCE CAN NOT BE ACCESSED - THE ENGINE'S FLIGHT INDICATOR SHOWS FLIGHT shows on the CDU, airplane is on the ground - engine 1.	73-05 TASK 813
730 440 52	Engine BITE: ENGINE MAINTENANCE CAN NOT BE ACCESSED - THE ENGINE'S FLIGHT INDICATOR SHOWS FLIGHT shows on the CDU, airplane is on the ground - engine 2.	73-05 TASK 813
730 450 51	Engine BITE: maintenance message does not erase - engine 1.	73-06 TASK 814
730 450 52	Engine BITE: maintenance message does not erase - engine 2.	73-06 TASK 814
730 456 51	Engine BITE: FLIGHT LEGS BETWEEN CHANNEL A AND CHANNEL B ARE NOT SYNCHRONIZED shows on Recent Faults page or Fault History page - engine 1.	73-05 TASK 815
730 456 52	Engine BITE: FLIGHT LEGS BETWEEN CHANNEL A AND CHANNEL B ARE NOT SYNCHRONIZED shows on Recent Faults page or Fault History page - engine 2.	73-05 TASK 815

 EFFECTIVITY
SIA ALL

73-FAULT CODE INDEX

D633A103-SIA

 Page 104
Oct 15/2021

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

<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 INTROGTR	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

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

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

<u>LRU/SYSTEM</u>	<u>SHORT NAME</u>	<u>CHAPTER</u>
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

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 102
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-10011 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10051 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10061 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10091 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-10111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10121 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-10151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-10161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-10241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-10251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-10261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-10271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-10281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 103
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-10321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-10331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-10341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 1	73-10351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 1	73-10611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-10621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 1	73-10631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-10641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-10651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 1	73-10661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-10671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-10741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-10771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-10781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-10811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-10901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-11051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-11061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-11071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-11081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 104
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-11111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-11161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-11191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-11201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-11211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-11221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-11231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-11241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-11251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-11281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-11291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-11321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-11331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-11351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-11371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-11381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-11391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-11411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-11421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-11431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-11441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-11451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-11461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 105
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-11551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-11581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-11591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-11601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 1	73-11611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 1	73-11621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-11631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 1	73-11641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-11651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-11661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-11671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-11681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-11691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-11701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-11711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-11721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-11731 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 1	73-11741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-20011 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20051 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20061 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 106
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-20071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20091 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-20111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20121 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-20151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-20161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-20241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-20251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-20261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-20271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-20281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 1	73-20321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-20331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-20341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 1	73-20351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 107
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-20611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-20621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 1	73-20631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-20641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-20651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 1	73-20661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-20671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-20741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-20771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-20781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-20811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-20901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-21051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-21061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-21081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-21191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-21201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 108
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-21211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-21221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-21231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-21241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-21251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-21281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-21291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-21321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-21331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-21351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-21371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-21381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-21391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-21411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-21421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-21431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-21441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-21451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-21461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 1	73-21551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-21581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-21591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-21601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 109
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-21611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 1	73-21621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-21631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 1	73-21641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-21651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-21661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-21671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-21681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-21691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-21701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-21711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-21721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-21731 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 1	73-21741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-30011 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30051 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30061 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30091 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-30111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30121 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 110
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-30131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-30151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-30161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-30241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-30251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-30261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-30271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-30281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 1	73-30321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-30331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-30341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 1	73-30351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 1	73-30611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-30621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 1	73-30631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-30641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-30651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 111
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-30661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-30671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-30741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-30771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-30781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-30811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-30901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-31051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-31061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-31081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-31191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-31201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-31211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-31221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-31231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-31241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 112
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-31251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-31281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-31291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-31321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-31331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-31351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-31371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-31381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-31391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-31411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-31421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-31431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-31441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-31451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-31461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 1	73-31551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-31581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-31591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-31601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 1	73-31611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 1	73-31621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-31631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 113
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-31641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-31651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-31661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-31671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-31681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-31691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-31701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-31711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-31721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-31741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	74-10951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-10961 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 1	74-10971 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-10981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 1	74-10991 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-11001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-11301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-11311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-20951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-20961 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 1	74-20971 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-20981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 114
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	74-20991 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-21001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-21301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-21311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-30951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-30961 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 1	74-30971 THE APL INPUT VOLTAGE FOR THE L EXCITER IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-30981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 1	74-30991 THE APL INPUT VOLTAGE FOR THE L EXCITER IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-31001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-31301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-31311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	75-10291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-10361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-10371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-10381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-10391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-10401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 1	75-10411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-10421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 1	75-10431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-10441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-10451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 1	75-10461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-10471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 115
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-10481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-10491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-10501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-10521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-10531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-10541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-10551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-10571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-10581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-10591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-10601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-10801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-10821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-10831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-10881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	75-20291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-20361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-20371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-20381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-20391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-20401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 1	75-20411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-20421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 1	75-20431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-20441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-20451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 116
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-20461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-20471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-20481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-20491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-20501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-20521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-20531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-20541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-20551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-20571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-20581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-20591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-20601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-20801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-20821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-20831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-20881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	75-30291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-30361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-30371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-30381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-30391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-30401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 1	75-30411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-30421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 117
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-30431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-30441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-30451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 1	75-30461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-30471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-30481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-30491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-30501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-30521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-30531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-30541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-30551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-30571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-30581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-30591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-30601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-30801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-30821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-30831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-30881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	76-11361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 1	76-11561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-11571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-21361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 1	76-21561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-21571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 118
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	76-31361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 1	76-31561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-31571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	77-10841 THE TOP RIGHT EGT SIGNAL (T495S1) IS OUT OF RANGE	77-21 TASK 801
ENGINE - 1	77-10851 THE BOTTOM RIGHT EGT SIGNAL (T495S2) IS OUT OF RANGE	77-21 TASK 802
ENGINE - 1	77-11131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-11171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-11181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	77-20861 THE BOTTOM LEFT EGT SIGNAL (T495S3) IS OUT OF RANGE	77-21 TASK 803
ENGINE - 1	77-20871 THE TOP LEFT EGT SIGNAL (T495S4) IS OUT OF RANGE	77-21 TASK 804
ENGINE - 1	77-21131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-21171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-21181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	77-31131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-31171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-31181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	78-11471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 1	78-11481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-11491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-11501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-11511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-11521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 1	78-11531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-11541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	78-21471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 119
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	78-21481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-21491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-21501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-21511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-21521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 1	78-21531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-21541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	78-31471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 1	78-31481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-31491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-31501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-31511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-31521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 1	78-31531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-31541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	79-11091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 1	79-11101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-11121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 1	79-11151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-11341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 1	79-21091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 120
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	79-21101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-21121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 1	79-21151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-21341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 1	79-31091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 1	79-31101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-31121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 1	79-31151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-31341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	73-10012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-10112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-10152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-10162 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10192 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10212 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 121
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-10222 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 2	73-10242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-10252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 2	73-10262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-10272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-10282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-10322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-10332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-10342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-10352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-10612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-10622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-10632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-10642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-10652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-10662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-10672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-10682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-10692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-10702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 122
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-10712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-10722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-10732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 2	73-10742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-10772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-10782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-10812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-10902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-11052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-11062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-11082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-11192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-11202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-11212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-11222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-11232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-11242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-11252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-11262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-11272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-11282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 2	73-11292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 123
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-11322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-11332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 2	73-11352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 2	73-11372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-11382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-11392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 2	73-11412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-11422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-11432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-11442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-11452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-11462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-11552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-11582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-11592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-11602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-11612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-11622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-11632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-11642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-11652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 2	73-11662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-11672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 2	73-11682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 124
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-11692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 2	73-11702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 2	73-11712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-11722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-11732 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 2	73-11742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-11752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-20012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-20112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-20152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-20162 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20192 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20212 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20222 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 125
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-20242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-20252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 2	73-20262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-20272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-20282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-20322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-20332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-20342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-20352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-20612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-20622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-20632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-20642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-20652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-20662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-20672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-20682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-20692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-20702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 126
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-20742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-20772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-20782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-20812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-20902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-21052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-21062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-21082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-21192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-21202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-21212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-21222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-21232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-21242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-21252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-21282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 2	73-21292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 2	73-21322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-21332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 2	73-21352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 127
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-21372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-21382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-21392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 2	73-21412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-21422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-21432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-21442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-21452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-21462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-21552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-21582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-21592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-21602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-21612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-21622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-21632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-21642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-21652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 2	73-21662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-21672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 2	73-21682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 2	73-21692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 2	73-21702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 128
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-21712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-21722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-21732 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 2	73-21742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-30012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-30112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-30152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-30162 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30192 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30212 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30222 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 2	73-30242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-30252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 129
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-30262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-30272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-30282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-30302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-30312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-30322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-30332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-30342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-30352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-30612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-30622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-30632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-30642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-30652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-30662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-30672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-30712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-30722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-30732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 2	73-30742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-30772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-30782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 130
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-30792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-30812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-30902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-31052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-31062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-31082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-31192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-31202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-31212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-31222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-31232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-31242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-31252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-31262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-31272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-31282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 2	73-31292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 2	73-31322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-31332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 2	73-31352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 2	73-31372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-31382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-31392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 131
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-31412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-31422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-31432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-31442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-31452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-31462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-31552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-31582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-31592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-31602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-31612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-31622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-31632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-31642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-31652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 2	73-31662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-31672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 2	73-31682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 2	73-31692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 2	73-31702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 2	73-31712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-31722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-31742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 132
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-31752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	74-10952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-10962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-10972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-10982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 2	74-10992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-11002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-11302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-11312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-20952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-20962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-20972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-20982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 2	74-20992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-21002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-21302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-21312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-30952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-30962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-30972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-30982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 2	74-30992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-31002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-31302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-31312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 133
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-10292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-10362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-10372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-10382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-10392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-10402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-10412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-10422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-10432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-10442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-10452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-10462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-10472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-10482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-10492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-10502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-10522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-10532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 2	75-10542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-10552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 2	75-10572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-10582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 2	75-10592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-10602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-10802 T25 SIGNALS DISAGREE	75-33 TASK 805

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 134
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-10822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-10832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-10882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	75-20292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-20362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-20372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-20382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-20392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-20402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-20412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-20422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-20432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-20442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-20452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-20462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-20472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-20482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-20492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-20502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-20522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-20532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 2	75-20542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-20552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 2	75-20572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-20582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 135
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-20592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-20602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-20802 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 2	75-20822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-20832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-20882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	75-30292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-30362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-30372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-30382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-30392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-30402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-30412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-30422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-30432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-30442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-30452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-30462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-30472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-30482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-30492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-30502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-30522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-30532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 2	75-30542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-30552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803

 EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

 Page 136
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-30572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-30582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 2	75-30592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-30602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-30802 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 2	75-30822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-30832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-30882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	76-11362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-11562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-11572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-21362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-21562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-21572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-31362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-31562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-31572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	77-10842 THE TOP RIGHT EGT SIGNAL (T495S1) IS OUT OF RANGE	77-21 TASK 801
ENGINE - 2	77-10852 THE BOTTOM RIGHT EGT SIGNAL (T495S2) IS OUT OF RANGE	77-21 TASK 802
ENGINE - 2	77-11132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-11172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-11182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 2	77-20862 THE BOTTOM LEFT EGT SIGNAL (T495S3) IS OUT OF RANGE	77-21 TASK 803
ENGINE - 2	77-20872 THE TOP LEFT EGT SIGNAL (T495S4) IS OUT OF RANGE	77-21 TASK 804
ENGINE - 2	77-21132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-21172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-21182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 137
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	77-31132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-31172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-31182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 2	78-11472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-11482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-11492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 2	78-11502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-11512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-11522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-11532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 2	78-11542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	78-21472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-21482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-21492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 2	78-21502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-21512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-21522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-21532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 2	78-21542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	78-31472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-31482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-31492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 138
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	78-31502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-31512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-31522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-31532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 2	78-31542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	79-11092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-11102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-11122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 2	79-11152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-11342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	79-21092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-21102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-21122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 2	79-21152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-21342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	79-31092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-31102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-31122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 2	79-31152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-31342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809

EFFECTIVITY
SIA ALL

73-MAINT MSG INDEX

D633A103-SIA

Page 139
Oct 15/2023

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

801. EEC BITE Procedure

A. General

- (1) You do the Electronic Engine Control (EEC) BITE procedure from the FMCS Control Display Unit (FMCS CDU).
- (2) The Engine RECENT FAULTS shows maintenance messages for the three most recent flight legs that are stored in the EEC.
- (3) The Engine FAULT HISTORY shows maintenance messages for the ten most recent flight legs that are stored in the EEC.
 - (a) The FMCS CDU shows the maintenance messages for only one engine at a time.
- (4) The FMCS CDU shows only one maintenance message on each screen.
 - (a) The FMCS CDU shows the page you are on and the total number of pages.
NOTE: If the FMCS CDU screen shows 2/4, you are on page 2 of 4 pages.
- (5) There are five categories of maintenance messages. The time limited dispatch limits which are given below are for on-condition events.
NOTE: The CFM56-7B Engine Shop Manual (CFMI-TP.SM.10), ATA 05-17-01 is the certified authority for the Time Limited Dispatch.
 - (a) ENGINE CONTROL LIGHT Faults - You can not dispatch the airplane with this fault.
NOTE: These faults cause the ENGINE CONTROL Light to come ON.
 - (b) ALTERNATE MODE LIGHT Fault - Refer to the Minimum Equipment List (MEL) for the dispatch limits.
NOTE: These faults cause the ALTN Mode Light to come ON.
 - (c) SHORT TIME Fault - Calculate the remaining flight hours that you can operate with this fault as follows:
 - 1) The remaining Flight Hours (R) = 150 flight hours - "Q", where "Q" is the scheduled maintenance interval your airline uses to check the EEC BITE - RECENT FAULTS, SHORT TIME category.
NOTE: If your airline looks for EEC faults every 70 flight hour, then "Q" = 70. If your airline looks for EEC faults every 150 flight hours, then "Q" = 150.
 - (d) LONG TIME Fault - Calculate the remaining flight hours that you can operate with this fault as follows:
 - 1) The remaining Flight Hours (T) = 500 flight hours - "S/2", where "S/2" is one half of the scheduled maintenance interval your airline uses to check the EEC BITE - RECENT FAULTS, LONG TIME category.
NOTE: If your airline looks for EEC faults every 70 flight hour, then "S/2" = 35. If your airline looks for EEC faults every 150 flight hours, then "S/2" = 75.
 - (e) ECONOMIC Awareness Fault - There are no time limits for dispatch. Repair the problem at the next convenient opportunity.
- (6) RECENT FAULTS
 - (a) The recent faults function will show the maintenance messages for the most recent three flight legs and one ground operation.
 - (b) Flight legs 1 through 3 are the three most recent flight legs.
 - (c) Flight leg 0:

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

- 1) This flight leg can show maintenance messages that occur more than 30 seconds after landing from the last flight leg.
- 2) This flight leg can show the most recent ground run of the engine.

NOTE: If the engine is started and stopped more than once between flights, Flight Leg 0 will contain data from the last ground run of the engine.

- (d) The X below the flight leg number indicates the fault occurred on that flight leg.
- (e) For flight legs that did not have a fault, the space below the flight legs number is blank.

(7) FAULT HISTORY

- (a) The fault history function will show the maintenance messages for the ten most recent flight legs and one ground operation.
- (b) The fault displays for RECENT FAULTS and FAULT HISTORY are the same; but, FAULT HISTORY adds data for flight legs 4 through 10.
 - 1) Flight leg 1 shows the data for the most recent flight leg.
 - 2) Flight leg 10 shows the data for the oldest flight leg that is stored in the FAULT HISTORY.

B. BITE Procedure

- (1) Do these steps to get the RECENT FAULTS or FAULT HISTORY data for Engine 1 or Engine 2: (Figure 201)

- (a) If you are not at one of the ENGINE 1 or ENGINE 2 BITE TEST displays, then do these steps:

NOTE: The FMCS CDU does not support a type-ahead function. You must have the prompt on the FMCS CDU screen before you type in the response.

- 1) Push the INIT REF function key.
- 2) If the PERF INIT display shows, then push the line select key next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the line select key (LSK) next to the MAINT prompt.

- (b) From the MAINT BITE INDEX, push the line select key (LSK) next to the ENGINE prompt.

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.

- (c) Push the LSK next to the Applicable ENGINE X, (X = 1 or 2) prompt.

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The FMCS CDU will show INITIALIZING EEC X and EEC SORTING FAULT HISTORY DATA, for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

- (d) Push the LSK next to the RECENT FAULTS or FAULT HISTORY LSK prompt.

NOTE: This LSK causes the applicable Fault screen to show. The LSK next to the INDEX prompt will send you back to the ENGINE X BITE TEST MAIN MENU.

- 1) If the FOR CH A ONLY or FOR CH B ONLY screen continues to show, do this task:
CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation, 73-05 TASK 803.
- 2) Record this data from each maintenance message screen:

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

a) The Dispatch Level

NOTE: The dispatch level will show at the top of the screen. The FMCS CDU will show the faults in the order of their dispatch level. The ENGINE CONTROL LIGHT faults will show first, then the ALTERNATE MODE LIGHT faults, then the SHORT TIME faults, then the LONG TIME faults, and last the ECONOMIC awareness faults. Refer to the CFM56-7B Engine Shop Manual 05-17-01, or the General Statement of this procedure for the Time Limited Dispatch capabilities for each category of message.

b) Maintenance Message Number

NOTE: A seven digit number with this format: AA - XDDDN. AA = ATA Chapter, X = EEC Channel (1=Channel A, 2=Channel B, 3=Channels A and B), DDD = a unique fault number, and N = Engine Position (1=Engine 1, 2=Engine 2). If the message is reported with an engine position equal to zero, then for the applicable engine do the corrective action for Engine Position Signal is out of Range (73-22 TASK 806).

3) Push the NEXT PAGE key to see the subsequent maintenance message.

a) Continue to push the NEXT PAGE key until all of the applicable maintenance message data that is stored in the system is recorded.

b) If the ENGINE CONTROL light was ON and none of the engine control light messages show during the EEC BITE Test, then, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

c) Look for one or more of these maintenance messages:

d) 73-10201, 73-10202, 73-20201 73-20202, 73-30201, 73-30202, 73-10211, 73-10212, 73-20211 73-20212, 73-30211, 73-30212, 73-10221, 73-10222, 73-20221 73-20222, 73-30221 or 73-30222.

NOTE: These INTERNAL EEC maintenance messages can set the ENGINE CONTROL light, but the problem that causes the fault also causes problems with the EEC BITE Test. When this occurs, the EEC cannot write to the EEC fault memory.

e) Do the corrective action for these maintenance messages that you find.

4) Push the PREV PAGE key to go back to the previous message.

5) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

(e) If the fault data is not available from one of the two channels (A or B) of the EEC, the screen will show the EEC channel that has data.

1) Example:

a) FOR CH B ONLY, CH A EEC DATA NOT AVAILABLE, CAN NOT ACCESS CH A

b) FOR CH A ONLY, CH B EEC DATA NOT AVAILABLE, CAN NOT ACCESS CH B

(f) To end the EEC BITE Test, push the INIT REF key to send you back to the PERF INIT screen.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-10011 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-10021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10051 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10061 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10091 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-10111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10121 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-10151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-10161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-10231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-10241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-10251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-10261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-10271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-10281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-10321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-10331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-10341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 1	73-10351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 1	73-10611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-10621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 1	73-10631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-10641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-10651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 1	73-10661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-10671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-10701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-10731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-10741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-10771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-10781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-10791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-10811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-10901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-11051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-11061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-11071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-11081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 205
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-11111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-11161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-11191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-11201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-11211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-11221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-11231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-11241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-11251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-11281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-11291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-11321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-11331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-11351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-11371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-11381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-11391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-11411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-11421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-11431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-11441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-11451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-11461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 206
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-11551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-11581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-11591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-11601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 1	73-11611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 1	73-11621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-11631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 1	73-11641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-11651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-11661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-11671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-11681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-11691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-11701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-11711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-11721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-11731 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 1	73-11741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-11751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-20011 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20051 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 207
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-20061 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20091 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-20111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20121 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-20151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-20161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-20231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-20241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-20251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-20261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-20271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-20281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 1	73-20321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-20331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-20341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803

 EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

 Page 208
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-20351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 1	73-20611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-20621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 1	73-20631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-20641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-20651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 1	73-20661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-20671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-20701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-20731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-20741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-20771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-20781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-20791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-20811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-20901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-21051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-21061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-21081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-21161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-21191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 209
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-21201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-21211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-21221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-21231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-21241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-21251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-21281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-21291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-21321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-21331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-21351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-21371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-21381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-21391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-21411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-21421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-21431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-21441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-21451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-21461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 1	73-21551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-21581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 210
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-21591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-21601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 1	73-21611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 1	73-21621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-21631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 1	73-21641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-21651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-21661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-21671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-21681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-21691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-21701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-21711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-21721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-21731 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 1	73-21741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-21751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-30011 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30021 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30031 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30041 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30051 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30061 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30071 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30081 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30091 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 211
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-30101 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 1	73-30111 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30121 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30131 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30141 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 1	73-30151 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 1	73-30161 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30171 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30181 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30191 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30201 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30211 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30221 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 1	73-30231 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 1	73-30241 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 1	73-30251 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 1	73-30261 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 1	73-30271 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 1	73-30281 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30301 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30311 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 1	73-30321 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 1	73-30331 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 1	73-30341 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 1	73-30351 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 1	73-30611 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 1	73-30621 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801

 EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

 Page 212
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-30631 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 1	73-30641 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 1	73-30651 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 1	73-30661 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 1	73-30671 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30681 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30691 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 1	73-30701 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30711 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30721 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 1	73-30731 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 1	73-30741 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 1	73-30771 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 1	73-30781 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-30791 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 1	73-30811 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 1	73-30901 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 1	73-31051 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 1	73-31061 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31071 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 1	73-31081 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31111 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 1	73-31161 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 1	73-31191 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-31201 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 1	73-31211 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 1	73-31221 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 213
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-31231 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-31241 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 1	73-31251 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31261 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31271 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 1	73-31281 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 1	73-31291 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 1	73-31321 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 1	73-31331 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 1	73-31351 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 1	73-31371 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 1	73-31381 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 1	73-31391 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 1	73-31411 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 1	73-31421 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 1	73-31431 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 1	73-31441 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 1	73-31451 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 1	73-31461 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 1	73-31551 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 1	73-31581 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-31591 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 1	73-31601 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 1	73-31611 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 214
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	73-31621 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 1	73-31631 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 1	73-31641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 1	73-31651 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 1	73-31661 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 1	73-31671 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 1	73-31681 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 1	73-31691 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 1	73-31701 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 1	73-31711 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 1	73-31721 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 1	73-31741 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	73-31751 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 1	74-10951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-10961 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 1	74-10971 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-10981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 1	74-10991 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-11001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-11301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-11311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-20951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-20961 IGN R (IGN 2) IS FAILED	74-21 TASK 807

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 215
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	74-20971 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-20981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 1	74-20991 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-21001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-21301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-21311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-30951 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 1	74-30961 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 1	74-30971 THE APL INPUT VOLTAGE FOR THE L EXCITER IS OUT OF RANGE	74-21 TASK 801
ENGINE - 1	74-30981 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 1	74-30991 THE APL INPUT VOLTAGE FOR THE L EXCITER IS ALWAYS ON	74-21 TASK 803
ENGINE - 1	74-31001 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 1	74-31301 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	74-31311 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 1	75-10291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-10361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-10371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-10381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-10391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-10401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 1	75-10411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-10421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 1	75-10431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-10441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-10451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 216
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-10461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-10471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-10481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-10491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-10501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-10521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-10531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-10541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-10551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-10571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-10581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-10591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-10601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-10801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-10821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-10831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-10881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	75-20291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-20361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-20371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-20381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-20391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-20401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 1	75-20411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-20421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 217
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-20431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-20441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-20451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 1	75-20461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-20471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-20481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-20491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-20501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-20521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-20531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-20541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-20551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-20571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-20581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-20591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-20601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-20801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-20821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-20831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-20881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	75-30291 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-30361 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-30371 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 1	75-30381 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 1	75-30391 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 1	75-30401 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 218
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	75-30411 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-30421 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 1	75-30431 THE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 1	75-30441 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 1	75-30451 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 1	75-30461 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-30471 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 1	75-30481 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 1	75-30491 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 1	75-30501 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 1	75-30521 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 1	75-30531 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 1	75-30541 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 1	75-30551 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 1	75-30571 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 1	75-30581 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 1	75-30591 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 1	75-30601 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 1	75-30801 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 1	75-30821 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 1	75-30831 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 1	75-30881 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 1	76-11361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 1	76-11561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-11571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-21361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 219
Oct 15/2021

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	76-21561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-21571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-31361 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 1	76-31561 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	76-31571 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 1	77-10841 THE TOP RIGHT EGT SIGNAL (T495S1) IS OUT OF RANGE	77-21 TASK 801
ENGINE - 1	77-10851 THE BOTTOM RIGHT EGT SIGNAL (T495S2) IS OUT OF RANGE	77-21 TASK 802
ENGINE - 1	77-11131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-11171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-11181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	77-20861 THE BOTTOM LEFT EGT SIGNAL (T495S3) IS OUT OF RANGE	77-21 TASK 803
ENGINE - 1	77-20871 THE TOP LEFT EGT SIGNAL (T495S4) IS OUT OF RANGE	77-21 TASK 804
ENGINE - 1	77-21131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-21171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-21181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	77-31131 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 1	77-31171 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 1	77-31181 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 1	78-11471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 1	78-11481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-11491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-11501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-11511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-11521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 220
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	78-11531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-11541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	78-21471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 1	78-21481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-21491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-21501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-21511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-21521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 1	78-21531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-21541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	78-31471 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 1	78-31481 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 1	78-31491 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 1	78-31501 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 1	78-31511 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 1	78-31521 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 1	78-31531 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 1	78-31541 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 1	79-11091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 1	79-11101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-11121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 221
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 1	79-11151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-11341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 1	79-21091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 1	79-21101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-21121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 1	79-21151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-21341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 1	79-31091 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 1	79-31101 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 1	79-31121 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 1	79-31151 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 1	79-31341 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	73-10012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-10112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-10152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-10162 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 222
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-10172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10192 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10212 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10222 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-10232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 2	73-10242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-10252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 2	73-10262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-10272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-10282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-10322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-10332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-10342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-10352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-10612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-10622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-10632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-10642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-10652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-10662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-10672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 223
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-10682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-10692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-10702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-10712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-10722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-10732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 2	73-10742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-10772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-10782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-10792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-10812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-10902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-11052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-11062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-11082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-11162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-11192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-11202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-11212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-11222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-11232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-11242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-11252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-11262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 224
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-11272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-11282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 2	73-11292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 2	73-11322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-11332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 2	73-11352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 2	73-11372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-11382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-11392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 2	73-11412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-11422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-11432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-11442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-11452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-11462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-11552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-11582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-11592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-11602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-11612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-11622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-11632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-11642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-11652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 225
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-11662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-11672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 2	73-11682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 2	73-11692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 2	73-11702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 2	73-11712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-11722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-11732 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 2	73-11742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-11752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-20012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-20112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-20152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-20162 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20192 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 226
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-20202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20212 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20222 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-20232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 2	73-20242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-20252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 2	73-20262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-20272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-20282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-20322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-20332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-20342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-20352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-20612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-20622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-20632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-20642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-20652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-20662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-20672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-20682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-20692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 227
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-20702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-20732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 2	73-20742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-20772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-20782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-20792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-20812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-20902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-21052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-21062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-21082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-21162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-21192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-21202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-21212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-21222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-21232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-21242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-21252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-21282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 228
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-21292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 2	73-21322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-21332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802
ENGINE - 2	73-21352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 2	73-21372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-21382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-21392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 2	73-21412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-21422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-21432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-21442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-21452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-21462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-21552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-21582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-21592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-21602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-21612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-21622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-21632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-21642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-21652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 2	73-21662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-21672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 229
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-21682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 2	73-21692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806
ENGINE - 2	73-21702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 2	73-21712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-21722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-21732 CROSS CHANNEL IN CONTINUOUS RESET	73-21 TASK 801
ENGINE - 2	73-21742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-21752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-30012 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30022 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30032 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30042 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30052 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30062 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30072 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30082 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30092 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30102 INTERNAL EEC FAULT	73-21 TASK 807
ENGINE - 2	73-30112 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30122 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30132 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30142 INTERNAL EEC S/W VERSIONS DISAGREE	73-21 TASK 802
ENGINE - 2	73-30152 EEC OUTPUT BUS IS NOT AVAILABLE	73-21 TASK 801
ENGINE - 2	73-30162 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30172 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30182 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30192 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30202 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30212 INTERNAL EEC FAULT	73-21 TASK 801
ENGINE - 2	73-30222 INTERNAL EEC FAULT	73-21 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 230
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-30232 THE EEC TEMPERATURE WAS MORE THAN 105 DEG C	73-21 TASK 803
ENGINE - 2	73-30242 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS OFF	73-21 TASK 804
ENGINE - 2	73-30252 INTERNAL EEC FAULT. THE ALTN MODE LIGHT IS ALWAYS ON	73-21 TASK 804
ENGINE - 2	73-30262 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS ALWAYS ON	73-21 TASK 805
ENGINE - 2	73-30272 INTERNAL EEC FAULT. THE T/R LEVER INTLK IS NOT AVAILABLE	73-21 TASK 806
ENGINE - 2	73-30282 INTERNAL EEC FAULT. ALTN MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-30302 INTERNAL EEC FAULT. THE PMUX SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-30312 THE START SWITCH SIGNAL AND ARINC BUS DATA DISAGREE	73-24 TASK 813
ENGINE - 2	73-30322 THE HMU FMV CONTROL CURRENT IS OUT OF RANGE	73-25 TASK 801
ENGINE - 2	73-30332 THE FMV DEMAND AND POSITION SIGNALS DISAGREE	73-25 TASK 802
ENGINE - 2	73-30342 THE FMV POSITION SIGNAL IS OUT OF RANGE	73-25 TASK 803
ENGINE - 2	73-30352 THE FMV POSITION SIGNALS DISAGREE	73-25 TASK 804
ENGINE - 2	73-30612 INTERNAL EEC PRESSURES ARE OUT OF RANGE	73-22 TASK 801
ENGINE - 2	73-30622 THE HMU BSV CONTROL CURRENT IS OUT OF RANGE	73-27 TASK 801
ENGINE - 2	73-30632 THE BSV IS ALWAYS CLOSED	73-27 TASK 802
ENGINE - 2	73-30642 THE BSV IS ALWAYS OPEN	73-27 TASK 813
ENGINE - 2	73-30652 THE BSV POSITION SIGNALS DISAGREE	73-27 TASK 803
ENGINE - 2	73-30662 AIR GROUND SYSTEM 1 AIR GROUND SYSTEM 2 DISAGREE	73-24 TASK 807
ENGINE - 2	73-30672 DEU1 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30682 DEU2 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30692 AIR GROUND SYSTEM 1 IS NOT AVAILABLE	73-24 TASK 808
ENGINE - 2	73-30702 DEU1 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-30712 DEU2 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809

 EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

 Page 231
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-30722 AIR GROUND SYSTEM 2 IS NOT AVAILABLE	73-24 TASK 809
ENGINE - 2	73-30732 INTERNAL EEC ARINC RECEIVER 1 FAULT	73-21 TASK 801
ENGINE - 2	73-30742 INTERNAL EEC ARINC RECEIVER 2 FAULT	73-21 TASK 801
ENGINE - 2	73-30772 THE PS3 SIGNAL IS OUT OF RANGE	73-26 TASK 803
ENGINE - 2	73-30782 INTERNAL EEC FAULT. BSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-30792 PS3 SIGNALS DISAGREE	73-26 TASK 806
ENGINE - 2	73-30812 THE T12 SIGNAL IS OUT OF RANGE	73-26 TASK 804
ENGINE - 2	73-30902 T12 SIGNALS DISAGREE	73-26 TASK 805
ENGINE - 2	73-31052 THE FUEL FLOW SIGNAL IS OUT OF RANGE	73-31 TASK 801
ENGINE - 2	73-31062 INTERNAL EEC FAULT. MSV POSITION SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31072 THE FUEL FILTER SIGNALS DISAGREE	73-05 TASK 801
ENGINE - 2	73-31082 INTERNAL EEC FAULT. THE START MODE SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31112 INTERNAL EEC FAULT. ADJUSTMENT CHECKSUMS DISAGREE	73-21 TASK 801
ENGINE - 2	73-31162 THE MECHANICAL OVERSPEED PROTECTION SIGNAL IS OUT OF RANGE	73-25 TASK 805
ENGINE - 2	73-31192 DEU1 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-31202 DEU2 CANNOT READ EEC CHANNEL A DATA	73-24 TASK 801
ENGINE - 2	73-31212 DEU1 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-31222 DEU2 CANNOT READ EEC CHANNEL B DATA	73-24 TASK 802
ENGINE - 2	73-31232 DEU1 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-31242 DEU2 LEFT AND RIGHT MLG POSITION DATA DISAGREE	73-24 TASK 812
ENGINE - 2	73-31252 DEU1 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-31262 DEU2 LEFT FLAPS-NOT-UP AND RIGHT FLAPS-NOT-UP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-31272 THE ALTERNATOR VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-27 TASK 804
ENGINE - 2	73-31282 EEC CHANNEL IS NOT ENERGIZED WITH THE ALTERNATOR VOLTAGE	73-27 TASK 805
ENGINE - 2	73-31292 DEU1 BLEED DATA AND DEU2 BLEED DATA DISAGREE	73-24 TASK 804
ENGINE - 2	73-31322 THE ENG IDENT SIGNAL IS OUT OF RANGE	73-22 TASK 803
ENGINE - 2	73-31332 THE N1 TRIM SIGNAL IS OUT OF RANGE	73-22 TASK 802

 EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

 Page 232
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-31352 THE APL VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	73-22 TASK 808
ENGINE - 2	73-31372 UPPER EGT SECTORS READING HIGH	73-11 TASK 801
ENGINE - 2	73-31382 THE ENG POSITION SIGNAL IS OUT OF RANGE	73-22 TASK 806
ENGINE - 2	73-31392 THE AIRPLANE MODEL SIGNAL IS OUT OF RANGE	73-22 TASK 807
ENGINE - 2	73-31412 THE ENG RATING SIGNAL IS OUT OF RANGE	73-22 TASK 804
ENGINE - 2	73-31422 THE AIRPLANE MODEL AND ENG MODEL SIGNALS DISAGREE	73-22 TASK 805
ENGINE - 2	73-31432 DEU1 DATA IS MISSING	73-24 TASK 814
ENGINE - 2	73-31442 DEU2 DATA IS MISSING	73-24 TASK 815
ENGINE - 2	73-31452 THE THRUST LEVER ANGLE POSITION SIGNAL IS OUT OF RANGE	73-23 TASK 801
ENGINE - 2	73-31462 THE THRUST LEVER ANGLE POSITION SIGNALS DISAGREE	73-23 TASK 802
ENGINE - 2	73-31552 FUEL FLOW WAS NOT DETECTED DURING START ATTEMPT	73-31 TASK 803
ENGINE - 2	73-31582 THE ALTN MODE SIGNAL AND DEU1 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-31592 THE ALTN MODE SIGNAL AND DEU2 DATA DISAGREE	73-23 TASK 803
ENGINE - 2	73-31602 ADIRU1 DATA FROM DEU1 IS MISSING	73-23 TASK 804
ENGINE - 2	73-31612 ADIRU2 DATA FROM DEU2 IS MISSING	73-23 TASK 804
ENGINE - 2	73-31622 THE ADIRU1 TOTAL PRESSURE DATA IS MISSING FROM DEU1	73-28 TASK 802
ENGINE - 2	73-31632 THE ADIRU2 TOTAL PRESSURE DATA IS MISSING FROM DEU2	73-28 TASK 802
ENGINE - 2	73-31642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE	73-28 TASK 803
ENGINE - 2	73-31652 THE ADIRU1 PITOT PROBE HEAT DATA IS MISSING FROM DEU1	73-28 TASK 804
ENGINE - 2	73-31662 THE ADIRU2 PITOT PROBE HEAT DATA IS MISSING FROM DEU2	73-28 TASK 804
ENGINE - 2	73-31672 THE PITOT PROBE HEAT WAS OFF DURING FLIGHT	73-28 TASK 807
ENGINE - 2	73-31682 ADIRU PS DATA AND THE ENG P0 SIGNAL DISAGREE	73-28 TASK 805
ENGINE - 2	73-31692 ADIRU1 AND ADIRU2 TAT DATA FROM DEU1 AND DEU2 IS MISSING	73-28 TASK 806

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 233
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	73-31702 ADIRU TAT DATA AND THE T12 SIGNAL DISAGREE	73-28 TASK 801
ENGINE - 2	73-31712 ADIRU1 TAT DATA AND ADIRU2 TAT DATA DISAGREE	73-28 TASK 808
ENGINE - 2	73-31722 FMV SLOW RESPONSE DETECTED	73-25 TASK 806
ENGINE - 2	73-31742 THE DEU1 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	73-31752 THE DEU2 FLAP AND R FLAP POSITION DATA DISAGREE	73-24 TASK 810
ENGINE - 2	74-10952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-10962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-10972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-10982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 2	74-10992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-11002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-11302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-11312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-20952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-20962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-20972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-20982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802
ENGINE - 2	74-20992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-21002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-21302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-21312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-30952 IGN L (IGN 1) IS FAILED	74-21 TASK 806
ENGINE - 2	74-30962 IGN R (IGN 2) IS FAILED	74-21 TASK 807
ENGINE - 2	74-30972 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE	74-21 TASK 801
ENGINE - 2	74-30982 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE	74-21 TASK 802

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 234
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	74-30992 THE APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON	74-21 TASK 803
ENGINE - 2	74-31002 THE APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON	74-21 TASK 804
ENGINE - 2	74-31302 DEU1 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	74-31312 DEU2 IGNITER DATA IS NOT CORRECT	74-21 TASK 805
ENGINE - 2	75-10292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-10362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-10372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-10382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-10392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-10402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-10412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-10422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-10432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-10442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-10452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-10462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-10472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-10482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-10492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-10502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-10522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-10532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 2	75-10542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-10552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 235
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-10572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-10582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 2	75-10592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-10602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-10802 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 2	75-10822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-10832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-10882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	75-20292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-20362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-20372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-20382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-20392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-20402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-20412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-20422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-20432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-20442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-20452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-20462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-20472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-20482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-20492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-20502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-20522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-20532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 236
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-20542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-20552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 2	75-20572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-20582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 2	75-20592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-20602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-20802 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 2	75-20822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-20832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-20882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	75-30292 THE HMU HPTACC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-30362 THE HPTACC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-30372 THE HMU VSV CONTROL CURRENT IS OUT OF RANGE	75-31 TASK 801
ENGINE - 2	75-30382 THE VSV DEMAND AND POSITION SIGNALS DISAGREE	75-31 TASK 802
ENGINE - 2	75-30392 THE VSV POSITION SIGNAL IS OUT OF RANGE	75-31 TASK 803
ENGINE - 2	75-30402 THE VSV POSITION SIGNALS DISAGREE	75-31 TASK 804
ENGINE - 2	75-30412 THE HPTACC POSITION SIGNALS DISAGREE	75-21 TASK 803
ENGINE - 2	75-30422 THE HMU VBV CONTROL CURRENT IS OUT OF RANGE	75-32 TASK 804
ENGINE - 2	75-30432 HE VBV DEMAND AND POSITION SIGNALS DISAGREE	75-32 TASK 801
ENGINE - 2	75-30442 THE VBV POSITION SIGNAL IS OUT OF RANGE	75-32 TASK 802
ENGINE - 2	75-30452 THE VBV POSITION SIGNALS DISAGREE	75-32 TASK 803
ENGINE - 2	75-30462 THE HPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-30472 THE HMU HPTC CONTROL CURRENT IS OUT OF RANGE	75-21 TASK 804
ENGINE - 2	75-30482 THE HPTC DEMAND AND POSITION SIGNALS DISAGREE	75-21 TASK 801
ENGINE - 2	75-30492 THE HPTC POSITION SIGNAL IS OUT OF RANGE	75-21 TASK 802
ENGINE - 2	75-30502 THE HPTC POSITION SIGNALS DISAGREE	75-21 TASK 803

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 237
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	75-30522 THE HMU LPTACC CONTROL CURRENT IS OUT OF RANGE	75-22 TASK 804
ENGINE - 2	75-30532 THE LPTACC DEMAND AND POSITION SIGNALS DISAGREE	75-22 TASK 801
ENGINE - 2	75-30542 THE LPTACC POSITION SIGNAL IS OUT OF RANGE	75-22 TASK 802
ENGINE - 2	75-30552 THE LPTACC POSITION SIGNALS DISAGREE	75-22 TASK 803
ENGINE - 2	75-30572 THE HMU TBV CONTROL CURRENT IS OUT OF RANGE	75-23 TASK 804
ENGINE - 2	75-30582 THE TBV DEMAND AND POSITION SIGNALS DISAGREE	75-23 TASK 801
ENGINE - 2	75-30592 THE TBV POSITION SIGNAL IS OUT OF RANGE	75-23 TASK 802
ENGINE - 2	75-30602 THE TBV POSITION SIGNALS DISAGREE	75-23 TASK 803
ENGINE - 2	75-30802 T25 SIGNALS DISAGREE	75-33 TASK 805
ENGINE - 2	75-30822 THE T25 SIGNAL IS OUT OF RANGE	75-33 TASK 801
ENGINE - 2	75-30832 THE T3 SIGNAL IS OUT OF RANGE	75-33 TASK 802
ENGINE - 2	75-30882 THE TCC SIGNAL IS OUT OF RANGE	75-33 TASK 803
ENGINE - 2	76-11362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-11562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-11572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-21362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-21562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-21572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-31362 THE START LEVER SIGNALS DISAGREE	76-11 TASK 801
ENGINE - 2	76-31562 THE START LEVER SIGNAL AND DEU1 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	76-31572 THE START LEVER SIGNAL AND DEU2 DATA DISAGREE	76-11 TASK 802
ENGINE - 2	77-10842 THE TOP RIGHT EGT SIGNAL (T495S1) IS OUT OF RANGE	77-21 TASK 801
ENGINE - 2	77-10852 THE BOTTOM RIGHT EGT SIGNAL (T495S2) IS OUT OF RANGE	77-21 TASK 802
ENGINE - 2	77-11132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-11172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-11182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 238
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	77-20862 THE BOTTOM LEFT EGT SIGNAL (T495S3) IS OUT OF RANGE	77-21 TASK 803
ENGINE - 2	77-20872 THE TOP LEFT EGT SIGNAL (T495S4) IS OUT OF RANGE	77-21 TASK 804
ENGINE - 2	77-21132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-21172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-21182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 2	77-31132 N2 SPEED SENSOR SIGNAL DISAGREE	77-11 TASK 803
ENGINE - 2	77-31172 THE N1 SIGNAL IS OUT OF RANGE	77-11 TASK 801
ENGINE - 2	77-31182 THE N2 SIGNAL IS OUT OF RANGE	77-11 TASK 802
ENGINE - 2	78-11472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-11482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-11492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 2	78-11502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-11512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-11522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-11532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 2	78-11542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	78-21472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-21482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-21492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 2	78-21502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-21512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-21522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-21532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 239
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	78-21542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	78-31472 T/R LEVER INTLK VOLTAGE NOT AVAILABLE. OPEN GROUND CIRCUIT	78-36 TASK 801
ENGINE - 2	78-31482 THE L REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 802
ENGINE - 2	78-31492 THE R REVERSER SLEEVE POSITION SIGNAL IS OUT OF RANGE	78-36 TASK 803
ENGINE - 2	78-31502 THE L REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 804
ENGINE - 2	78-31512 THE R REVERSER SLEEVE POSITION SIGNALS DISAGREE	78-36 TASK 805
ENGINE - 2	78-31522 THE REVERSER CONTROL AND POSITION SIGNALS DISAGREE	78-36 TASK 806
ENGINE - 2	78-31532 THE T/R LEVER INTLK VOLTAGE INPUT TO THE EEC IS OUT OF RANGE	78-36 TASK 807
ENGINE - 2	78-31542 EACH REVERSER SLEEVE HAS ONE POSITION SIGNAL OUT OF RANGE	78-36 TASK 808
ENGINE - 2	79-11092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-11102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-11122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 2	79-11152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-11342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	79-21092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-21102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-21122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817
ENGINE - 2	79-21152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-21342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809
ENGINE - 2	79-31092 THE ENGINE OIL PRESSURE SIGNAL (PEO) IS OUT OF RANGE	79-21 TASK 801
ENGINE - 2	79-31102 THE ENGINE OIL TEMPERATURE SIGNAL (TEO) IS OUT OF RANGE	79-21 TASK 802
ENGINE - 2	79-31122 THE OIL FILTER SIGNALS DISAGREE	79-05 TASK 817

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 240
Oct 15/2023

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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ENGINE - 2	79-31152 INTERNAL EEC FAULT. DMS INSTALLED SIGNALS DISAGREE	73-21 TASK 801
ENGINE - 2	79-31342 THE ENGINE OIL PRESSURE SIGNALS (PEO) DISAGREE	79-21 TASK 809

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

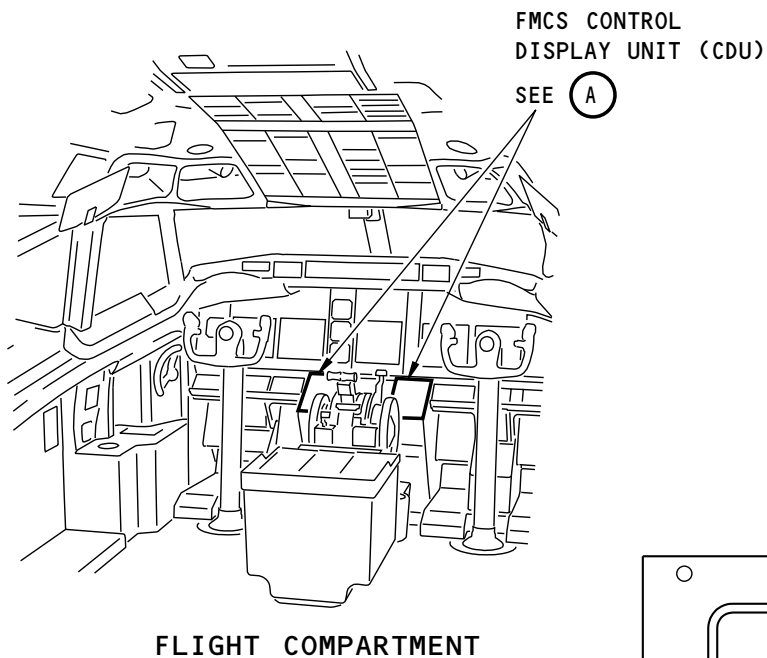
D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

73-00 TASK 801

Page 241
Oct 15/2023

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

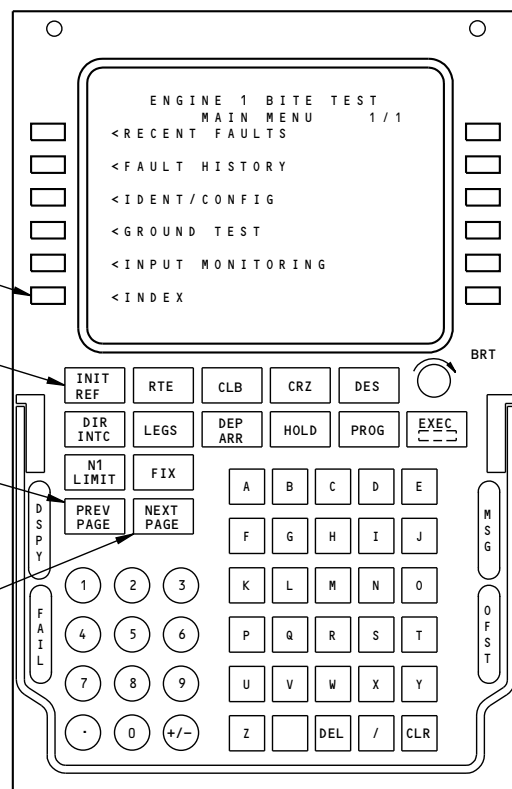


LINE SELECT KEY (LSK)
(12 LOCATIONS)

INIT REF
FUNCTION KEY

PREVIOUS
PAGE KEY

NEXT PAGE KEY



FMCS CONTROL DISPLAY UNIT (CDU)

A

G27499 S0006745585_V1

Engine 1 BITE Test Main Menu
Figure 201/73-00-00-990-802-F00

EFFECTIVITY
SIA ALL

73-00 TASK 801

D633A103-SIA

Page 242
Oct 15/2021

**737-600/700/800/900
FAULT ISOLATION MANUAL****803. 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** ————

EFFECTIVITY
SIA ALL

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

73-00 TASK 803

Page 243
Oct 15/2021

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

801. Fuel FILTER BYPASS Light is ON - Fault Isolation

A. Description

- (1) The FILTER BYPASS Light can come ON if one or more of these conditions occurs:
 - (a) The Fuel Filter is in Impending Bypass.
NOTE: The FILTER BYPASS can come ON during flight or on ground.
 - (b) The Electronic Engine Control (EEC) senses that the Fuel Filter Signals disagree.
NOTE: The FILTER BYPASS can only come ON when the airplane is on the ground.
 - (c) The wires and connectors have failed between the Cockpit Display(s) and the Display Electronic Unit (DEU)s.
- (2) This task is also for these maintenance messages:
 - 73-11071 THE FUEL FILTER SIGNALS DISAGREE: ENG-1 CH A fault
 - 73-11072 THE FUEL FILTER SIGNALS DISAGREE: ENG-2 CH A fault
 - 73-21071 THE FUEL FILTER SIGNALS DISAGREE: ENG-1 CH B fault
 - 73-21072 THE FUEL FILTER SIGNALS DISAGREE: ENG-2 CH B fault
 - 73-31071 THE FUEL FILTER SIGNALS DISAGREE: ENG-1 Dual Channel fault
 - 73-31072 THE FUEL FILTER SIGNALS DISAGREE: ENG-2 Dual Channel fault

B. Possible Causes

- (1) Fuel Filter Differential Pressure Switch (FFDPS), S241 or Fuel Filter Clogging Indicator (FFCI)
- (2) Fuel Filter Contamination
- (3) J8 Wire Harness and connectors, between the FFDPS or the FFCI and the EEC
- (4) DEU 1 (2), M1808 (M1809)
- (5) Wires and connectors between the applicable Fuel FILTER BYPASS Light and the DEUs
- (6) ENG 1 (ENG 2) EEC, M1818
- (7) Fuel Pump Package
- (8) Hydro-Mechanical Unit (HMU), M1823
- (9) Servo Fuel Heater
- (10) Main Heat Exchanger
- (11) Fuel Nozzle Filter

C. Circuit Breakers

- (1) For Engine 1:
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP

EFFECTIVITY
SIA ALL

73-05 TASK 801

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

(Continued)

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	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6

(2) For Engine 2:

(a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C00313	INDICATOR MASTER DIM SECT 1

D. Related Data

- (1) Component Locators and Simplified Schematics (73-05 TASK SUPPORT Figure 301, 73-05 TASK SUPPORT Figure 302)
- (2) WDM 31-62-11
- (3) WDM 31-62-21
- (4) WDM 33-18-32
- (5) WDM 73-31-11
- (6) SSM 31-62-11
- (7) SSM 31-62-21
- (8) SSM 33-18-32
- (9) SSM 73-31-11

EFFECTIVITY
SIA ALL

73-05 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

E. Fault Isolation Procedure

- (1) Do the EEC BITE Procedure, 73-00 TASK 801 and look for these maintenance messages:
 - 73-11071: ENG-1 CH A fault
 - 73-11072: ENG-2 CH A fault
 - 73-21071: ENG-1 CH B fault
 - 73-21072: ENG-2 CH B fault
 - 73-31071: ENG-1 Dual Channel fault
 - 73-31072: ENG-2 Dual Channel fault
- (a) If a maintenance message shows, do these steps:
 - 1) Do this check of the FFDPS or the FFCI, EEC and the J8 Wire Harness:
 - a) Make sure that the electrical connectors of the J8 Wire Harness are correctly connected to the FFDPS or the FFCI and EEC Receptacles.
 - <1> If a connector is not correctly connected and you found no other problem, then clean the plug and connect it again.
 - <2> Do the Repair Confirmation at the end of this task.
 - <3> If the Repair Confirmation is not satisfactory, for the applicable engine, open the circuit breakers shown above and continue.
 - 2) Replace the applicable FFDPS, S241 or the FFCI. These are the tasks:
 - Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Removal, AMM TASK 73-34-01-000-801-F00.
 - Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Installation, AMM TASK 73-34-01-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, open the circuit breakers above and continue.
 - 3) Do this check of the wiring.
 - a) For the ENG-1 (ENG-2) FILTER BYPASS Light that is ON, disconnect the applicable connector D626 (D628) from the P5-2 Panel (WDM 73-31-11).
 - b) Remove the DEUs. This is the task: Display Unit Removal, AMM TASK 31-62-11-000-801.
 - c) Examine the wiring between the applicable ENG-1 (ENG-2) FILTER BYPASS Light, L8 (L9) and the DEUs as follows (WDM 73-31-11):

ENG 1 FUEL FILTER LIGHT

P5-2 PNL	DEU-1
D626	D3973B
pin 21	pin B14

P5-2 PNL	DEU-2
D626	D3975B
pin 21	pin B14

EFFECTIVITY
SIA ALL

73-05 TASK 801

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

ENG 2 FUEL FILTER LIGHT

P5-2 PNL D628 pin 21	DEU-1 D3973E pin B14

P5-2 PNL D628 pin 21	DEU-2 D3975E pin B14

- <1> If you find a problem with the wiring, do these steps:
- <a> Repair the wiring.
 - Connect the applicable connector D626 (D628) to the P5-2 Panel.
 - <c> Install the DEUs. This is the task: Display Unit Installation, AMM TASK 31-62-11-400-801.
 - <d> Do the Repair Confirmation at the end of this task.
- <2> If the wiring is OK, do these steps and then continue.
- <a> Connect the applicable connector D626 (D628) to the P5-2 Panel.
 - Install the DEUs. This is the task: Display Unit Installation, AMM TASK 31-62-11-400-801.
- 4) Replace the applicable J8 Wire Harness: These are the tasks:
- Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00.
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
- a) Do the Repair Confirmation at the end of this task.
- (b) If you find a Single Channel FUEL FILTER SIGNALS DISAGREE maintenance message, then replace the applicable EEC. These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00.
 - EEC Installation, AMM TASK 73-21-60-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.
- (2) If you find no FUEL FILTER SIGNALS DISAGREE maintenance message(s), then get access to the CDU INPUT MONITORING/FUEL FILTER Screen on the Flight Management Computer System (FMCS) Control Display Unit (CDU).
- (a) Record the FILTER BYPASS Status.

NOTE: These are the usual conditions, but other conditions can be found.

Table 201

FILTER INPUTS	FUEL FILTER BYPASS STATE "NOT CLOGGED"	FUEL FILTER BYPASS STATE "CLOGGED"
SW 1 CH A SW 1 CH B	CLOSED	OPEN
SW 2 CH A SW 2 CH B	OPEN	CLOSED

EFFECTIVITY
SIA ALL

73-05 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

- (b) If the test shows that the FILTER BYPASS Status is “CLOGGED”, then replace the applicable FFDPS, S241 or the FFCL. These are the tasks:
- Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Removal, AMM TASK 73-34-01-000-801-F00.
 - Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Installation, AMM TASK 73-34-01-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.
- (c) If the test shows that the FILTER BYPASS Status is “NOT CLOGGED”, then remove the Fuel Filter. This is the task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
- (d) Examine the removed Fuel Filter for large amounts of contamination.
- NOTE:** Fine dust deposit can accumulate on the internal layers of the filter. It is recommended to cut open the Fuel Filter and to do the visual inspection of the inner layers for contamination.
- 1) If you do not find large amounts of contamination, then do these steps:
- a) Install a new Fuel Filter. This is the task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - b) Do the Test 3A - Idle-Power Leak Check, AMM TASK 71-00-00-700-801-F00.
 - <1> If the FUEL FILTER BYPASS Light is not ON, this means that the Fuel Filter was removed before it was clogged. Then, replace the Fuel Filter on the other engine. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - <2> If the FUEL FILTER BYPASS Light is ON, then replace the Fuel Filter Differential Pressure Switch or Fuel Filter Differential Clogging Indicator. These are the tasks:
 - Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Removal, AMM TASK 73-34-01-000-801-F00
 - Fuel Filter Differential Pressure Switch or Fuel Filter Clogging Indicator Installation, AMM TASK 73-34-01-400-801-F00
 - c) Do the Repair Confirmation at the end of this task.
- 2) If you find large amounts of contamination, then examine the contamination for:
- the usual solids (dirt, sand or other usual debris)
 - fungus (sludge or slimy material)
 - large amounts of metallic (bronze) particles
- (e) If the contamination contains large amounts of usual solids, then do these steps:
- 1) Remove the Fuel Filter on the other engine. This is the task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - 2) Install the Fuel Filters on the two engines. This is the task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - 3) Start the two engines and operate them at idle for a minimum of 5 minutes (Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00).
 - a) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.

EFFECTIVITY
SIA ALL

73-05 TASK 801

D633A103-SIA

Page 205
Oct 15/2021

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

- 4) Replace the Fuel Filters on the two engines. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - a) Do a visual check of the removed filters.
 - <1> If you find large amounts of contamination, then do this task: Fuel System Sumping, AMM TASK 12-11-00-680-801.
 - <2> After 24 hours of in-service operation, replace the Fuel Filters on the two engines. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
- 5) After 24 hours of in-service operation, replace the applicable Fuel Nozzle Filter. These are the tasks:
 - Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00.
 - Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.

NOTE: A Continue-in-Service limit of 30 days is permitted.
- 6) Do the Repair Confirmation at the end of this task.
- (f) If the contamination contains large amounts of fungus (sludge or slimy material) or small debris, then do these steps:
 - 1) Install a new Fuel Filter. This is the task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - 2) Do this task: Detection Test for Microbial Growth, AMM TASK 28-10-00-200-802.
 - 3) Replace the Fuel Filter on the other engine. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - 4) After 24 hours of in-service operation, replace the Fuel Filters on the two engines. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - a) Do a visual check of the removed filters.
 - 5) After 24 hours of in-service operation, replace the applicable Fuel Nozzle Filter. These are the tasks:
 - Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00.
 - Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.

NOTE: A Continue-in-Service limit of 30 days is permitted.
- (g) If the contamination contains large amounts of metallic (bronze) particles, then do these steps:
 - 1) Install a new Fuel Filter. This is the task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - 2) Replace the Fuel Pump Package. These are the tasks:
 - Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00.

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

- Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
- 3) Replace the HMU, M1823. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00.
 - HMU Installation, AMM TASK 73-21-10-400-801-F00.
- 4) Replace the Servo Fuel Heater. These are the tasks:
 - Servo Fuel Heater Removal, AMM TASK 73-11-07-000-801-F00.
 - Servo Fuel Heater Installation, AMM TASK 73-11-07-400-801-F00.
- 5) Replace the Main Heat Exchanger. These are the tasks:
 - Main Oil/Fuel Heat Exchanger Removal, AMM TASK 79-21-02-000-801-F00.
 - Main Oil/Fuel Heat Exchanger Installation, AMM TASK 79-21-02-400-801-F00.
- 6) Replace the applicable Fuel Nozzle Filter. These are the tasks:
 - Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00.
 - Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.
- 7) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) If you have not completed an Idle Leak Check for the filter installations, then do the Idle Leak Check (Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00).
 - (a) If the FUEL FILTER BYPASS Light comes ON again during the test, continue the Fault Isolation Procedure at the subsequent step.
 - (b) If the FUEL FILTER BYPASS Light does not come ON again during the test, then you corrected the problem.
 - 1) Record the step(s) that you did to find and repair this problem.
- (2) Monitor the airplane on the subsequent flights.

————— **END OF TASK** —————

802. EEC BITE Does Not Operate - Fault Isolation

A. Description

- (1) The ENGINE 1(2) "EEC BITE INOP" shows on the FMCS CDU when you try to get access to the ENGINE 1(2) BITE TEST MAIN MENU.

B. Possible Causes

- (1) Wires and connectors between the EEC and the DEU's
- (2) 115 VAC electrical power to the EEC
- (3) 28 VDC electrical power to the alternate power relay
- (4) Alternate power relay, R576 (Eng1) or R575 (Eng2)
- (5) DEU, M1808 (DEU1) or M1809 (DEU2)
- (6) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1:

EFFECTIVITY
SIA ALL

73-05 TASKS 801-802

D633A103-SIA

Page 207
Oct 15/2021

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

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2:

- (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 73-21-11)
- (3) (SSM 73-22-31)
- (4) (SSM 73-24-11)
- (5) (SSM 73-24-12)
- (6) (SSM 73-24-21)
- (7) (WDM 73-21-11)
- (8) (WDM 73-22-11)
- (9) (WDM 73-22-31)
- (10) (WDM 73-24-11)
- (11) (WDM 73-24-12)
- (12) (WDM 73-24-21)

EFFECTIVITY
SIA ALL

73-05 TASK 802

D633A103-SIA

Page 208
Oct 15/2021

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

E. Fault Isolation Procedure

- (1) Get access to the applicable ENGINE 1(2) BITE TEST MAIN MENU.
 - (a) Look to see if the EGT display is blank.
 - (b) If the EGT display was blank, then do the Fault Isolation Procedure - EGT Display was Blank/EEC Failed to Power-Up (73-05 TASK 804).
 - (c) If the EGT display was active, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Look for these maintenance messages:
 - 1) 31-67200, 31-67230, 31-67330, 31-67340, 31-67400, 31-67440, 31-68410, 31-68420, 31-68431, 31-68432, 31-68450, 31-68460, 31-68471, or 31-68472.
 - 2) If one or more of the messages show, then do the corrective action for those messages.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If the messages do not show, then continue.
- (3) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) Do the corrective action for the CDS DEU-L or CDS DEU-R maintenance messages that show.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - 2) If you do not find one of the messages, then continue.
- (4) For Engine 2 Only, do these steps:

NOTE: If the EEC does not receive the engine position signal from the airplane, it will default to engine position 1. When the CDS tries to initialize an Engine 2 BITE procedure, the EEC on the number 2 engine will not respond because of the engine 1 position default. Therefore, this situation will cause the BITE INOP Message to display, for Engine 2 only.

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (c) Disconnect the electrical connector, DP0303 from the EEC.
- (d) Do a resistance check of these pins on the wire harness connector, DP0303 (Ch A):

Table 202

CONNECTOR DP0303

ENG 2

PINS

PINS HH TO x

PIN HH TO THE CONNECTOR SHELL

RESISTANCE

LESS THAN 5 OHM

GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-05 TASK 802

D633A103-SIA

Page 209
Oct 15/2021

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

- (e) If the resistance is not in the specified range, then disconnect the DP0324 connector from the receptacle in the strut.
- (f) Do a resistance check of these pins on the D30424 receptacle:

Table 203

RECEPTACLE D30424	PINS	RESISTANCE
ENG 2	PINS 13 TO 28	LESS THAN 5 OHM
	PIN 27 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- 1) If the resistance is in the specified range, then replace the MW0303 wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
- 2) If the resistance is not in the specified range, then examine and repair wire at the D30424 receptacle.
 - a) Do the Repair Confirmation at the end of this task.
- (g) If the resistance is in the specified range, then continue.
- (5) Do the EEC BITE procedure for the other engine; do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) If the EEC BITE INOP shows for the other engine, then remove the two DEUs; do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) For the applicable engine, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Examine the wires and connectors between TB3102 and the two DEUs.

EFFECTIVITY
SIA ALL

73-05 TASK 802

D633A103-SIA

Page 210
Oct 15/2021

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

Table 204

CONNECTOR	PINS	RESISTANCE
DEU 1 DP3973A	PIN J3 TO TB3102 PIN YA39	LESS THAN 10 OHMS
	PIN K3 TO TB3102 PIN YB39	LESS THAN 10 OHMS
	PIN J3 TO THE STRUCTURE GROUND	GREATER THAN 1 MEGOHM
	PIN J3 TO TB3102 PIN YA73	LESS THAN 10 OHMS
DEU 2 DP3975A	PIN K3 TO TB3102 PIN YB73	LESS THAN 10 OHMS
	PIN J3 TO THE STRUCTURE GROUND	GREATER THAN 1 MEGOHM

- 1) If you found and repaired a problem with the wires, then install the two DEUs, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - a) Do the Repair Confirmation at the end of this task.
- 2) If no problem is found with the wires, then replace the two DEUs. 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.
- (d) If EEC BITE operates for the other engine, then examine the wires between TB3102 and the failed EEC.
 - 1) For Engine 1;
 - 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP

EFFECTIVITY
SIA ALL

73-05 TASK 802

D633A103-SIA

Page 211
Oct 15/2021

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

(Continued)

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

2) For Engine 2;

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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

3) Get access to the E3-1 shelf in the EE bay and install a jumper between these pins of the terminal block TB3102:

a) For DEU 1;

<1> YA39 and YB39

b) For DEU 2

<1> YA73 and YB73

4) Examine the resistance between these pins at the DP0303 or DP0404 electrical connectors:

Table 205

CONNECTOR DP0303 DP0404	PINS	RESISTANCE
	PINS z TO k	LESS THAN 10 OHMS
	PIN z TO THE STRUCTURE GROUND	GREATER THAN 1 MEGOHM

5) If you found and repaired a problem with the wires, then do the Repair Confirmation at the end of this task.

6) If no problem is found with the wires, then replace the EEC, M1818. These are the tasks:

- EEC Removal, AMM TASK 73-21-60-000-801-F00

EFFECTIVITY
SIA ALL**73-05 TASK 802**

D633A103-SIA

Page 212
Oct 15/2021

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

- EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

(1) Do these steps to prepare for the procedure:

- (a) If you installed a jumper, remove the jumper from the terminal block TB3102.
- (b) If it necessary, make sure that the DP0324 electrical connector is correctly installed on the receptacle in the strut.
- (c) If it is necessary, make sure the DP0303 (Ch A) and DP0404 (Ch B) electrical connectors are correctly installed on the EEC.
- (d) For Engine 1

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(e) For Engine 2;

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

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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-05 TASK 802

D633A103-SIA

Page 213
Oct 15/2021

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

- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) If the EEC BITE operates, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

803. CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation

A. Description

- (1) The ENGINE 1 (2) CH A (B) EEC DATA NOT AVAILABLE message shows on the FMCS CDU when you get access to the ENGINE 1 (2) BITE TEST MAIN MENU.

B. Possible Causes

- (1) 115V AC Electrical Power to the EEC
- (2) ENG-1 (ENG-2) Alternate Power Relay, R576 (R575)
- (3) EEC, M1818
- (4) DEU-1 (2), M1808 (M1809)

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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locators, (73-05 TASK SUPPORT Figure 301)
- (2) SSM 73-24-11
- (3) SSM 73-24-12
- (4) SSM 73-24-21
- (5) WDM 73-22-11
- (6) WDM 73-24-11
- (7) WDM 73-24-12
- (8) WDM 73-24-21

E. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If one of these maintenance messages shows on the available channel of the engine that reports the EEC DATA NOT AVAILABLE message, first do this task: Internal EEC Fault - Fault Isolation, 73-21 TASK 801.
 - 73-11731 CROSS CHANNEL IN CONTINUOUS RESET
 - 73-11732 CROSS CHANNEL IN CONTINUOUS RESET

EFFECTIVITY
SIA ALL

73-05 TASKS 802-803

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

- 73-21731 CROSS CHANNEL IN CONTINUOUS RESET
- 73-21732 CROSS CHANNEL IN CONTINUOUS RESET
- 1) If the ENGINE 1 (2) CH A (B) EEC DATA NOT AVAILABLE still shows on the FMCS CDU when you get access to the ENGINE 1 (2) BITE TEST MAIN MENU, do the Fault Isolation Procedure below.
- (b) If none one of the CROSS CHANNEL IN CONTINUOUS RESET maintenance messages above shows on the available channel of the engine that reports the EEC DATA NOT AVAILABLE message, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (2) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (3) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (4) Examine the CH A (CH B) Electrical Connector DP0101 (DP0202) at the EEC:
 - (a) Make sure that the CH A (CH B) Electrical Connector DP0101 (DP0202), is correctly connected to the EEC.
 - (b) Disconnect the CH A (CH B) Electrical Connector DP0101 (DP0202) from the EEC.
 - (c) Visually examine the EEC Receptacle and Wire Harness Connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC Receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a Wire Harness Connector is damaged, then replace the MW0301 or MW0302 Wire Harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.

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

- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then connect the electrical connectors.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (5) Do this check for 115 VAC at the EEC:
 - (a) Make sure that the CH A (CH B) Electrical Connector DP0101 (DP0202) is disconnected from the EEC.
 - (b) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) For the applicable engine, put the Engine START Switch on the Overhead Panel, P5 to CONT.
 - 1) Stop for a minimum of 5 seconds.
 - (d) Look for 115V AC between pins C and D (Ground) of the applicable connector.
 - 1) If there is 115V AC, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If there is not 115V AC, then continue.
- (6) Do this check for 115V AC at the strut:
 - (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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Make sure that the applicable START Switch is in the CONT position.

EFFECTIVITY
SIA ALL

73-05 TASK 803

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

- (c) Disconnect the CH A (CH B) Electrical Connector DP0112 (DP0256) from the Strut Receptacle.
- (d) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) For Engine 1:
- 1) Look for 115 VAC between pins 4 and 5 of the CH A Strut Receptacle D30212 or pins 2 and 7 of the CH B Strut Receptacle D30256.
- (f) For Engine 2:
- 1) Look for 115 VAC between pins 4 and 5 of the CH A Strut Receptacle D30412 or pins 2 and 7 of the CH B Strut Receptacle D30456.
 - 2) If there is 115 VAC, then replace the applicable CH A (CH B) Wire Harness MW0301 (MW0302). These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) If there is not 115 VAC, then do a continuity check between pin 5 of the Channel A Strut Receptacle (D30212 or D30412) or pin 7 of the Channel B Strut Receptacle (D30256 or D30456) and Structure Ground.
 - <1> If there is no continuity between pin 5 or pin 7 and Structure Ground, then examine and repair the wires between the Strut Receptacle and GD3840-AC (ENG 1) or GD3940-AC (ENG 2).
 - <a> Do the Repair Confirmation at the end of this task.
 - <2> If there is continuity between pin 5 or pin 7 and Structure Ground, then continue.
- (7) Do this check for 115 VAC at the Alternate Power Relay:
- (a) For the applicable engine:
- 1) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR

EFFECTIVITY
SIA ALL

73-05 TASK 803

D633A103-SIA

Page 217
Oct 15/2021

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Get access to the applicable ENG 1 (ENG 2) Junction Box, J22 (J24), in the Nose Gear Wheel Well.
- (c) Remove the applicable ENG 1 (ENG 2) Alternate Power Relay, R576 (R575).
- (d) For the applicable engine:
 - 1) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) Look for 115 VAC at the applicable Alternate Power Relay Receptacle:

Table 206

ENGINE	CHANNEL	RELAY RECEPTACLE	PIN
ENG 1	CH A	D10954	A2 TO GROUND
	CH B	D10954	B2 TO GROUND
ENG 2	CH A	D10952	A2 TO GROUND
	CH B	D10952	B2 TO GROUND

- 1) If there is not 115 VAC, then examine and repair the wires between the Relay Receptacle and applicable engine ALTERNATE PWR circuit breaker.
 - a) Do the Repair Confirmation at the end of this task.
- 2) If there is 115 VAC, then examine and repair the wiring from the Alternate Power Relay to the EEC.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If you do not find a problem with the wiring or the Repair Confirmation is not satisfactory, then continue.
- (8) Do this check for 28 VDC between pin X1 and Structure Ground at the applicable Alternate Power Relay Receptacle:
 - (a) For the applicable engine;

EFFECTIVITY
SIA ALL

73-05 TASK 803

D633A103-SIA

Page 218
Oct 15/2021

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

- 1) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR

- (b) If there is not 28 VDC, then examine and repair the wires between the Relay Receptacle and applicable Engine RUN/POWER CONTROL circuit breaker.
- 1) Do the Repair Confirmation at the end of this task.
- (c) If there is 28 VDC, then replace the applicable ENG 1 (ENG 2) Alternate Power Relay, R576 (R575).
- 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Make sure that the CH A (CH B) Electrical Connector DP0101 (DP0202) is correctly connected to the EEC.
- (3) Make sure that the CH A (CH B) Electrical Connector DP0112 (DP0256) is correctly connected at the Strut Receptacle.
- (4) Make sure that the applicable ENG-1 (ENG-2) Alternate Power Relay, R576 (R575) is correctly installed.
- (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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-05 TASK 803

D633A103-SIA

Page 219
Oct 15/2021

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (6) Do this task: Supply Pressure to the Pneumatic System with One or Both Engines, AMM TASK 36-00-00-860-804.
- (7) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (a) If the ENGINE 1 (2) CH A (B) EEC DATA NOT AVAILABLE Message does not show on the CDU, then you corrected the fault.
- 1) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (b) If the ENGINE 1 (2) CH A (B) EEC DATA NOT AVAILABLE Message still shows on the CDU, then continue the Fault Isolation Procedure at the subsequent step.

— END OF TASK —

804. EGT Display Blank/EEC Failed to Power-Up - Fault Isolation

A. Description

- (1) The EEC did not power-up when the start switch is set to GRD or CONT or the start lever is set to IDLE or the EEC BITE is selected.
- (a) The EGT display will be blank if the EEC does not receive electrical power.
- (b) If the EEC does not receive electrical power, the oil pressure display, oil temperature display, fuel pressure display, and the fuel flow display can also be blank.

B. Possible Causes

- (1) 115 VAC electrical power to the EEC
- (2) Alternate power relay, R576 (Eng1) or R575 (Eng2)
- (3) 28 VDC electrical power to the alternate power relay
- (4) Wires and connectors between the EEC and the DEU's
- (5) EEC, M1818.
- (6) Start Switch Module, M1824 (Eng1) or M1825 (Eng2)
- (7) Start switch, S266 (Eng1) or S267 (Eng2)
- (8) DEU, M1808 (DEU1) or M1809 (DEU2)

C. Circuit Breakers

- (1) For Engine 1;
- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR
D	5	C01359	DISPLAY DEU 1 PRI

EFFECTIVITY
SIA ALL

73-05 TASKS 803-804

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(2) For Engine 2;

(a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locators and Simplified Schematics, (73-05 TASK SUPPORT Figure 301, 73-05 TASK SUPPORT Figure 303, 73-05 TASK SUPPORT Figure 304)
- (2) (SSM 73-22-31)
- (3) (SSM 73-24-11)
- (4) (SSM 73-24-12)
- (5) (SSM 73-24-21)
- (6) (SSM 74-31-11)
- (7) (SSM 76-21-11)
- (8) (SSM 76-21-21)
- (9) (WDM 73-22-11)
- (10) (WDM 73-22-31)
- (11) (WDM 73-24-11)
- (12) (WDM 73-24-12)
- (13) (WDM 73-24-21)
- (14) (WDM 74-31-11)
- (15) (WDM 76-21-11)
- (16) (WDM 76-21-21)

EFFECTIVITY
SIA ALL

73-05 TASK 804

D633A103-SIA

Page 221
Oct 15/2021

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

E. Fault Isolation Procedure

- (1) Examine the airplane log book to see if the ENGINE CONTROL light was ON.
 - (a) If the ENGINE CONTROL light was ON, then, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - 1) Look for maintenance messages 31-67200 or 31-67230.
 - a) If one of the messages shows, then do the corrective active for that message.
 - b) If the messages do not show, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - c) Do the Repair Confirmation at the end of this task.
 - (b) If the ENGINE CONTROL light was OFF, then continue.
 - (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Look for maintenance messages for NO FMC DATA faults.
 - (b) If the messages show, do the corrective action for the message.
 - 1) Do the Repair Confirmation at the end of this task.
 - (c) If the messages do not show, then continue.
 - (3) Examine the electrical connectors on the MW0301 and MW0302 wire harnesses at the EEC:
 - (a) For the applicable Engine;
 - 1) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (c) Make sure the DP0101 (Ch A) and DP0202 (Ch B) electrical connectors are correctly connected to the EEC.
- (d) Disconnect the DP0101 (Ch A) and DP0202 (Ch B) electrical connectors from the EEC.
- (e) Visually examine the EEC receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If an EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-05 TASK 804

D633A103-SIA

Page 222
Oct 15/2021

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

- 2) If the harness connector is damaged, then replace the MW0301 or MW0302 wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If the connectors were not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (f) If you did not find a problem, then continue.
- (4) Do this check for 115 VAC at the EEC:
 - (a) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
 - (b) For the applicable engine;
 - 1) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Set the start switch to the CONT position.
- (d) Look for 115 VAC between pins C and D (ground) of the harness electrical connectors, DP0101 and DP0202.
- (e) If there is 115 VAC at the two connectors, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
- (f) If there is not 115 VAC at the two connectors, then put the start switch to the OFF position and continue.
- (5) Do this check for 115 VAC at the alternate power relay:
 - (a) For the applicable engine;
 - 1) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-05 TASK 804

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Get access to the applicable junction box for the engine, J22 (Eng 1) or J24 (Eng 2), in the nose gear wheel well.
- (c) Remove the applicable alternate power relay, R576 (Eng1) or R575 (Eng2).
- (d) For the applicable engine;
 - 1) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) Look for 115 VAC at the receptacle of the applicable alternate power relay:

Table 207

ENGINE	CHANNEL	RELAY RECEPTACLE	PIN
ENG 1	CH A	D10954	A2 TO GROUND
	CH B	D10954	B2 TO GROUND
ENG 2	CH A	D10952	A2 TO GROUND
	CH B	D10952	B2 TO GROUND

- 1) If there is not 115 VAC, then examine and repair the wires between the receptacle and applicable engine ALTERNATE PWR circuit breaker.
 - a) Do the Repair Confirmation at the end of this task.
- 2) If there is 115 VAC, then examine and repair the circuit from the alternate power relay to the EEC.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If you do not find a problem with the wiring or the Repair Confirmation is not satisfactory, then continue.

 EFFECTIVITY
SIA ALL
73-05 TASK 804

D633A103-SIA

 Page 224
Oct 15/2021

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

- (6) Do this check for 28 VDC between pin X1 and structure ground at the receptacle of the applicable alternate power relay:

- (a) For the applicable engine;
- 1) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR

- (b) If there is not 28 VDC, then examine and repair the wires between the receptacle and applicable engine RUN/POWER CONTROL circuit breaker.
- 1) Do the Repair Confirmation at the end of this task.
- (c) If there is 28 VDC, then replace the applicable alternate power relay, R576 (Eng1) or R575 (Eng2).
- 1) Do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then continue.
- (7) Do this check for a ground at the alternate power relay receptacle, pin X2:
- (a) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (b) Make sure the start lever is in the CUTOFF position.
- (c) Set the start switch to the GRD position.
- (d) Do a continuity check between pin X2 of the applicable alternate power relay receptacle and structure ground.
- (e) Set the start switch is in the OFF position.
- (f) Set the start switch to the CONT position.
- (g) Do a continuity check between pin X2 of the applicable alternate power relay receptacle and structure ground.
- (h) For the applicable engine;
- 1) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

- (i) Make sure the start switch is in the OFF position.
- (j) Set the start lever to the IDLE position.

EFFECTIVITY
SIA ALL

73-05 TASK 804

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 225
Oct 15/2022

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

- (k) Do a continuity check between pin X2 of the applicable alternate power relay receptacle and structure ground.
- (l) If there is not continuity between pin X2 and structure ground in the two start switch positions and the start lever at IDLE position, then examine and repair the wires from the alternate power relay to the DEUs.
 - 1) Do the Repair Confirmation at the end of this task.
- (m) If there is not continuity between pin X2 and structure ground in the two start switch positions, then examine and repair the wires from the start switch to the DEUs.
 - 1) Do the Repair Confirmation at the end of this task.
- (n) If there is not continuity between pin X2 and structure ground with the start lever at the IDLE position, then examine and repair the circuit from the start lever to the DEUs.
 - 1) Do the Repair Confirmation at the end of this task.
- (o) If the Repair Confirmation was not satisfactory, then replace the two DEUs, M1808 (DEU1), M1809 (DEU2). 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.

F. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure the start switch is in the OFF position and the start lever is in the CUTOFF position.
 - (b) For Engine 1;
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For Engine 2;
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (d) Make sure the DP0101 (Ch A) and DP0202 (Ch B) electrical connectors are correctly connected to the EEC.
- (e) Make sure the DP0112 (Ch A) or DP0256 (Ch B) electrical connector are correctly connected at the strut receptacle.

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

- (f) Make sure the applicable ALT POWER RELAY is correctly installed (R576, Eng 1) or (R575, Eng 2).
- (g) For Engine 1;
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (h) For Engine 2;
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (i) Do this task: Supply Pressure to the Pneumatic System with One or Both Engines, AMM TASK 36-00-00-860-804.
- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the EEC test is satisfactory and the EGT display is active, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

805. ENG FAIL Message Shows Over the EGT Indicator - Fault Isolation

A. Description

- (1) ENG FAIL message shows on the display unit over the EGT display.
- (2) The CDS will display the ENG FAIL message when the engine is in operation and the digital discrete for N2 is below minimum idle RPM and the start lever is in the IDLE position.
 - (a) The ENG FAIL message will stay on until one of these two things occur:
 - 1) The engine recovers and begins to operate correctly
 - 2) The start lever is moved to the CUTOFF position.
- (3) ENG FAIL message appears during normal shutdown when start lever is in the CUTOFF position.

NOTE: If this occurs, skip ahead to prepare for DEU Input Monitoring test.

B. Possible Causes

- (1) Engine failure
- (2) Fuel pump
- (3) Engine Start Switch Module, M1824 Eng 1 or M1825 Eng 2:
 - (a) Engine Start Lever CH A, S1024 Eng 1 or S1027 Eng 2.

EFFECTIVITY
SIA ALL

73-05 TASKS 804-805

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

- (4) Engine Fuel Control:
 - (a) HMU, M1823
 - (b) EEC, M1818.
- (5) Engine Air Flow:
 - (a) VSV system
 - (b) Bleed air check valve.
- (6) Engine start lever channel A relay, R566 (Eng 1) or R568 (Eng 2).
- (7) Wires and connectors between the eng start lever relay and the DEU's.
- (8) DEU, M1808 (DEU 1) or M1809 (DEU 2).
- (9) Engine start lever switch module, M1824 (Eng 1) or M1825 (Eng 2).

C. Circuit Breakers

- (1) For Engine 1;
 - (a) 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>
B	1	C01316	ENGINE 1 START LEVER CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2;
 - (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

D. Related Data

- (1) SSM 75-31-12
- (2) SSM 75-31-22
- (3) SSM 76-21-11

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 228
Oct 15/2021

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

- (4) SSM 76-21-21
- (5) WDM 73-22-11
- (6) WDM 75-31-12
- (7) WDM 75-31-22
- (8) WDM 76-21-11
- (9) WDM 76-21-21

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for the INTERNAL EEC, HMU, FMV, Fuel Flow, or VSV maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages, then continue.
- (2) Visually examine the engine inlet and exhaust for evidence of an internal engine failure.
 - (a) Make sure that the fan turns freely and smoothly as you do the examination.
 - (b) If you find indications of an internal engine failure, then replace the engine. These are the tasks:
 - Power Plant - Removal, AMM TASK 71-00-02-000-801-F00
 - Power Plant - Installation, AMM TASK 71-00-02-400-801-F00
 - (c) If you do not find a problem, then continue.
- (3) Do this task: Chip Detectors and Scavenge Screens - Inspection, AMM TASK 79-00-00-200-804-F00.
 - (a) If the chip detector inspection indicates an internal engine failure, then replace the engine. These are the tasks:
 - Power Plant - Removal, AMM TASK 71-00-02-000-801-F00
 - Power Plant - Installation, AMM TASK 71-00-02-400-801-F00
 - (b) If you do not find a problem, then continue.
- (4) Make sure that the pneumatic power is removed from the airplane.
 - (a) If it is necessary, do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (5) Do these steps to get access to the EEC input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the flight management computer/control display unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).

NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.

NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the ENGINE LSK.

NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.

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

- 5) Push the line select key the applicable Engine, ENGINE 1 or ENGINE 2.
NOTE: There will be a short delay while the screen shows INITIALIZING EEC X (X = 1 or 2). Then the ENGINE BITE TEST MAIN MENU will show.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/2 to show.
 - 7) Push the NEXT key to get access to the ENGINE BITE TEST INPUT MONITORING 2/2 screen.
 - 8) Push the DISCRETES LSK
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/3 GMM DISCRETES to show.
 - 9) Push the NEXT key two times to get access to the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES screen.
- (6) Make sure that the two Engine Start Levers are in the CUTOFF position.
- (a) Make sure that these items on the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES screen show CUTOFF:
- 1) START LEV SW-LOC
NOTE: This item will display the indication for the Channel that is in control.
 - 2) START LEV SW-XCH
NOTE: This item will display the indication for the cross Channel, the Channel that is not in control of the EEC
 - 3) START LEV SW-DEU1
NOTE: This item will display the start lever position that is sent via the ARINC buss from DEU 1. The DEU indication is always the position of the channel A switch.
 - 4) START LEV SW-DEU2
NOTE: This item will display the start lever position that is sent via the ARINC buss from DEU 2. The DEU indication is always the position of the channel A switch.
 - 5) START LEV SW-SEL
NOTE: The SEL (Select) value as an internally calculated working value for the start lever position. The EEC uses the four inputs above to calculates the SEL value.

SIA 716-999

- (b) If the five Input Monitoring indications do not agree with the start lever position, then replace the applicable Engine Start Switch Module. These are the tasks:
- NOTE: The Engine Start Switch Module is in the Start Lever.
- Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 230
Feb 15/2022

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

SIA 702-714

- (c) If the five Input Monitoring indications do not agree with the start lever position, then replace the applicable Engine Start Switch Module. These are the tasks:

NOTE: The Engine Start Switch Module is in the Engine Start Brake Assembly that is linked with the Start Lever.

- Engine Start Brake Assembly Removal, AMM TASK 76-11-10-010-801-F00
- Engine Start Brake Assembly Installation, AMM TASK 76-11-10-420-801-F00
- 1) Do the Repair Confirmation at the end of this task.

SIA ALL

- (d) If the five Input Monitoring indications agree with the start lever position, then continue.
- (e) Move the applicable Engine Start Lever to the IDLE position.
- 1) Stop for 30 seconds.
- (f) Make sure that these items on the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES screen show IDLE:
- 1) START LEV SW-LOC
 - 2) START LEV SW-XCH
 - 3) START LEV SW-DEU1
 - 4) START LEV SW-DEU2
 - 5) START LEV SW-SEL
 - 6) Move the applicable Engine Start Lever to the CUTOFF position.
- (g) If the five Input Monitoring indications do not agree with the start lever position, then replace the applicable Engine Start Switch Module. These are the tasks:

SIA 716-999

- Start Lever Removal, AMM TASK 76-11-02-010-802-F00
- Start Lever Installation, AMM TASK 76-11-02-400-801-F00

SIA 702-714

- Engine Start Brake Assembly Removal, AMM TASK 76-11-10-010-801-F00
- Engine Start Brake Assembly Installation, AMM TASK 76-11-10-420-801-F00

SIA ALL

- 1) Do the Repair Confirmation at the end of this task.
- (h) If the five Input Monitoring indications agree with the start lever position, then continue.
- (7) Do this task: Bleed Air Check Valve Inspection, AMM TASK 36-11-02-200-801.
 - (a) If you find a problem during the inspection, then do the corrective action shown in the inspection procedure.
 - 1) Do the repair confirmation at the end of this task.
 - (b) If you don't find a problem during the inspection, then install the bleed air check valve and continue.
 - 1) This is the task: Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801.
- (8) Examine the fuel filter for signs of contamination.
 - (a) Do this task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 231
Oct 15/2023

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

- (b) If there are large amounts of aluminum or bronze particles, then do these steps:
- 1) Replace the fuel filter. These are the tasks:
 - Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00
 - 2) Replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - 3) Replace the fuel pump. These are the tasks:
 - Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00
 - Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00
 - 4) Replace the fuel nozzle filter. These are the tasks:
 - Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00
 - Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00
 - 5) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
- (c) If contamination is not found, do this task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00
then continue.
- (9) Examine the fuel pump:
- (a) Do this task: The Visual Inspection of the Impeller Rotation, AMM TASK 73-11-01-200-801-F00.
Do not operate the engine as directed in the Lubrication Flow Screen Installation Test.
 - 1) Make sure that the N2 rotor turns freely and smoothly as you do the fuel pump impeller inspection.
 - a) If the N2 rotor does not turn freely and smoothly, then replace the engine.
These are the tasks:
 - Power Plant - Removal, AMM TASK 71-00-02-000-801-F00
 - Power Plant - Installation, AMM TASK 71-00-02-400-801-F00
 - 2) If the fuel pump impeller inspection is not satisfactory, then replace the fuel pump.
These are the tasks:
 - Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00
 - Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If you do not find a problem, then continue.
- (10) Visually examine the VSV system hardware:
- (a) Look for broken or damaged components.
 - 1) If you find broken or damaged components, then repair or replace them.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
- NOTE:** As an alternate, do the manual operation of the VSV actuation system (AMM TASK 75-31-00-790-801-F00).

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

- 1) As you do the Actuator Test, watch the VSV system move.
- 2) Make sure that the VSV system moves freely and smoothly.
- 3) If the VSV system does not moves freely and smoothly, then replace one of the VSV actuators.
 - a) These are the tasks:
 - Left VSV Actuator Removal, AMM TASK 75-31-01-000-801-F00
 - Left VSV Actuator Installation, AMM TASK 75-31-01-400-801-F00
 - b) These are the tasks:
 - Right VSV Actuator Removal, AMM TASK 75-31-01-000-802-F00
 - Right VSV Actuator Installation, AMM TASK 75-31-01-400-802-F00
- 4) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
NOTE: As an alternate, do the manual operation of the VSV actuation system (AMM TASK 75-31-00-790-801-F00).
 - a) As you do the Actuator Test, watch the VSV system move.
 - b) If the VSV system moves freely and smoothly, then do the Repair Confirmation at the end of this task.
 - c) If the VSV system does not moves freely and smoothly, then replace the other VSV actuator.
 - d) These are the tasks:
 - Left VSV Actuator Removal, AMM TASK 75-31-01-000-801-F00
 - Left VSV Actuator Installation, AMM TASK 75-31-01-400-801-F00
 - e) These are the tasks:
 - Right VSV Actuator Removal, AMM TASK 75-31-01-000-802-F00
 - Right VSV Actuator Installation, AMM TASK 75-31-01-400-802-F00
- 5) Do the Repair Confirmation at the end of this task.
- (c) If you do not find a problem, then continue.
- (11) Do this task: Emergency Fuel Shutoff Battery - Operational Test, AMM TASK 28-22-00-720-801.
 - (a) If the Spar Valve Test is not satisfactory, then replace the spar valve actuator. These are the tasks:
 - Actuator of the Spar Valve Removal, AMM TASK 28-22-11-000-804
 - Actuator of the Spar Valve Installation, AMM TASK 28-22-11-400-804
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the Spar Valve Test is satisfactory, then continue.
- (12) If the Spar Valve test is satisfactory, then replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.
- (13) Prepare for DEU Input Monitoring test:
 - (a) For Engine 1:

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

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00359	FUEL SPAR VALVE ENG 1

- (b) For Engine 2:

Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2

- (14) Do these steps to get access to the DEU Input Monitoring of discretes display on the FMCS CDU:

- (a) Push the INIT REF key two times.
- (b) Push the INDEX line select key (LSK).
- (c) Push the MAINT LSK.

NOTE: This causes the MAINT BITE INDEX to show.

- (d) Push the CDS LSK.

NOTE: This causes the CDS BITE INDEX to show.

- (e) Push the LSK for DEU 1.
- (f) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS MENU to show.

- (15) Examine these pin parameters on the Input Monitoring screen for DEU 1:

- (a) Do these steps to examine the first channel of DEU 1 for the applicable engine:

- 1) For Engine 1:

- a) Push the SELECT B LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.

- 2) For Engine 2:

- a) Push the SELECT A LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen to show.

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

- 3) Record the value that shows in column H, row 2.
NOTE: With the start lever in the CUTOFF position, the H2 value should be O (open).
- 4) Move the start lever to the IDLE position.
- 5) Record the value that shows in column H, row 2.
NOTE: With the start lever in the IDLE position, the H2 value should be G (ground).
- 6) Move the start lever to the CUTOFF position.
- (b) Do these steps to examine the second channel of DEU 1:
 - 1) Push the INDEX line select key (LSK) key three times.
NOTE: This will cause the CDS BITE INDEX screen to show.
 - 2) Push the LSK for DEU 1.
 - 3) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS, MENU to show.
 - 4) For Engine 1:
 - a) Push the SELECT D LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen to show.
 - 5) For Engine 2:
 - a) Push the SELECT E LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
 - 6) Record the value that shows in column H, row 2.
NOTE: With the start lever in the CUTOFF position, the H2 value should be O (open).
 - 7) Move the start lever to the IDLE position.
 - 8) Record the value that shows in column H, row 2.
NOTE: With the start lever in the IDLE position, the H2 value should be G (ground).
 - 9) Move the start lever to the CUTOFF position.
- (16) Examine these pin parameters on the Input Monitoring screen for DEU 2:
 - (a) Do these steps to examine the first channel of DEU 2 for the applicable engine:
 - 1) For Engine 1:
 - a) Push the SELECT B LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
 - 2) For Engine 2:
 - a) Push the SELECT A LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen to show.

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

- 3) Record the value that shows in column H, row 2.
NOTE: With the start lever in the CUTOFF position, the H2 value should be O (open).
- 4) Move the start lever to the IDLE position.
- 5) Record the value that shows in column H, row 2.
NOTE: With the start lever in the IDLE position, the H2 value should be G (ground).
- 6) Move the start lever to the CUTOFF position.
- (b) Do these steps to examine the second channel of DEU 2:
 - 1) Push the INDEX line select key (LSK) key three times.
NOTE: This will cause the CDS BITE INDEX screen to show.
 - 2) Push the LSK for DEU 2.
 - 3) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS, MENU to show.
 - 4) For Engine 1:
 - a) Push the SELECT D LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen to show.
 - 5) For Engine 2:
 - a) Push the SELECT E LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
 - 6) Record the value that shows in column H, row 2.
NOTE: With the start lever in the CUTOFF position, the H2 value should be O (open).
 - 7) Move the start lever to the IDLE position.
 - 8) Record the value that shows in column H, row 2.
NOTE: With the start lever in the IDLE position, the H2 value should be G (ground).
 - 9) Move the start lever to the CUTOFF position.
- (17) Compare the values that you recorded for DEU 1 and DEU 2. with the values in Table 208

Table 208 START LEVER POSITION

START LEVER POSITION	INSERT B PIN H2 ENG/EEC 1 DEU1 & DEU2	INSERT D PIN H2 ENG/EEC 1 DEU1 & DEU2	INSERT A PIN H2 ENG/EEC 2 DEU1 & DEU2	INSERT E PIN H2 ENG/EEC 2 DEU1 & DEU2
CUTOFF	"O" (O=OPEN)	"O"	"O"	"O"
IDLE	"G" (G=GROUND)	"G"	"G"	"G"

- (a) If the Input Monitoring data agrees with the table for the two DEU's, then skip ahead to perform check for 28 VDC to the start lever relay.
- (b) If the Input Monitoring data disagrees with the table, then continue.

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 236
Oct 15/2021

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

- (18) If only one value to one of the DEU's is not in the correct state, then examine and repair the applicable wire between TB3102 and the DEU connector:

Table 209

ENG, DEU and INSERT	TERMINAL BLOCK/PIN		DEU CONNECTORS/PIN
ENG1 AND DEU1 INSERT B	TB3102/PIN YA9	TO	D3973B/PIN H2
ENG1 AND DEU1 INSERT D	TB3102/PIN YA9	TO	D3973D/PIN H2
ENG1 AND DEU2 INSERT B	TB3102/PIN YB9	TO	D3975B/PIN H2
ENG1 AND DEU2 INSERT D	TB3102/PIN YB9	TO	D3975D/PIN H2
ENG2 AND DEU1 INSERT A	TB3102/PIN YA97	TO	D3973A/PIN H2
ENG2 AND DEU1 INSERT E	TB3102/PIN YA97	TO	D3973E/PIN H2
ENG2 AND DEU2 INSERT A	TB3102/PIN YA99	TO	D3975A/PIN H2
ENG2 AND DEU2 INSERT E	TB3102/PIN YA99	TO	D3975E/PIN H2

- (a) If you repaired a wire problem, then do the Repair Confirmation at the end of this task.
- 1) If the Repair Confirmation is not satisfactory, then continue.
- (b) If you do not find a problem with the wiring or the problem continues, then replace the applicable DEU. These are the tasks:
- Display Electronics Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronics Unit Installation, AMM TASK 31-62-21-400-801.
- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then replace the EEC, M1818.
These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - b) Do the Repair Confirmation at the end of this task.
- (19) If only DEU 2 reports all incorrect values for one of the engines ("G" on the two inserts instead of "O", or "O" on the two inserts instead of "G"), then examine and repair the terminal block jumper between these pins:
- NOTE:** Inserts B and D are for Engine 1, Inserts A and E are for Engine 2.
- (a) For Engine 1, terminal block TB3102, jumper between pins YA9 and YB9:
 - (b) For Engine 2, terminal block TB3102, jumper between pins YA97 and YB99.
 - 1) If you repaired the jumper, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 237
Oct 15/2021

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

- 2) If no problem is found with the jumper or the problem continues, then replace the applicable DEU. These are the tasks:
- Display Electronics Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronics Unit Installation, AMM TASK 31-62-21-400-801.
- (20) If all of the values for one of the engines on the two DEU's is incorrect "G" on the four inserts instead of "O", or "O" on the four inserts instead of "G", then examine and repair the wire terminal block and the applicable start lever Ch A relay:

NOTE: Inserts B and D are for Engine 1, Inserts A and E are for Engine 2.

- (a) For Engine 1, terminal block TB3102 pin YA9 to relay receptacle D10922 pin C2.

NOTE: Relay receptacle D10922 is in junction box J22.

- (b) For Engine 2, terminal block TB3102 pin YA97 to relay receptacle D10926 pin C2.

NOTE: Relay receptacle D10926 is in junction box J24.

- 1) If you repaired a wire problem, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
- (21) Perform check for 28 VDC to the start lever relay.

- (a) For Engine 1:

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A

- (b) For Engine 2:

Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Remove the start lever relay for the applicable engine:
- 1) Eng 1 start lever relay, R566 (Ch A).
 - 2) Eng 2 start lever relay, R568 (Ch A).
 - 3) For the applicable engine:

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

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>
B	1	C01316	ENGINE 1 START LEVER CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

- (d) Look for 28 VDC and ground at these pins of the applicable relay receptacle:

Table 210

RECEPTACLE D10922 ENG 1 CH A D10926 ENG 2 CH A	START LEVER POSITION	PINS	EXPECTED RESULTS
	CUTOFF	X1 TO GROUND	28 VDC
		X2 TO GROUND	CONTINUITY
		Y2 TO GROUND	OPEN CIRCUIT
	IDLE	Y1 TO GROUND	28 VDC
		Y2 TO GROUND	CONTINUITY
		X2 TO GROUND	OPEN CIRCUIT

- (e) If you do not find the 28 VDC at pins X1 and Y1, then examine and repair the wires between the relay receptacle and the applicable circuit breaker.
- 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, the continue.
- (f) If you do not find the continuity or open circuit at pins X2 and Y2, then examine and repair the wires between the relay receptacle and the applicable start lever switch module.
- 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, the continue.
- (g) If the electrical check was in the specified range, then replace the applicable engine start lever relay.
- 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do one of these steps:

NOTE: Close all applicable circuit breakers before proceeding.

- (a) For Engine1:

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-05 TASK 805

D633A103-SIA

Page 239
Oct 15/2021

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00359	FUEL SPAR VALVE ENG 1

(b) For Engine 2:

Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2

(c) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

(d) Operate the engine at the thrust level and with the engine loads at which the fault occurred.

- 1) If the ENG FAIL message does not show and the engine operation is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

806. Engine Idle Speed, Approach Idle Speed High - Fault Isolation**A. Description**

- (1) The engine approach idle speed is too high.
 - (a) An RPM difference of 1 to 2 percent is usual when the engines are at idle.
 - 1) If the RPM difference between the engines is less than 3 percent, then no corrective action is necessary.

B. Possible Causes

- (1) EEC, M1818
- (2) HMU, M1823
- (3) Thrust lever out of adjustment
- (4) PS3

C. Circuit Breakers

- (1) For Engine 1;

EFFECTIVITY
SIA ALL

73-05 TASKS 805-806

D633A103-SIA

Page 240
Oct 15/2021

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

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 75-31-12)
- (3) (SSM 75-31-22)
- (4) (WDM 73-22-11)
- (5) (WDM 75-31-12)
- (6) (WDM 75-31-22)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for the INTERNAL EEC, HMU, or PS3 maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages, then continue.
- (2) Do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00.
 - (a) If you find a problem, adjust the thrust lever as it is necessary, then, do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
 - (3) Examine the PS3 line for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the line.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
 - (4) Replace the EEC (the most likely LRU from the Possible Causes list). These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00

EFFECTIVITY
SIA ALL

73-05 TASK 806

D633A103-SIA

Page 241
Oct 15/2021

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

- (a) Do the Repair Confirmation at the end of this task.
- (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do one of these two option confirmations:
 - (a) Option1;
do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00
 - 1) Let the engine become stable at idle for a minimum of two minutes.
 - 2) Record the engine N2 idle speed.
 - 3) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
 - a) Let the engine operate at idle for a minimum of two minutes.
 - 4) Record the N2 approach idle engine speed.
 - 5) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - 6) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 7) If approach idle is satisfactory, then you corrected the fault.
 - (b) Option 2;
record the steps that you did to find and repair this fault in the airplane log book.
 - 1) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

807. Engine Idle Speed, Minimum Idle Speed Low/High - Fault Isolation

A. Description

- (1) The engines minimum idle speed is too low or too high.
 - (a) An RPM difference of 1 to 2 percent is usual when the engines are at idle.
 - 1) If the RPM difference between the engines is less than 3 percent, then no corrective action is necessary.

B. Possible Causes

- (1) EEC, M1818
- (2) HMU, M1823
- (3) Thrust lever out of adjustment
- (4) PS3

C. Circuit Breakers

- (1) For Engine 1;
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-05 TASKS 806-807

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 75-31-12)
- (3) (SSM 75-31-22)
- (4) (WDM 73-22-11)
- (5) (WDM 75-31-12)
- (6) (WDM 75-31-22)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for the INTERNAL EEC, HMU, or PS3 maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages, then continue.
- (2) Do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00.
 - (a) If you find a problem, then adjust the thrust lever, and then, do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
 - (3) Examine the PS3 line for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the line.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
 - (4) Replace the EEC (the most likely LRU from the Possible Causes list). These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.

 EFFECTIVITY
SIA ALL

73-05 TASK 807

D633A103-SIA

 Page 243
Oct 15/2021

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

- (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.

1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do one of these two option confirmations:

(a) Option 1;

do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00

1) Let the engine become stable at idle for a minimum of two minutes.

2) Record the engine N2 idle speed.

3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.

4) If idle speed is satisfactory, then you corrected the fault.

(b) Option 2;

record the steps that you did to find and repair this fault in the airplane log book.

1) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

808. Engine Takeoff Thrust is Low - Fault Isolation

A. Description

- (1) The engines takeoff thrust was too low, the other engine parameters were normal for N1.

B. Possible Causes

NOTE: Regulator is a parameter that provides information as to how the Engine Control System is governing the engine speed. The regulator is available through input monitoring. Regulator values other than 3 and 9 are possible.

- (1) Regulator = 3

(a) TRA Adjustment

(b) TRA Resolver, M1819 Eng 1, M1822 Eng 2

(c) EEC, M1818

- (2) Regulator = 9

(a) PS3 system

(b) Fuel Pump

(c) HMU, M1823

(d) Bleed Air System

(e) VSV

(f) VBV

C. Circuit Breakers

- (1) For Engine 1;

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

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 75-31-12)
- (3) (SSM 75-31-22)
- (4) (WDM 73-22-11)
- (5) (WDM 75-31-12)
- (6) (WDM 75-31-22)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for the INTERNAL EEC, PS3, HMU (FMV), TRA, VSV, or VBV maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find the maintenance messages, then continue.
 - (2) OPTION 1, FOR ENGINES WITH EEC S/W 1853M78P13 and ON;

Start the applicable engine and let it idle during the steps that follow. do this task: Start the Engine Procedure (Normal Start), AMM TASK 71-00-00-800-808-F00

 - (a) Get access to the applicable input monitoring screen on the flight management computer/control display unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).

NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.

NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the ENGINE LSK.

NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.
 - 5) Push the line select key the applicable Engine, ENGINE 1 or ENGINE 2.

NOTE: There will be a short delay while the screen shows INITIALIZING EEC X (X = 1 or 2). Then the ENGINE BITE TEST MAIN MENU will show.

EFFECTIVITY
SIA ALL

73-05 TASK 808

D633A103-SIA

Page 245
Oct 15/2021

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

- 6) Push the INPUT MONITORING LSK.
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/2 to show.
- 7) Push the NEXT key to get access to the ENGINE BITE TEST INPUT MONITORING 2/2 screen.
- 8) Push the DISCRETES LSK
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/3 GMM DISCRETES to show.
- (b) Make a note of the value that is listed to the right of REGULATOR.
NOTE: Regulator is the first item listed on the ENGINE BITE TEST INPUT MONITORING 1/3 GMM DISCRETES page. Regulator values other than 3 and 9 are possible.
 - 1) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 2) If the REGULATOR equals 3, then the engine is controlled by the requested power setting.
 - a) The most likely cause of the problem is the TRA System
 - b) Do the adjustment of the thrust lever listed below first.
 - 3) If the REGULATOR equals 9, then the engine is limited by the fuel flow or the PS3.
 - a) The most likely cause of the problem is the PS3, the Fuel Pump, the Fuel Metering Valve in the HMU, the Bleed Air System, the VSV, or the VBV.
 - b) Do the corrective action PS3 and the Fuel Pump listed below first.
 - 4) If the REGULATOR equals a value that is not 3 or 9, then do the corrective action for REGULATOR equals 3 and 9 listed below.
- (3) OPTION 2, FOR ENGINES WITH ALL EEC S/W PART NUMBERS;
 Do the corrective actions for REGULATOR equals 3 and 9 listed below.
- (4) REGULATOR EQUALS 3;
 do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00
 - (a) If you find a problem, then adjust the thrust lever, and then, do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - 1) If it was necessary to adjust the thrust lever angle resolvers during the tests, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (5) REGULATOR EQUALS 9;
 Examine the PS3 line for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the line.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (6) REGULATOR EQUALS 9;

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

Examine the fuel pump:

- (a) Do this task: The Visual Inspection of the Impeller Rotation, AMM TASK 73-11-01-200-801-F00.

Do not operate the engine as directed in the Lubrication Flow Screen Installation Test.

- 1) Make sure that the N2 rotor turns freely and smoothly as you do the fuel pump impeller inspection.
 - a) If the N2 rotor does not turn freely and smoothly, then replace the engine. These are the tasks:
 - Power Plant - Removal, AMM TASK 71-00-02-000-801-F00
 - Power Plant - Installation, AMM TASK 71-00-02-400-801-F00
 - 2) If the fuel pump impeller inspection is not satisfactory, then replace the fuel pump. These are the tasks:
 - Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00
 - Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00
 - 3) If you do not find a problem, then continue.
- (b) Replace the fuel filter. These are the tasks:
- Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00
 - Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00
- (c) Replace the EEC. These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) If it is necessary, do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Do this task: Test 5 - Power Assurance Check, AMM TASK 71-00-00-700-813-F00.
 - (a) If the engine operation is satisfactory, then you corrected the fault.

————— END OF TASK —————

810. ALTN (Alternate Mode) Light is Off when Commanded On during the EEC Test - Fault Isolation Procedure

A. Description

- (1) The ALTN (alternate mode) light does not go ON when it should during the EEC Test.

B. Possible Causes

- (1) EEC ON/ALTN switch, S1 (ENG 1) or S2 (ENG 2)
- (2) Wires and connectors between the EEC and the EEC ON/ALTN switch.
- (3) Wires between the EEC and the structure ground
- (4) EEC, M1818

C. Circuit Breakers

- (1) For Engine 1;

EFFECTIVITY
SIA ALL

73-05 TASKS 808-810

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

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	13	C01179	INDICATOR MASTER DIM SECT 7

- (2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	13	C01179	INDICATOR MASTER DIM SECT 7

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 33-18-42)
- (3) (SSM 73-21-12)
- (4) (WDM 33-18-42)
- (5) (WDM 73-21-12)

E. Fault Isolation Procedure

- (1) Push and hold the DIM/BRT/TEST switch (P1) to the TEST position.
 - (a) Make sure that the applicable ALTN light comes on.
 - 1) Release the DIM/BRT/TEST switch.
 - 2) If the ALTN light does not come on, then replace the light. To replace it, do this task:
Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If the ALTN light comes on, then continue.
- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for one or more of these maintenance message numbers:
 - 1) 73-11581, 73-11582, 73-21581, 73-21582, 73-31581, 73-31582, 73-11591, 73-11592, 73-21591, 73-21592, 73-31591, or 73-31592.
 - (b) Do the corrective action for the maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (c) If you do not find a maintenance message, then continue.

EFFECTIVITY
SIA ALL

73-05 TASK 810

D633A103-SIA

Page 248
Oct 15/2021

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

- (3) Examine the electrical connectors on the wire harness, MW0303 (Ch A) and MW0404 (CH B) at the EEC:

- (a) For Engine 1;

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2;

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Make sure that the Alternate Mode Switch is set to ALTERNATE.
- (d) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (e) Make sure the electrical connectors, DP0303 (Ch A) and MW0404 (CH B) are correctly connected to the EEC.
- (f) Disconnect the electrical connector, DP0303 and MW0404 from the EEC.
- (g) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
- 1) If the EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the applicable wire harness, MW0303 or MW0404. These are the tasks:
- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If the connectors were not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.

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

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (h) If you do not find a problem, then continue.
- (4) Do a check for 28 VDC between pin A of the connectors, DP0303 (CH A) and DP0404 (CH B), and structure ground.
 - (a) If there is not 28 VDC at pin A, then remove the engine control panel (P5-68).
 - 1) Do a check for 28 VDC between pin 5 of the receptacle D2952, Eng 1 or D3172, Eng 2 for the engine control panel and structure ground.
 - 2) If you do not find the 28 VDC at pin 5, then repair the wiring between pin 5 and the master dim, section 7 circuit breaker.
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If you find the 28 VDC at pin 5, then do a continuity check to ground at pin 10 of the receptacle D2952, Eng 1 or D3172, Eng 2.
 - a) If you do not find the ground at pin 10, then examine and repair the wires between the engine control panel (P5-68) and the applicable EEC
 - b) Do the Repair Confirmation at the end of this task.
 - 4) If you find the ground at pin 10, then replace the EEC ON/ALTERNATE switch.
 - a) Do the Repair Confirmation at the end of this task.
 - (b) If you find the 28 VDC at pin A, then continue.
- (5) Look for continuity between pin S of the connectors, DP0303 (CH A) and DP0404 (CH B), and structure ground.
 - (a) If you find the ground at pin S, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the ground at pin S, then examine and repair the wires between the connector and the applicable structure ground (WDM 73-21-12):
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Prepare for the Repair Confirmation:
 - (a) Make sure the electrical connectors, DP0303 (Ch A) and MW0404 (CH B) are correctly connected to the EEC.
 - (b) For Engine 1;
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For Engine 2;

EFFECTIVITY
SIA ALL

73-05 TASK 810

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

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC Discretes Test, AMM TASK 73-21-00-700-809-F00.
 - (a) If the test is satisfactory, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— END OF TASK —————

811. ALTN (Alternate Mode) Light On - Fault Isolation

A. Description

- (1) The ALTN (alternate mode) light came on.
 - (a) The ALTN (alternate mode) light shows that the EEC found a failure (or combination of failures) that causes the EEC to go into alternate mode.
 - (b) The ALTN (alternate mode) light can show when the airplane is in flight or on the ground.

B. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 73-21-12)
- (3) (WDM 73-21-12)

C. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Go to fault isolation task for the maintenance message that you find in the ALTERNATE MODE LIGHT category to correct the fault.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find any of the ALTERNATE MODE LIGHT category maintenance messages, then examine and repair the wire between pin 16 of the applicable Alternate Mode Light and the applicable EEC.

NOTE: The Alternate Mode light has power when the battery switch is on. The Alternate Mode Light goes on when the EEC provide a ground to the light (pin 16). If the wire between the light and the EEC is shorted to ground, then the light can go on when correlated maintenance messages do not show.

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

D. Repair Confirmation

- (1) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (a) If you do not find ALTERNATE MODE LIGHT maintenance messages in Flight Leg 0, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

73-05 TASKS 810-811

D633A103-SIA

Page 251
Oct 15/2021

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

812. Fuel FILTER BY PASS Light is Off when Commanded On during the EEC Test - Fault Isolation Procedure

A. Description

- (1) The fuel FILTER BY PASS light does not go ON during the EEC Test.

B. Possible Causes

- (1) Fuel FILTER BY PASS light, L8 (ENG 1) or L9 (ENG 2)
- (2) Wires and connectors between the DEU and the FILTER BY PASS light
- (3) EEC, M1818
- (4) DEU, M1808 (DEU1) or M1809 (DEU2)

C. Circuit Breakers

- (1) For Engine 1;

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C00318	INDICATOR MASTER DIM SECT 6
F	13	C01179	INDICATOR MASTER DIM SECT 7

- (2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C00313	INDICATOR MASTER DIM SECT 1
F	13	C01179	INDICATOR MASTER DIM SECT 7

D. Related Data

- (1) (SSM 33-18-32)
- (2) (SSM 73-31-11)
- (3) (WDM 33-18-32)
- (4) (WDM 73-31-11)

E. Fault Isolation Procedure

- (1) Push and hold the DIM/BRT/TEST switch (P1) to the TEST position.
 - (a) Make sure that the applicable FILTER BY PASS light comes on.
 - 1) Release the DIM/BRT/TEST switch.

EFFECTIVITY
SIA ALL

73-05 TASK 812

D633A103-SIA

Page 252
Oct 15/2021

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

- 2) If the FILTER BY PASS light does not come on, then replace the light. To replace it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - a) Do the Repair Confirmation at the end of this task.
- 3) If the FILTER BY PASS light comes on, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE test shows an internal DEU or EEC data 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.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If the CDS BITE test does not show an internal DEU fault or EEC data fault, then continue.
- (3) Do this check for 28 VDC at the FILTER BY PASS light:
 - (a) Remove the applicable FILTER BY PASS light. To remove it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - (b) Do a check for 28 VDC between pin 5 of connector D626 (Eng 1) or D628 (Eng 2) and structure ground.
 - (c) If there is not 28 VDC at pin 5, then do these steps:
 - 1) Examine and repair the wiring between pin 5 of D626 (Eng 1) or D628 (Eng 2) and the applicable master dim circuit breaker.
 - 2) Re-install the FILTER BY PASS light. To install it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - 3) Do the Repair Confirmation at the end of this task.
 - (d) If there is 28 VDC at pin 5, then continue.
- (4) Do this check of the wiring between the FILTER BY PASS light and the DEUs:
 - (a) Remove DEU1, M1808 and DEU2, M1809. To remove them, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) Do a wiring check between these pins of the connector for the FILTER BY PASS light and the connectors for the DEUs:

	FILTER BYPASS LIGHT CONNECTOR		DEU CONNECTOR
ENGINE 1	D626 pin 21	--	D3973B (DEU1) pin B14
	D626 pin 21	--	D3975B (DEU2) pin B14
ENGINE 2	D628 pin 21	--	D3973E (DEU1) pin B14
	D626 pin 21	--	D3975B (DEU2) pin B14

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the FILTER BY PASS light. To install it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - 3) Re-install DEU1, M1808 and DEU2, M1809. To install them, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-05 TASK 812

D633A103-SIA

Page 253
Oct 15/2021

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

- (d) If you do not find a problem with the wiring, then do this step and continue:
 - 1) Re-install DEU1, M1808 and DEU2, M1809. To install them, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (5) Install a new FILTER BY PASS light (the most likely LRU from the Possible Causes list). To install it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the fuel FILTER BY PASS light comes on and goes off correctly during the test, then you corrected the fault.

————— END OF TASK —————

813. Engine BITE, The statement ENGINE MAINTENANCE CAN NOT BE ACCESSED - THE ENGINES FLIGHT INDICATOR SHOWS FLIGHT shows on the CDU and the Airplane is on the Ground - Fault Isolation

A. Description

- (1) The "ENGINE MAINTENANCE CAN NOT BE ACCESSED - THE ENGINE'S FLIGHT INDICATOR SHOWS FLIGHT" shows on the FMCS CDU when you try to get access to the ENGINE 1(2) BITE TEST MAIN MENU and the airplane is on the ground.
 - (2) The PSEU sends the Air/Ground data to the DEUs.
 - (a) The DEUs send Ch A and Ch B Air/Ground data to the EEC.
 - 1) If the Air/Ground data is air mode and the data on Ch A and Ch B agree, the EEC is set in the Air Mode.
 - 2) If the Air/Ground data on Ch A and Ch B do not agree (one Ch is air mode and one Ch is ground), the EEC defaults to the Air Mode.
- NOTE: The default to Air Mode is a safety feature to make sure that the airplane operates at approach idle when it is necessary.
- (b) When the EEC is in the Air Mode, you can not get access to engine maintenance data.

B. Possible Causes

- (1) DEU, M1808 (DEU1) or M1809 (DEU2)
- (2) Proximity switch electronics unit (PSEU), M2061
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1;
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-05 TASKS 812-813

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

(Continued)

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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(2) For Engine 2;

(a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Fault Isolation Procedure

- (1) Do the CDS BITE Procedure on the two DEUs. To do this, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for the maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a CDS maintenance message, then continue.
 - (2) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - (a) Do the corrective action for the maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a PSEU maintenance message, then continue.
 - (3) Replace the most likely LRU from the Possible Causes list.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.

 EFFECTIVITY
SIA ALL

73-05 TASK 813

D633A103-SIA

 Page 255
Oct 15/2021

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

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

E. Repair Confirmation

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) If you can get access to the test, then you corrected this fault.

————— **END OF TASK** —————

814. Engine is Slow to Accelerate - Fault Isolation

A. Description

- (1) The engines is slow to accelerate.

B. Possible Causes

- (1) PS3
- (2) HMU, M1823
- (3) Thrust lever out of adjustment
- (4) N2 sensor
- (5) N1 sensor
- (6) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1;
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2;
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 75-31-12)
- (3) (SSM 75-31-22)
- (4) (WDM 73-22-11)
- (5) (WDM 75-31-12)
- (6) (WDM 75-31-22)

E. Fault Isolation Procedure

- (1) Do this task: Test 8 - Acceleration Check, AMM TASK 71-00-00-700-824-F00.
 - (a) If the Acceleration Check is in the limits, then monitor the airplane on subsequent flights.

EFFECTIVITY
SIA ALL

73-05 TASKS 813-814

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

- 1) If slow acceleration is reported again, then do the corrective action below.
- (b) If the Acceleration Check is not in the limits, then continue.
- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for these types of maintenance messages that you find.
 - 1) INTERNAL EEC faults
 - 2) HMU faults
 - 3) VSV faults
 - 4) PS3 faults
 - 5) FMV faults
 - 6) N1 faults
 - 7) N2 faults
 - 8) VBV faults
 - 9) TRA faults.
 - 10) If you found and repaired messages above, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find the maintenance messages, then continue.
- (3) Examine the PS3 line for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the line.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (4) Start the applicable engine. To start it, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (a) Let the engine become stable at minimum idle.
- (5) Do these steps to get access to the EEC input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the flight management computer control display unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the ENGINE LSK.
NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.
 - 5) Push the line select key for the applicable Engine, ENGINE 1 or ENGINE 2.
NOTE: There will be a short delay while the screen shows INITIALIZING EEC X (X = 1 or 2). Then the ENGINE BITE TEST MAIN MENU will show.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/2 to show.

EFFECTIVITY
SIA ALL

73-05 TASK 814

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

- (6) Do these steps to look for erratic signals from the TRA/TLA, N1, N2 and FMV:
 - (a) Push the CONTROL LOOPS LSK.
 - (b) Push the FMV LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the FMV.
 - 2) If you find an unusual signal, then replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - 3) If it was necessary to adjust the thrust lever angle resolvers during the tests, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - b) Do the Repair confirmation at the end of this task
 - c) If the Repair Confirmation is not satisfactory, then continue.
 - 4) If you do not find an unusual signal from the FMV, then continue.
 - (c) Push the PREV PAGE key until the ENGINE BITE TEST INPUT MONITORING 1/4 CONTROL LOOPS menu shows on the CDU.
 - (d) Push the NEXT PAGE key until the ENGINE BITE TEST INPUT MONITORING 3/4 CONTROL LOOPS menu shows on the CDU.
 - (e) Push the TRA LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the TRA/TLA.
 - 2) If you find an unusual signal, then, do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00.
 - a) If you find a problem, then adjust the thrust lever, and then, do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - b) Do the Repair confirmation at the end of this task
 - c) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find an unusual signal from the TRA/TLA, then continue.
 - (f) Push the PREV PAGE key until the ENGINE BITE TEST INPUT MONITORING 1/2 menu shows on the CDU.
 - (g) Push the NEXT PAGE key until the ENGINE BITE TEST INPUT MONITORING 2/2 menu shows on the CDU.
 - (h) Push the SPEEDS LSK
 - (i) Push the N1 LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the N1.
 - 2) If you find an unusual signal, then replace the applicable N1 speed sensor. These are the tasks:
 - N1 Speed Sensor Removal, AMM TASK 77-11-01-000-801-F00
 - N1 Speed Sensor Installation, AMM TASK 77-11-01-400-801-F00
 - a) Do the Repair confirmation at the end of this task
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find an unusual signal from the N1, then continue.

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

- (j) Push the PREV PAGE key until the ENGINE BITE TEST INPUT MONITORING 1/1 SPEEDS - RPM menu shows on the CDU.
- (k) Push the N2 LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the N2.
 - 2) If you find an unusual signal, then replace the applicable N2 speed sensor. These are the tasks:
 - N2 Speed Sensor Removal, AMM TASK 77-11-02-000-801-F00
 - N2 Speed Sensor Installation, AMM TASK 77-11-02-400-801-F00
 - a) Do the Repair confirmation at the end of this task
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find an unusual signal from the N1, then continue.
- (7) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
- (8) Replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: Test 8 - Acceleration Check, AMM TASK 71-00-00-700-824-F00.
 - (a) If the engine operation is satisfactory, then you corrected the fault.

— END OF TASK —

815. Engine BITE, NOTICE - FLIGHT LEGS BETWEEN CHANNEL A AND CHANNEL B ARE NOT SYNCHRONIZED shows on the CDU - Fault Isolation

A. Description

- (1) The "!!!!NOTICE!!!!FLIGHT LEGS BETWEEN CHANNEL A AND CHANNEL B ARE NOT SYNCHRONIZED" shows on the FMCS CDU when you try to get access to the ENGINE 1(2) BITE TEST RECENT FAULTS or FAULT HISTORY.
 - (a) This task is for FRM codes 730 4XX 51 and 730 4XX 52.
- (2) This NOTICE is an Advisory Message and does not affect the dispatch of the airplane.
- (3) The Notice is caused when one EEC channel has a power interruption during the flight leg.
 - (a) The condition should reset automatically after ten flight legs without an additional power interruption.

B. Possible Causes

- (1) EEC Alternator, M1826
- (2) EEC, M1818
- (3) J7 (CH A) or J8 (CH B) wire harness
- (4) Airplane alternate power system
- (5) DEU 1 or DEU 2, M1808 or M1809
- (6) Alternate Power Relay, R576 (ENG 1) or R575 (ENG 2)
- (7) Wires and connectors between the circuit breaker panel and the EEC.

EFFECTIVITY
SIA ALL

73-05 TASKS 814-815

D633A103-SIA

Page 259
Oct 15/2021

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

C. Circuit Breakers

(1) For Engine 1;

(a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(2) For Engine 2;

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Fault Isolation Procedure

(1) Do this task: EEC BITE Procedure, 73-00 TASK 801.

(a) When the "!!!!NOTICE!!!!FLIGHT LEGS BETWEEN CHANNEL A AND CHANNEL B ARE NOT SYNCHRONIZED" shows on the CDU, then push the VIEW FAULTS Line-Select-Key.

(b) Look for one or more of these maintenance message numbers:

- 1) 73-10161, 73-10162, 73-20161, 73-20162, 73-30161, 73-30162, 73-10191, 73-10192, 73-20191, 73-20192, 73-30191, 73-30192, 73-11271, 73-11272, 73-21271, 73-21272, 73-31271, 73-31272, 73-11281, 73-11282, 73-21281, 73-21282, 73-31281, 73-31282, 73-11351, 73-11352, 73-21351, 73-21352, 73-31351, or 73-31352.

(c) Do the corrective action for the maintenance messages that you find.

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

(d) If you do not find a maintenance message, then monitor the airplane on subsequent flights.

E. Repair Confirmation

(1) Make sure that you do the Repair Confirmation for the Maintenance Messages that you found above.

NOTE: This will make sure that the faults are no longer active.

(2) Record the Maintenance Messages that you found.

(a) Record the steps taken to repair the faults.

(b) Do this task: Erase All EEC Faults, AMM TASK 73-21-00-800-801-F00.

(c) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

816. Engine is Slow to Decelerate - Fault Isolation

A. Description

(1) The engines is slow to decelerate.

EFFECTIVITY
SIA ALL

73-05 TASKS 815-816

**737-600/700/800/900
FAULT ISOLATION MANUAL****B. Possible Causes**

- (1) IDG
- (2) Thrust lever out of adjustment
- (3) PS3
- (4) EEC software
- (5) HMU, M1823
- (6) N2 sensor
- (7) EEC, M1818.

C. Circuit Breakers

- (1) Not applicable

D. Related Data

- (1) Component Locator, (73-05 TASK SUPPORT Figure 301)
- (2) (SSM 73-22-11)
- (3) (SSM 75-31-12)
- (4) (SSM 75-31-22)
- (5) (WDM 73-22-11)
- (6) (WDM 75-31-12)
- (7) (WDM 75-31-22)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the fault isolation for these types of maintenance messages that you find.
 - 1) INTERNAL EEC faults
 - 2) HMU faults
 - 3) VSV faults
 - 4) PS3 faults
 - 5) FMV faults
 - 6) N2 faults
 - 7) VBV faults
 - 8) TRA faults.
 - 9) If you found and repaired messages above, then do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages, then continue.
- (2) Examine the PS3 line for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the line.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem, then continue.

EFFECTIVITY
SIA ALL

73-05 TASK 816

D633A103-SIA

Page 261
Oct 15/2021

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

- (3) Make sure the EEC software version on each engine is compatible with the other engine, the thrust reverser and the airplane. Refer to this task: EEC Software Load, AMM TASK 73-21-60-470-801-F00

NOTE: Intermix of some EEC software versions is not permitted.

NOTE: Some EEC software versions must be installed on both engines at the same time.

NOTE: Some EEC software versions require concurrent changes to the airplane configuration.

- (a) If the EEC software is not compatible then load the correct software (AMM TASK 73-21-60-470-801-F00)
- 1) Do the Repair Confirmation at the end of this task.
- (b) If you did not find an incompatible EEC software then continue.
- (4) Start the two engines. To start them, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

(a) Let the engines become stable at minimum idle.

- (5) Do a check of the IDG:

NOTE: A few high time IDGs (more than 15,000 hours) have experienced hung decels for approximately 20 seconds or longer during decent from high altitudes.

- (a) Do these steps to operate the engines:
- 1) With the two engines at idle, note whether the N2 tenths digit of the affected engine fluctuates more than the other engine.
 - 2) Increase N2 to 70-75% and note the N2 tenths of the affected engine.
 - 3) Put the two engines back to idle.
- (b) If the N2 tenths fluctuate with the two engines at 70-75%N2, do this check of N2 with a disengaged IDG.
- 1) With the two engines at idle, mechanically disengage the IDG of the affected engine
 - a) Lift the applicable DISCONNECT switch guard on the P5-5 panel.
 - b) Push the DISCONNECT switch to the DISCONNECT position when the engine is at or above idle speed.
 - c) Make sure the DRIVE light comes on.
 - d) Make sure the AC meter on the P5 panel shows these values:
 - <1> AC VOLTS = 0
 - <2> CPS FREQ = 0
 - 2) If the N2 fluctuations stop, do these steps:
 - a) Stop the two engines; (AMM TASK 71-00-00-700-819-F00)
 - b) Replace the IDG on the affected engine. These are the tasks:
 - Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
 - Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801
 - c) Do the Repair Confirmation at the end of this task.
 - 3) If the N2 fluctuations do not stop, do these steps:
 - a) Stop the two engines (AMM TASK 71-00-00-700-819-F00)
 - b) Reconnect the IDG

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

- <1> Slowly pull the IDG Disconnect Reset Ring to the outward travel limit. Make a note of the amount of hand force necessary.
- <2> Make sure that a click is felt in the Disconnect Reset Ring as it gets near the outward limit of travel.
NOTE: Operation of the Rest Ring should be smooth with moderate force necessary and no indication of binding.
- <3> Allow the Disconnect Reset Ring to slowly return to the maximum inward position.
NOTE: Operation of the Rest Ring should be smooth with moderate force required and no indication of binding.
- <4> Slowly pull the IDG Disconnect Reset Ring to the outward travel limit. Make a note of the amount of hand force necessary.
- <5> Make sure that the amount of hand force necessary is less than the amount used in the previous step.
- <6> Make sure that there is no click during the second pull of the Disconnect Reset Ring.
 - <a> If the hand force does not decrease, or a click is produced during the second pull of the Disconnect Reset Ring, replace the IDG.
- <7> Allow the Disconnect Reset Ring to slowly return to the maximum inward position.

c) Continue with the fault isolation procedure.

- (c) If the N2 tenths do not fluctuate with the two engines at 70-75% N2, do these steps
 - 1) Stop the two engines (AMM TASK 71-00-00-700-819-F00)
 - 2) Continue with the fault isolation procedure.
- (6) Start the applicable engine. Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (a) Let the engine become stable at minimum idle.
- (7) Do these steps to get access to the EEC input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the flight management computer control display unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the ENGINE LSK.
NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.
 - 5) Push the line select key for the applicable Engine, ENGINE 1 or ENGINE 2.
NOTE: There will be a short delay while the screen shows INITIALIZING EEC X (X = 1 or 2). Then the ENGINE BITE TEST MAIN MENU will show.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/2 to show.

EFFECTIVITY
SIA ALL

73-05 TASK 816

D633A103-SIA

Page 263
Oct 15/2021

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

- (8) Do these steps to look for erratic signals from the TRA/TLA, N2 and FMV:
 - (a) Push the CONTROL LOOPS LSK.
 - (b) Push the FMV LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the FMV.
 - 2) If you find an unusual signal, then replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - 3) Do the Repair confirmation at the end of this task
 - 4) If you do not find an unusual signal from the FMV, then continue.
 - (c) Push the PREV PAGE key until the ENGINE BITE TEST INPUT MONITORING 1/4 CONTROL LOOPS menu shows on the CDU.
 - (d) Push the NEXT PAGE key until the ENGINE BITE TEST INPUT MONITORING 3/4 CONTROL LOOPS menu shows on the CDU.
 - (e) Push the TRA LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the TRA/TLA.
 - 2) If you find an unusual signal, then, do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00.
 - a) If you find a problem, then adjust the thrust lever, and then, do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - b) Do the Repair confirmation at the end of this task
 - 3) If you do not find an unusual signal from the TRA/TLA, then continue.
 - (f) Push the PREV PAGE key until the ENGINE BITE TEST INPUT MONITORING 1/2 menu shows on the CDU.
 - (g) Push the NEXT PAGE key until the ENGINE BITE TEST INPUT MONITORING 2/2 menu shows on the CDU.
 - (h) Push the SPEEDS LSK
 - (i) Push the N2 LSK.
 - 1) Look for unusual (erratic or fluctuating) signals from the N2.
 - 2) If you find an unusual signal, then replace the applicable N2 speed sensor. These are the tasks:
 - N2 Speed Sensor Removal, AMM TASK 77-11-02-000-801-F00
 - N2 Speed Sensor Installation, AMM TASK 77-11-02-400-801-F00
 - a) Do the Repair confirmation at the end of this task
 - 3) If you do not find an unusual signal from the N2, then continue with the fault isolation.
- (9) Stop the applicable engine (AMM TASK 71-00-00-700-819-F00).
 - (a) Continue to monitor the engine for slow deceleration.

F. Repair Confirmation

- (1) Record the steps that you did to find the fault. Continue to monitor the engine for slow deceleration. If the problem continues then contact the Boeing Company for assistance.

————— END OF TASK —————

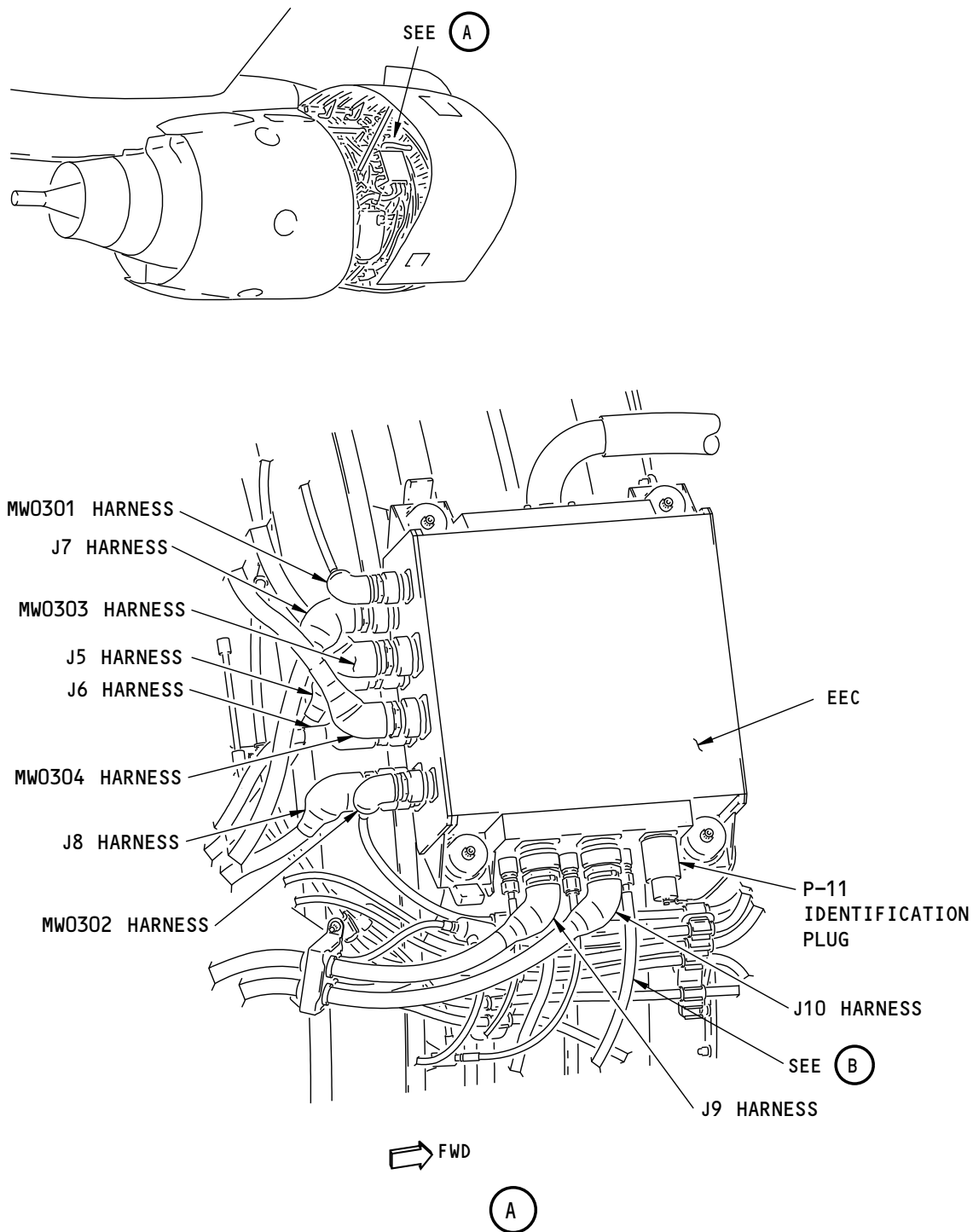
EFFECTIVITY
SIA ALL

73-05 TASK 816

D633A103-SIA

Page 264
Oct 15/2021

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



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Electronic Engine Controller (EEC)
Figure 301/73-05-00-990-801-F00 (Sheet 1 of 2)

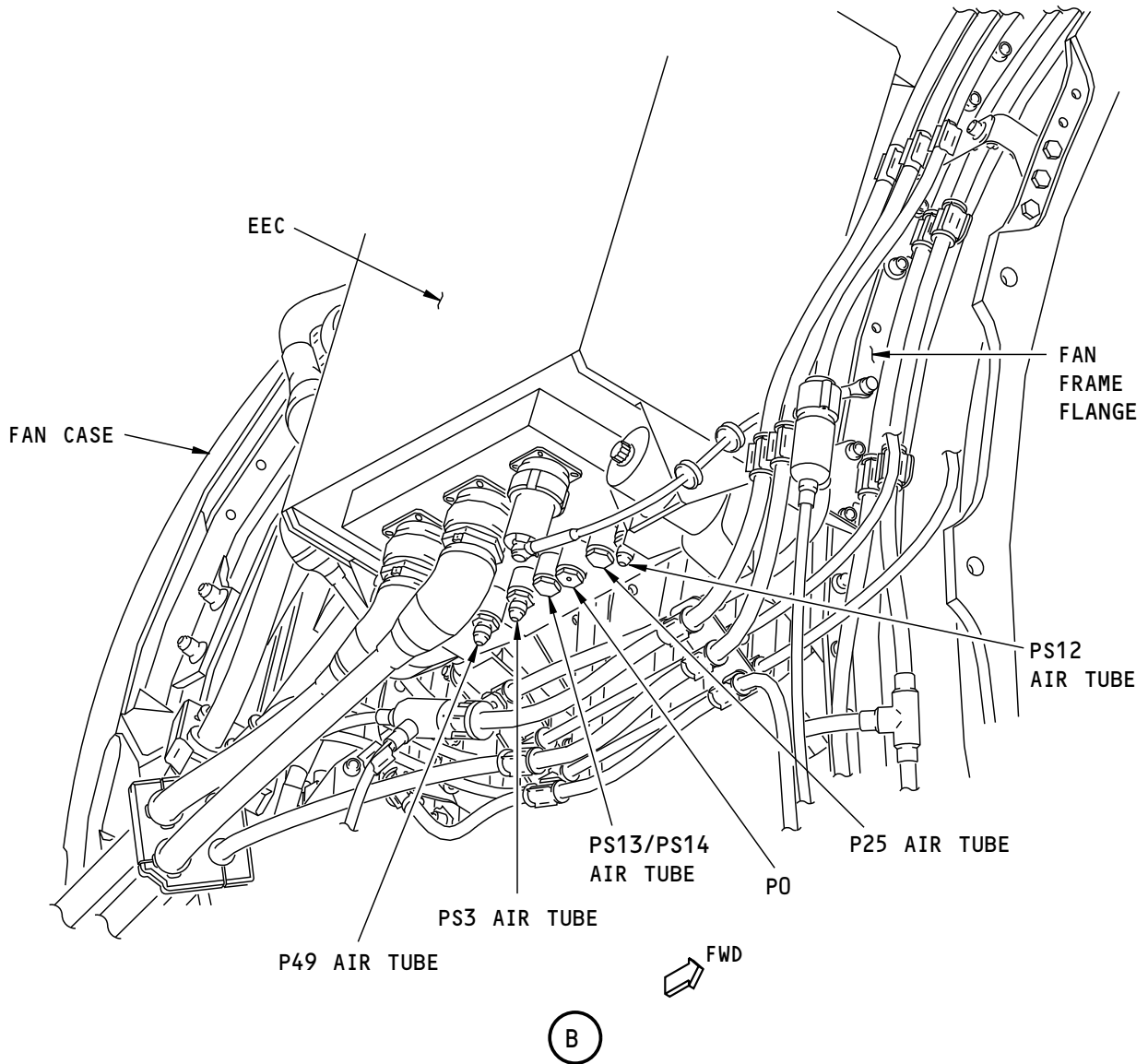
EFFECTIVITY
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73-05 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H82540 S0006745615_V1

Electronic Engine Controller (EEC)
Figure 301/73-05-00-990-801-F00 (Sheet 2 of 2)

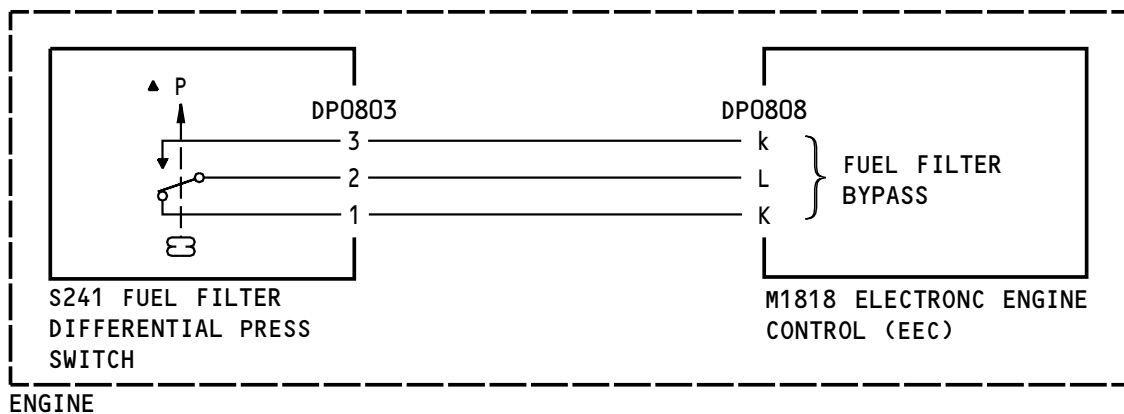
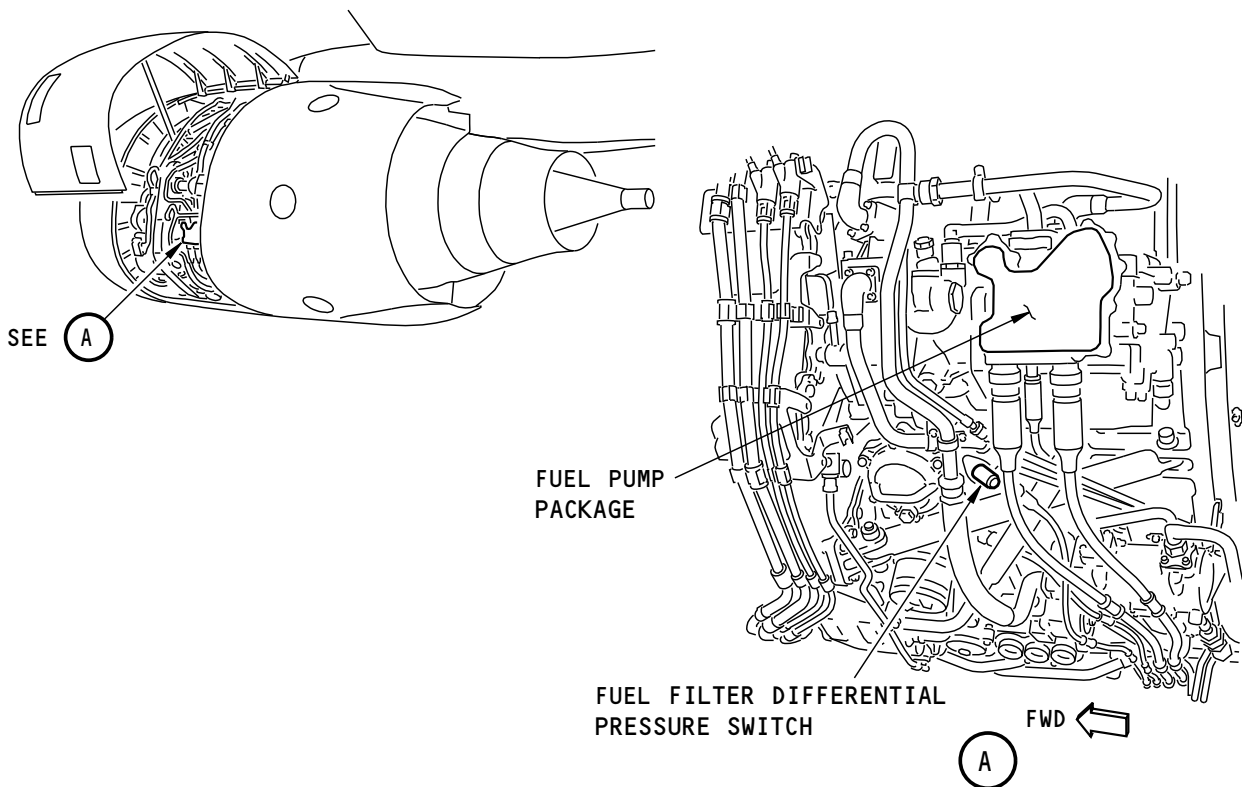
EFFECTIVITY
 SIA ALL

73-05 TASK SUPPORT

D633A103-SIA

Page 302
 Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H82556 S0006745616_V1

Fuel Filter Differential Pressure Switch and Simplified Schematic
Figure 302/73-05-00-990-802-F00

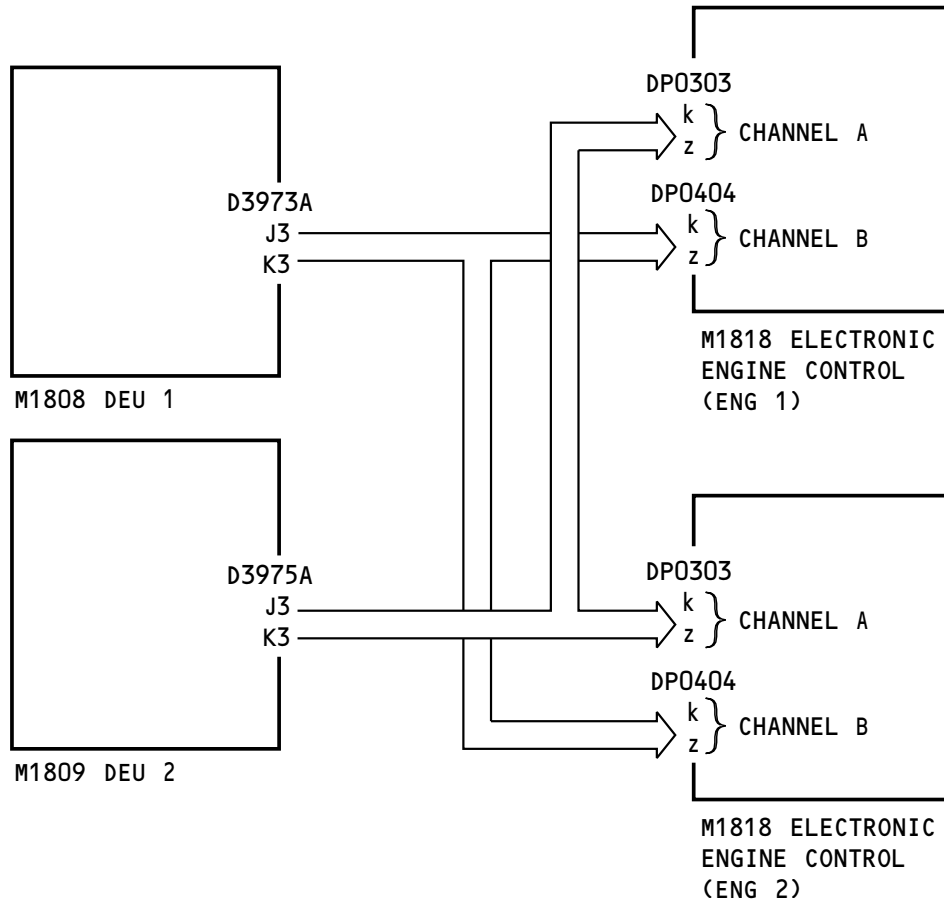
EFFECTIVITY
SIA ALL

73-05 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H82560 S0006745617_V1

**DEU to ECC (ARINC 429) Simplified Schematic
Figure 303/73-05-00-990-803-F00**

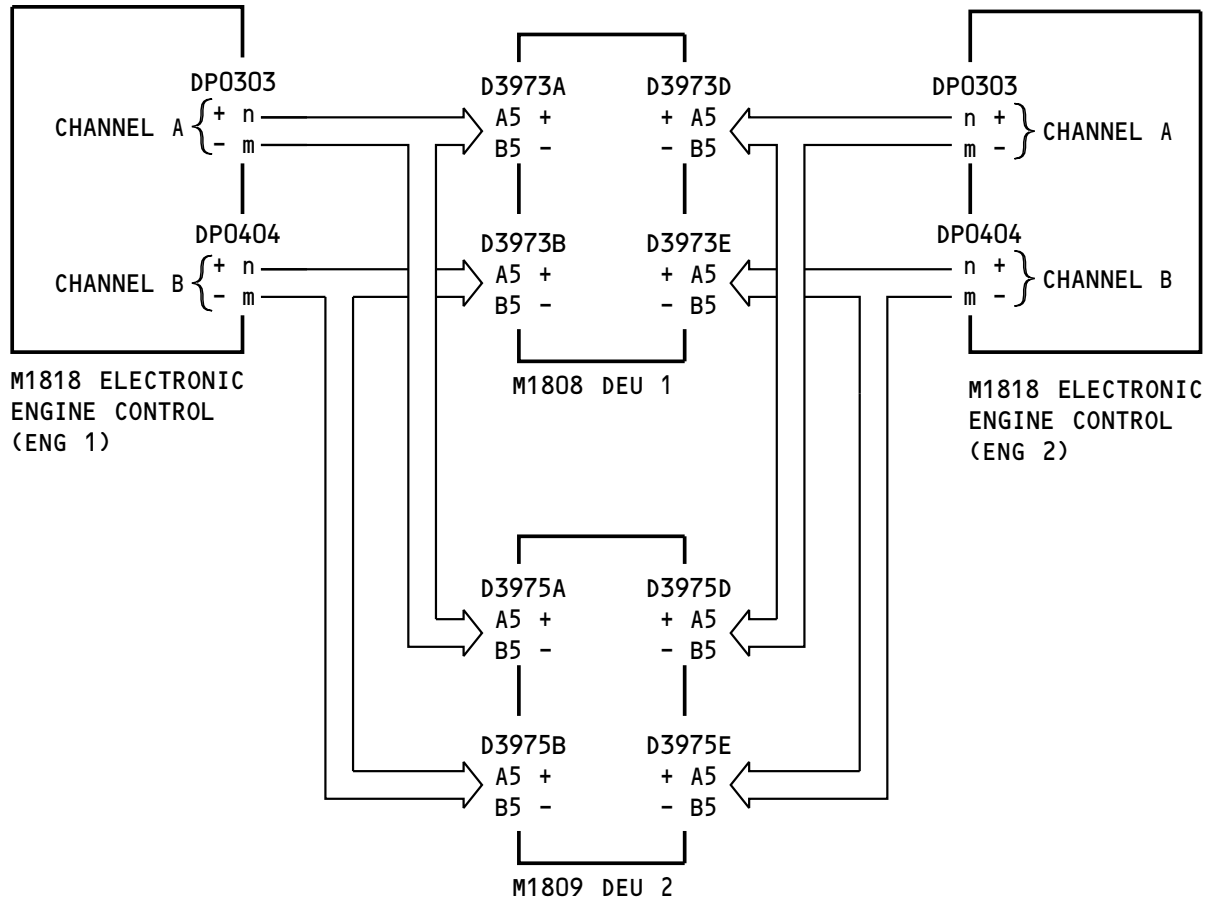
EFFECTIVITY
SIA ALL

73-05 TASK SUPPORT

D633A103-SIA

Page 304
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H82724 S0006745618_V1

EEC to DEU (ARINC 429) Simplified Schematic
Figure 304/73-05-00-990-804-F00

EFFECTIVITY
SIA ALL

73-05 TASK SUPPORT

D633A103-SIA

Page 305
Oct 15/2021

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

801. ENGINE CONTROL Light is ON - Fault Isolation

A. Description

- (1) The ENGINE CONTROL Light comes ON before takeoff or after landing.
 - (a) The ENGINE CONTROL Light indicates that the EEC detects an Engine Control System failure (or combination of failures) that causes the annunciation.
 - (b) The FMCS CDS System inhibits the Fault Light when the airplane is in flight (when the Airspeed is above 80 knots or before 30 seconds after landing).
 - (c) FADEC Faults that occur after engine start and before a flight are stored in Flight Leg Zero (FL0) until the engine goes through a flight cycle and then the fault moves to Flight Leg One (FL1).
 - (d) You must record faults stored in FL0 at shutdown, before a subsequent engine start, or they will be overwritten.

B. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301)
- (2) SSM 73-32-11
- (3) WDM 73-32-11

C. Fault Isolation Procedure

- (1) Do the EEC BITE Procedure, 73-00 TASK 801.

NOTE: Do not start the engine before you complete the EEC BITE Procedure, 73-00 TASK 801. If you do, this action will overwrite the faults stored in Flight Leg 0. Faults stored in Flight Leg 01 or higher will move to the subsequent flight leg at the next engine start. Flight Leg 0 stores the most recent Engine Ground Run Fault Data and does not move to subsequent flight legs after each engine start.

- (a) Look for maintenance messages in the ENGINE CONTROL LIGHT category and these combinations of messages in the LONG TIME category:
 - 1) 73-11191 and 73-21211
 - 2) 73-11192 and 73-21212
 - 3) 73-11201 and 73-21221
 - 4) 73-11202 and 73-21222
- (b) Do the corrective action for the maintenance messages that you find.

NOTE: The ENGINE CONTROL Light can also be set by a combination of faults that have a Lower Dispatch category. If the ENGINE CONTROL Light is set by a combination of these faults, all of these messages will show as ENGINE CONTROL LIGHT Faults in the last flight leg.

- 1) Do the Repair Confirmation at the end of this task.
- (c) If you do not find one or more of the EEC maintenance messages shown above, then, do the CDS BITE Procedure, 31-62 TASK 801.
 - 1) Look for one or more of these DEU maintenance messages:
 - 31-68210
 - 31-68220
 - 31-68240
 - 31-68250

EFFECTIVITY
SIA ALL

73-06 TASK 801

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

- a) Do the corrective action for the messages that you find.
 - b) Do the Repair Confirmation at the end of this task.
- 2) If you do not find one or more of the DEU maintenance messages shown above, then examine and repair the wiring between the applicable ENGINE CONTROL Light, L2 (L4) and the DEUs as follows (WDM 73-32-11):

NOTE: The Engine Control Light has power when the Battery Switch is ON. The ENGINE CONTROL Light comes ON when the DEUs provide a ground to the light (pin 2). If the wire between the light and the DEUs is shorted to Ground, then the light can also come ON when correlated maintenance messages do not show.

ENGINE-1

P5-68 PNL, L2 D2952 pin 8	DEU-1 D3973B pin F2

ENGINE-1

P5-68 PNL, L2 D2952 pin 8	DEU-2 D3975B pin F2

ENGINE-2

P5-68 PNL, L4 D3172 pin 8	DEU-1 D3973E pin F2

ENGINE-2

P5-68 PNL, L4 D3172 pin 8	DEU-2 D3975E pin F2

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

D. Repair Confirmation

- (1) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (a) If you do not find ENGINE CONTROL LIGHT maintenance messages in Flight Leg 0, then you corrected the fault.

————— **END OF TASK** —————

802. ENG VALVE CLOSED Light is Slow to go from Bright to Dim when the Start Lever is Moved to CUTOFF - Fault Isolation

A. Description

- (1) The ENG VALVE CLOSED light is slow to go from Bright to Dim when the start lever is moved to CUTOFF.
- (2) The ENG VALVE CLOSED light should be in these states when the high pressure shut-off valve (HPSOV) is in these positions:

EFFECTIVITY
SIA ALL

73-06 TASKS 801-802

D633A103-SIA

Page 202
Oct 15/2021

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

Table 201

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
OFF	OPEN	IDLE
DIM	CLOSED	CUTOFF
BRIGHT	VALVE IS NOT IN THE COMMANDED POSITION	IDLE/ CUTOFF

- (a) The HPSOV controls the high pressure fuel flow to the engine manifold. The HPSOV is located inside of the HMU.

B. Possible Causes

- (1) HMU, M1823
- (2) Engine Start Switch Module, M1824 Eng 1, M1825 Eng 2
- (3) Module Assembly - Fuel Control, P5-2
- (4) Wiring

C. Circuit Breakers

- (1) For engine 1, these are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 302)
- (2) (SSM 76-21-11)
- (3) (SSM 76-21-21)
- (4) (WDM 73-22-11)
- (5) (WDM 76-21-11)
- (6) (WDM 76-21-21)

EFFECTIVITY
SIA ALL

73-06 TASK 802

D633A103-SIA

Page 203
Oct 15/2021

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

E. Fault Isolation Procedure

- (1) Do this task: ENG VALVE CLOSED Light Stays On Bright when the Start Lever is Moved to CUTOFF - Fault Isolation, 73-06 TASK 804.

———— **END OF TASK** ————

803. ENG VALVE CLOSED Light was Slow to go from Bright to Off when the Start Lever is Moved to IDLE - Fault Isolation

A. Description

- (1) The ENG VALVE CLOSED is slow to go from bright to off when the start lever is moved to IDLE.
- (2) The ENG VALVE CLOSED light should be in these states when the high pressure shut-off valve (HPSOV) is in these positions:

Table 202

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
OFF	OPEN	IDLE
DIM	CLOSED	CUTOFF
BRIGHT	VALVE IS NOT IN THE COMMANDED POSITION	IDLE/ CUTOFF

- (a) The HPSOV controls the high pressure fuel flow to the engine fuel manifold. The HPSOV is located inside of the HMU.

B. Possible Causes

- (1) HMU, M1823
- (2) Module Assembly - Fuel Control, P5-2

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 76-21-11)
- (3) (SSM 76-21-21)
- (4) (WDM 73-22-11)
- (5) (WDM 76-21-11)
- (6) (WDM 76-21-21)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for INTERNAL EEC and FMV maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find the maintenance messages, then continue.
 - (2) Replace the HMU (the most likely LRU from the Possible Causes list).
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the problem continues, then, do this task: ENG VALVE CLOSED Light Stays Bright when the Start Lever is Moved to IDLE during an Engine Start - Fault Isolation, 73-06 TASK 805.

F. Repair Confirmation

- (1) Do one of these two optional procedures:
 - (a) Option 1,
 - Look at the ENG VALVE CLOSED light as you do these steps:
 - 1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 2) Let the engine become stable at idle.
 - 3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 4) If the ENG VALVE CLOSED light operated correctly, then you corrected the fault.
 - (b) Option 2,
 - Record the steps that you completed to find and repair the fault
 - 1) Make sure that the ENG VALVE CLOSED light is DIM.

EFFECTIVITY
SIA ALL

73-06 TASK 803

D633A103-SIA

Page 205
Oct 15/2021

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

- 2) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

804. ENG VALVE CLOSED Light Stays On Bright when the Start Lever is Moved to CUTOFF - Fault Isolation

A. Description

- (1) The light stays bright when the Start Lever is moved.
 - (a) The High Pressure Shutoff Valve (HPSOV) indication system senses that the valve is not in the commanded position, when the light stays bright.
 - (b) The bright light implies that there is a problem with the circuit between the applicable engine start switch module and the HPSOV solenoid in the Hydro-Mechanical Unit (HMU), M1823 or the indication of the valve position.
 - (c) The ENG VALVE CLOSED Light should be in these states when the HPSOV is in these positions:

Table 203

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
OFF	OPEN	IDLE
DIM	CLOSED	CUTOFF
BRIGHT	VALVE IS NOT IN THE COMMANDED POSITION	IDLE/ CUTOFF

- 1) The HPSOV controls the high pressure fuel flow to the engine manifold. The HPSOV is located inside of the HMU.

B. Possible Causes

- (1) ENG-1 (ENG-2) Fire Switch, S8 (S9)
- (2) HMU, M1823
- (3) ENG-1 (ENG-2) VALVE CLOSED Light, LX1 (LX2)
- (4) Fuel Control Module Assembly, P5-2

SIA 702-714

- (5) ENG-1 (ENG-2) Start Switch Module, M1824 (M1825)

SIA 716-999

- (6) ENG-1 (ENG-2) Fuel HPSOV Switch, S1026 (S1029)

SIA ALL

- (7) System wires and connectors

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A

EFFECTIVITY
SIA ALL

73-06 TASKS 803-804

D633A103-SIA

Page 206
Oct 15/2023

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) SSM 76-21-11
- (3) SSM 76-21-21
- (4) WDM 73-22-11
- (5) WDM 76-21-11
- (6) WDM 76-21-21

E. Initial Evaluation

- (1) Look at the ENG-1 (ENG-2) VALVE CLOSED Light, LX1 (LX2) as you do these steps:
 - (a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (b) Let the engine become stable at idle.
 - (c) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - (d) If the ENG VALVE CLOSED Light operated correctly, then there was an intermittent fault.
 - (e) If the ENG VALVE CLOSED Light did not operate correctly, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Due to limited usage, the ENG-1 (ENG-2) Fire Switch, S8 (S9) require cleaning or replacing. These are the tasks:
 - Engine and APU Fire Shutoff Switch Assembly Removal, AMM TASK 26-00-01-000-802
 - Engine and APU Fire Shutoff Switch Assembly Installation, AMM TASK 26-00-01-400-802
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Prepare for the procedure:

 EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

 Page 207
Feb 15/2023

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

- (a) For ENG-1 (ENG-2), open the applicable circuit breakers and make sure that they have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Do this check of the HPSOV Position Switch at the applicable HMU (WDM 76-21-11, 76-21-21):
- (a) Disconnect the electrical connector DP1207 from the HMU, M1823.
- (b) Make sure that the applicable Start Lever is in the CUTOFF position.
- (c) Do a resistance check of the HPSOV Position Switch at the HMU, M1823 receptacle as follows:

HMU, M1823		HMU, M1823		RESISTANCE
DP1207		DP1207		
pin 1		pin 2		> 20 MΩ
pin 1		pin 3		< 0.5 Ω

- (d) If the resistances are not in the range specified, then do these steps:
- 1) Replace the HMU, M1823. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - a) An alternative is to replace the HPSOV Switch in the HMU, M1823. These are the tasks:
 - High Pressure Shutoff Valve (HPSOV) Switch Removal, AMM TASK 73-21-09-000-801-F00
 - High Pressure Shutoff Valve (HPSOV) Switch Installation, AMM TASK 73-21-09-400-801-F00

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

- 2) Do the Repair Confirmation at the end of this task.
- (e) If the resistances are in the range specified, then re-connect the electrical connector DP1207 to the HMU, M1823 and continue.
- (4) Do this check of the wiring (WDM 76-21-11, 76-21-21):
- (a) Disconnect the electrical connector DP1203 from the HMU, M1823.
- (b) For ENG-1 (ENG-2), open the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access

- (c) Disconnect the electrical connector ENG-1 (ENG-2) D11286 (D11290).
- (d) Do a wiring check as follows:

ENG-1

HMU, M1823	P10 CTRL STAND
DP1203	D11286
pin 1	pin 7
pin 2	GD3836-DC

ENG-2

HMU, M1823	P10 CTRL STAND
DP1203	D11290
pin 1	pin 7
pin 2	GD3936-DC

- 1) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
- b) Re-connect the electrical connector ENG-1 (ENG-2) D11286 (D11290).
- c) For ENG-1 (ENG-2), close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access

- d) Re-connect the electrical connector DP1203.
- e) 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-connect the electrical connector DP1203.

- (5) Do this check of the wiring (WDM 76-21-11, 76-21-21):
- (a) Get access to the electrical connector ENG-1 (ENG-2) D576 (D578). This is the task: Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801.

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

Page 209
Feb 15/2023

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

- (b) Disconnect the electrical connector ENG-1 (ENG-2) D576 (D578) from the Auxiliary Power Unit (APU) Fire Control Panel, P8-1.
- (c) Do a wiring check as follows:

ENG-1

P10 CTRL

STAND

D11286

pin 9		pin 31
pin 7		pin 29

P8-1 PNL

D576

ENG-2

P10 CTRL

STAND

D11290

pin 9		pin 31
pin 7		pin 29

P8-1 PNL

D578

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect the electrical connector ENG-1 (ENG-2) D11286 (D11290).
 - c) For ENG-1 (ENG-2), close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access
 - d) Re-connect the electrical connector ENG-1 (ENG-2) D576 (D578).
 - e) Close access to the electrical connector ENG-1 (ENG-2) D576 (D578). This is the task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
 - 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 the electrical connector ENG-1 (ENG-2) D11286 (D11290).
 - b) For ENG-1 (ENG-2), close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access
- (6) For ENG-1 (ENG-2), do a wiring check between pin 30 of the electrical connector ENG-1 (ENG-2) D576 (D578) at the APU Fire Control Panel, P8-1 and applicable circuit breaker: (WDM 76-21-11, 76-21-21)

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

Page 210
Feb 15/2023

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT

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

- 1) Repair the wiring of or replace the applicable circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT

- 2) Re-connect the electrical connector ENG-1 (ENG-2) D576 (D578).
- 3) Close access to the electrical connector ENG-1 (ENG-2) D576 (D578). This is the task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
- 4) Do the Repair Confirmation at the end of this task.

(b) If you do not find a problem with the wiring, then do these steps and continue:

- 1) Re-connect the electrical connector ENG-1 (ENG-2) D576 (D578).
- 2) Close access to the electrical connector ENG-1 (ENG-2) D576 (D578). This is the task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.

(7) Do a resistance check of the ENG-1 (ENG-2) Fuel HPSOV Switch, S1026 (S1029), at the applicable Start Lever Switch Module (WDM 76-21-11, 76-21-21):

(a) For ENG-1 (ENG-2), open the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access

- (b) Disconnect the electrical connector ENG-1 (ENG-2) D11286 (D11290).
- (c) Make sure that the applicable Start Lever is in the CUTOFF position.
- (d) Do a resistance check at the as follows:

ENG-1 @ CUTOFF

P10 CTRL STAND D11286	P10 CTRL STAND D11286	RESISTANCE
socket 9	socket 7	< 1 Ω
socket 9	socket 8	> 20 MΩ

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 211
Feb 15/2023

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

ENG-2 @ CUTOFF

P10 CTRL STAND D11290	P10 CTRL STAND D11290	RESISTANCE
socket 9	socket 7	< 1 Ω
socket 9	socket 8	> 20 M Ω

(e) If the resistances are not in the range specified, then do these steps:

SIA 702-714

- 1) Replace the ENG-1 (ENG-2) Start Switch Module, M1824 (M1825). These are the tasks:
 - Engine Start Brake Assembly Switch Removal, AMM TASK 76-11-11-010-801-F00
 - Engine Start Brake Assembly Switch Installation, AMM TASK 76-11-11-420-801-F00

SIA 716-999

- 2) Replace the ENG-1 (ENG-2) Fuel HPSOV Switch, S1026 (S1029). These are the tasks:
 - Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00

SIA ALL

- 3) Do the Repair Confirmation at the end of this task.
- (f) If the resistances are in the range specified, then do these steps and continue:
 - 1) Re-connect the electrical connector ENG-1 (ENG-2) D11286 (D11290).
 - 2) For ENG-1 (ENG-2), close the applicable access panels:

<u>Number</u>	<u>Name/Location</u>
211A	Panel Assy - Control Stand Access
211B	Panel Assy - Control Stand Access
212A	Panel Assy - Control Stand Access
212B	Panel Assy - Control Stand Access

- (8) Lower the P5 Panel to get access to the electrical connectors ENG-1 (ENG-2) D626 (D628).
 - (a) Disconnect the electrical connector ENG-1 (ENG-2) D626 (D628).
- (9) Do this check of the HPSOV Position Switch at the electrical connector ENG-1 (ENG-2) D626 (D628):
 - (a) Look for airplane ground at pin 25 of the electrical connector ENG-1 (ENG-2) D626 (D628).
 - 1) If you do not find the ground, then examine and repair the wire between pin 25 and the airplane ground connection ENG-1 (ENG-2) GD503-DC (GD515-DC).
 - a) Continue.
 - 2) If you find the ground, then continue.
 - (b) Measure the resistance between these pairs of pins of the HPSOV Position Switch at the electrical connector ENG-1 (ENG-2) D626 (D628):

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

Page 212
Oct 15/2023

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

ENG-1 @ CUTOFF

P5-2 PNL D626	P5-2 PNL D626	RESISTANCE
pin 12	pin 25	< 30 Ω
pin 11	pin 25	> 20 MΩ

ENG-2 @ CUTOFF

P5-2 PNL D628	P5-2 PNL D628	RESISTANCE
pin 12	pin 25	< 30 Ω
pin 11	pin 25	> 20 MΩ

- (c) If the resistances are not in the range specified, then do these steps:
- 1) Examine and repair the wires between the electrical connector ENG-1 (ENG-2) D626 (D628) and the applicable electrical connector DP1207 at the HMU, M1823.
 - 2) Do the Repair Confirmation at the end of this task.
- (d) If the resistances are in the range specified, then continue.
- (10) Do this check for 28V DC to the ENG VALVE CLOSED Light at the electrical connector ENG-1 (ENG-2) D626 (D628):
- (a) For ENG-1 (ENG-2), remove the safety tag and close the applicable circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) Look for 28V DC between pin 3 and pin 25 of the electrical connector ENG-1 (ENG-2) D626 (D628):
- 1) If you do not find the voltage, then examine and repair the wire between pin 3 and the applicable circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- a) Continue.
 - 2) If you find the voltage, then continue.
- (c) Make sure that the applicable Start Lever is in the CUTOFF position.
- (d) Measure the voltage between these pairs of pins at the electrical connector ENG-1 (ENG-2) D626 (D628) as follows:

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

Page 213
Feb 15/2023

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

ENG-1 @ CUTOFF

P5-2 D626	P5-2 D626	VOLTAGE
pin 24	pin 25	> 21.8V DC
pin 27	pin 25	< 5V DC

ENG-2 @ CUTOFF

P5-2 D628	P5-2 D628	VOLTAGE
pin 24	pin 25	> 21.8V DC
pin 27	pin 25	< 5V DC

- (e) Move the applicable Start Lever to the IDLE position.
- (f) Measure the voltage between these pairs of pins at the electrical connector ENG-1 (ENG-2) D626 (D628) as follows:

ENG-1 @ IDLE

P5-2 D626	P5-2 D626	VOLTAGE
pin 24	pin 25	< 5V DC
pin 27	pin 25	> 21.8V DC

ENG-2 @ IDLE

P5-2 D628	P5-2 D628	VOLTAGE
pin 24	pin 25	< 5V DC
pin 27	pin 25	> 21.8V DC

**CAUTION**

DO NOT TURN THE FIRE HANDLE AFTER YOU PULLED IT UP. YOU WILL CAUSE THE FIRE BOTTLES TO RELEASE THEIR CONTENTS IF YOU TURN THE HANDLE.

- (g) Pull, but do not turn, the applicable Fire Handle.
- (h) Measure the voltage between these pairs of pins at the electrical connector ENG-1 (ENG-2) D626 (D628) as follows:

ENG-1 @ IDLE

P5-2 D626	P5-2 D626	VOLTAGE
pin 24	pin 25	> 21.8V DC
pin 27	pin 25	< 5V DC

EFFECTIVITY
SIA ALL

73-06 TASK 804

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

ENG-2 @ IDLE

P5-2	P5-2	VOLTAGE
D628	D628	
pin 24	pin 25	> 21.8V DC
pin 27	pin 25	< 5V DC

- (i) For ENG-1 (ENG-2), open the applicable circuit breakers and make sure that they have safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (j) If the above voltages are in the specified range, then replace the P5-2 Panel.
- 1) Do the Repair Confirmation at the end of this task.
- (k) If the above voltages are not in the specified range, then examine and repair the wire between the applicable pin and the applicable circuit breaker.
- 1) Do the Repair Confirmation at the end of this task.
- (l) If the problem continues, then replace the applicable HMU, M1823 (the most likely Line Replaceable Unit (LRU) from the Possible Causes List). These are the tasks:
- HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.
 - a) If the problem continues, then replace the subsequent LRU from the Possible Causes List.

G. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that the P5-2 Panel is correctly installed.
 - (b) Make sure that the DP1203 electrical connector is correctly connected to the HMU, M1823.
 - (c) Make sure that the DP1207 electrical connector is correctly connected to the HMU, M1823.
 - (d) For ENG-1 (ENG-2), remove the safety tag and close the applicable circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

EFFECTIVITY
SIA ALL

73-06 TASK 804

D633A103-SIA

Page 215
Feb 15/2023

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Do one of these two optional procedures:
- (a) Option 1:
- Look at the ENG VALVE CLOSED Light as you do these steps:
- 1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 2) Let the engine become stable at idle.
 - 3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 4) If the ENG VALVE CLOSED Light operated correctly, then you corrected the problem. Otherwise, continue the Fault Isolation Procedure at the subsequent step.
 - 5) If solution is unsatisfactory, then continue the Fault Isolation Procedure at the subsequent step.
- (b) Option 2:
- Record the steps that you completed to find and repair the problem.
- 1) Make sure that the ENG VALVE CLOSED Light is DIM.
 - 2) Monitor the airplane on subsequent flights.
 - 3) If solution is unsatisfactory, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

805. ENG VALVE CLOSED Light Stays Bright when the Start Lever is Moved to IDLE during an Engine Start - Fault Isolation

A. Description

- (1) The light stays bright when the Start Lever is moved to IDLE during an engine start.
 - (a) The High Pressure Shut-off Valve (HPSOV) System senses that the valve is not in the commanded position, when the light stays bright.
 - (b) The bright light implies that there is a problem with the circuit between the applicable engine start switch module and the HPSOV Solenoid in the HMU.

EFFECTIVITY
SIA ALL

73-06 TASKS 804-805

D633A103-SIA

Page 216
Feb 15/2023

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

- (c) If the Start Lever is moved to IDLE with out engine rotation, then the light will stay bright because there is no fuel pressure to move the valve to open.
- (2) The ENG VALVE CLOSED Light must be in these states when the High Pressure Shut-off Valve (HPSOV) is in these positions:

Table 204

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
OFF	OPEN	IDLE
DIM	CLOSED	CUTOFF
BRIGHT	VALVE IS NOT IN THE COMMANDED POSITION	IDLE/ CUTOFF

- (a) The HPSOV controls the High Pressure fuel flow to the Engine Manifold. The HPSOV is located in the HMU.

B. Possible Causes

- (1) HMU, M1823
- (2) ENG-1 (ENG-2) ENG VALVE CLOSED Light, LX1 (LX2)
- (3) Fuel Control Module Assembly, P5-2

SIA 702-714

- (4) ENG-1 (ENG-2) Start Lever Switch Module, M1824 (M1825)

SIA 716-999

- (5) ENG-1 (ENG-2) Start Lever, S1221 (S1222)

SIA ALL

- (6) System Wiring
- (7) EEC, M1818

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 217
Oct 15/2023

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) WDM 73-22-11
- (3) WDM 76-21-11
- (4) WDM 76-21-21
- (5) SSM 76-21-11
- (6) SSM 76-21-21

E. Fault Isolation Procedure

- (1) Do this task: Wet Motor the Engine, AMM TASK 71-00-00-700-822-F00.
 - (a) Move the Start Lever to the IDLE position.
- (2) Make sure that the ENG VALVE CLOSED Light is still On BRIGHT.
 - (a) If the light is On BRIGHT, then continue this procedure.
 - (b) If the light is slow to go to DIM, then, do this task: ENG VALVE CLOSED Light was Slow to go from Bright to Off when the Start Lever is Moved to IDLE - Fault Isolation, 73-06 TASK 803.
 - (c) If the light goes to DIM, you have an intermittent fault.
 - 1) For an intermittent fault, you must use your judgment, your airline policies, and the Possible Causes list to make a decision if you will try to correct the fault.
- (3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
- (4) Make sure that the Pneumatic Power is removed from the airplane.
 - (a) If it is necessary, do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (5) Do these steps to get access to the EEC INPUT MONITORING of DISCRETE Display:
 - (a) On the Flight Management Computer System (FMCS) Control Display Unit (CDU), get access to the applicable INPUT MONITORING Screen.
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX Line Select Key (LSK).
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the ENGINE LSK.
NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.

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

- 5) Push the line select key the applicable Engine, ENGINE 1 or ENGINE 2.
NOTE: There will be a short delay while the screen shows INITIALIZING EEC X (X = 1 or 2). Then the ENGINE BITE TEST MAIN MENU will show.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/2 to show.
 - 7) Push the NEXT key to get access to the ENGINE BITE TEST INPUT MONITORING 2/2 Screen.
 - 8) Push the DISCRETES LSK
NOTE: This causes the ENGINE BITE TEST INPUT MONITORING 1/3 GMM DISCRETES to show.
 - 9) Push the NEXT key two times to get access to the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES Screen.
- (6) Make sure that the two Engine Start Levers are in the CUTOFF position.
- (a) Make sure that these items on the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES Screen show CUTOFF:
- 1) START LEV SW-LOC
NOTE: This item will display the indication for the Channel that is in control.
 - 2) START LEV SW-XCH
NOTE: This item will display the indication for the cross Channel, the Channel that is not in control of the EEC
 - 3) START LEV SW-DEU1
NOTE: This item will display the start lever position that is sent via the ARINC buss from DEU 1. The DEU indication is always the position of the channel A switch.
 - 4) START LEV SW-DEU2
NOTE: This item will display the start lever position that is sent via the ARINC buss from DEU 2. The DEU indication is always the position of the channel A switch.
 - 5) START LEV SW-SEL
NOTE: The SEL (Select) value as an internally calculated working value for the start lever position. The EEC uses the four inputs above to calculates the SEL value.

SIA 702-714

- (b) If the five Input Monitoring indications do not agree with the Start Lever position, then replace the applicable Engine Start Lever Switch Module M1824(M1825). These are the tasks:
- Engine Start Brake Assembly Removal, AMM TASK 76-11-10-010-801-F00
 - Engine Start Brake Assembly Installation, AMM TASK 76-11-10-420-801-F00
- 1) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 219
Oct 15/2023

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

SIA 716-999

- (c) If the five Input Monitoring indications do not agree with the Start Lever position, then replace the applicable Engine Start Lever Switch Module. These are the tasks:
- Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.

SIA ALL

- (d) If the five Input Monitoring indications agree with the Start Lever position, then continue.
- (e) Move the applicable Engine Start Lever to the IDLE position.
- 1) Stop for 30 seconds.
- (f) Make sure that these items on the ENGINE BITE TEST INPUT MONITORING 3/3 GMM DISCRETES Screen show IDLE:
- 1) START LEV SW-LOC
 - 2) START LEV SW-XCH
 - 3) START LEV SW-DEU1
 - 4) START LEV SW-DEU2
 - 5) START LEV SW-SEL
- 6) Move the applicable Engine Start Lever to the CUTOFF position.

SIA 702-714

- (g) If the five Input Monitoring indications do not agree with the Start Lever position, then replace the applicable Engine Start Lever Switch Module. These are the tasks:
- Engine Start Brake Assembly Removal, AMM TASK 76-11-10-010-801-F00
 - Engine Start Brake Assembly Installation, AMM TASK 76-11-10-420-801-F00
- 1) Do the Repair Confirmation at the end of this task.

SIA 716-999

- (h) If the five input Monitoring indications do not agree with the Start Lever position, then replace the applicable Engine Start Lever Switch Module. These are the tasks:
- Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.

SIA ALL

- (i) If the five Input Monitoring indications agree with the start lever position, then continue.
- (7) For ENG 1 (ENG 2), open the applicable circuit breakers and make sure that they have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 220
Oct 15/2023

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (8) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (9) Do this check of the HPSOV Control Power at the HMU:
- Disconnect the electrical connector DP1203 from the applicable ENG-1 (ENG-2) HMU (WDM 76-21-11, WDM 76-21-21).
 - For ENG 1 (ENG 2), remove the safety tag and close the applicable circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- Do a Voltage Check at the applicable ENG-1 (ENG-2) HMU electrical connector DP1203 as follows (WDM 76-21-11, WDM 76-21-21):

CUTOFF	DP1203 pin 1	DP1203 pin 2	VOLTAGE > 22V DC
IDLE	DP1203 pin 1	DP1203 pin 2	VOLTAGE < 5V DC

- If the Voltage is as specified above, then replace the HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - Do the Repair Confirmation at the end of this task.
- If the Voltage is not as specified above, then examine the wiring between the HMU and the Power Source as follows (WDM 76-21-11, WDM 76-21-21):

ENGINE 1

LCC-R	HMU
D40800P	DP1203
pin 8	pin 1

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 221
Feb 15/2023

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

HMU**DP1203**

pin 2 GD3836-DC

DP1203**ENGINE 2****LCC-R (P6)****D40812P**

pin 12 pin 1

HMU**DP1203****HMU****DP1203**

pin 2 GD3936-DC

DP1203

- a) Repair the problems that you find.
 - b) Connect the connector DP1203 to the applicable HMU.
 - c) Do the Repair Confirmation at the end of this task.
- (10) Do this check of the HPSOV Position Switch at the applicable ENG-1 (ENG-2) HMU:
- (a) Disconnect the DP1207 electrical connector from the HMU.
 - (b) Make sure that the applicable Start Lever is in the CUTOFF position.
 - (c) Do a Resistance check of the HPSOV Position Switch at the HMU Receptacle as follows (WDM 76-21-11, WDM 76-21-21):

HMU**DP1207**

pin 1 pin 3

pin 1 pin 2

HMU**DP1207****RESISTANCE**

< 0.5 Ohms

> 20 MOhms

- 1) If the Resistances are not in the specified range, then replace the applicable HMU. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) An alternative is to replace the HPSOV Switch in the HMU. These are the tasks:
 - High Pressure Shutoff Valve (HPSOV) Switch Removal, AMM TASK 73-21-09-000-801-F00
 - High Pressure Shutoff Valve (HPSOV) Switch Installation, AMM TASK 73-21-09-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If the Resistances are in the range specified, then re-connect connector DP1207 to the applicable HMU and continue.
- (11) Lower the P5 Panel to get access to the applicable ENG-1 (ENG-2) electrical connector D626 (D628).
- (a) Disconnect the applicable electrical connector D626 (D628) .

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 222
Feb 15/2023

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

- (12) Do a check of the HPSOV Position Switch at the applicable electrical connector D626 (D628) as follows:
- (a) Do a check for Ground at pin 25 of the applicable ENG-1 (ENG-2) electrical connector D626 (D628).
 - 1) If you do not find Ground, then examine and repair the wire between pin 25 and the Airplane Ground connection GD503-DC (ENG-1) or GD515-DC (ENG-2).
 - 2) If you find Ground, then continue.
 - (b) Put the Start Lever at the indicated positions below and do a Resistance check of the HPSOV Position Switch as follows (WDM 76-21-11, WDM 76-21-21):

ENG-1 @ CUTOFF

P5-2 PNL DP626	P5-2 PNL DP626	RESISTANCE
pin 12	pin 25	< 30 Ohms
pin 11	pin 25	> 20 MOhms

ENG-2 @ CUTOFF

P5-2 PNL DP628	P5-2 PNL DP628	RESISTANCE
pin 12	pin 25	< 30 Ohms
pin 11	pin 25	> 20 MOhms

- 1) If the Resistances are not in the specified range, then examine the wiring between the P5-2 Panel and the applicable HMU as follows:

ENGINE 1

P5-2 PNL DP626	HMU DP1207
pin 11	pin 2
pin 12	pin 3

P5-2 PNL DP626	
pin 25	GD503-DC

ENGINE 2

P5-2 PNL DP628	HMU DP1207
pin 11	pin 2
pin 12	pin 3

P5-2 PNL DP628	
pin 25	GD515-DC

- a) Repair the problems that you find.
- b) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-06 TASK 805

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

- 2) If the Resistances are not in the specified range, then continue.
- (13) Do this check for 28V DC to the ENG VALVE CLOSED Light as follows:
- (a) For ENG 1 (ENG 2), remove the safety tag and close the applicable circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) Do a check for 28V DC at pin 3 of the applicable electrical connector, D626 (ENG-1) or D628 (ENG-2) (WDM 76-21-11, WDM 76-21-21).
- 1) If you do not find 28V DC, then examine the wiring as follows:

ENGINE 1

LCC-R	P5-2
D40550P	D626
pin 22	pin 3

P5-2	
DP626	
pin 25	GD503-DC

ENGINE 2

LCC-R	P5-2
D40558P	D628
pin 15	pin 3

P5-2	
DP628	
pin 25	GD515-DC

- 2) If you find 28V DC at pin 3 of the applicable connector D626 (D628), then continue.
- (14) Put the applicable Start Lever in the indicated position and do these Voltage checks:
- (a) Put the Start Lever to CUTOFF and do these checks:

ENG-1 @ CUTOFF

P5-2	P5-2	
DP626	DP626	VOLTAGE
pin 24	pin 25	> 22V DC
pin 27	pin 25	< 5V DC

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 224
Feb 15/2023

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

ENG-2 @ CUTOFF

P5-2 DP628	P5-2 DP628	VOLTAGE
pin 24	pin 25	> 22V DC
pin 27	pin 25	< 5V DC

- (b) Put the applicable Start Lever to IDLE and do these checks:

ENG-1 @ IDLE

P5-2 DP626	P5-2 DP626	VOLTAGE
pin 24	pin 25	< 5V DC
pin 27	pin 25	> 22V DC

ENG-2 @ IDLE

P5-2 DP628	P5-2 DP628	VOLTAGE
pin 24	pin 25	< 5V DC
pin 27	pin 25	> 22V DC



CAUTION

DO NOT TURN THE FIRE HANDLE AFTER YOU PULLED IT UP. YOU WILL CAUSE THE FIRE BOTTLES TO RELEASE THEIR CONTENTS IF YOU TURN THE HANDLE.

- (c) Pull, but do not turn, the applicable Fire Handle and do these checks with the Start Lever at IDLE:

ENG-1 @ IDLE

P5-2 DP626	P5-2 DP626	VOLTAGE
pin 24	pin 25	> 22V DC
pin 27	pin 25	< 5V DC

ENG-2 @ IDLE

P5-2 DP628	P5-2 DP628	VOLTAGE
pin 24	pin 25	> 22V DC
pin 27	pin 25	< 5V DC

- (d) If the Voltages are in the specified range, then replace the P5-2 Panel.
- 1) Do the Repair Confirmation at the end of this task.
- (e) If the Voltages are not in the specified range, then examine and repair the wiring between the Power Source and the P5-2 Panel as follows:

EFFECTIVITY
SIA ALL

73-06 TASK 805

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

ENGINE 1

LCC-R	P5-2
D40800P	D626
pin 8	pin 24
pin 8	pin 27

ENGINE 2

LCC-R	P5-2
D40812P	D628
pin 12	pin 24
pin 12	pin 27

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the problem continues, then replace the P5-2 Panel.

F. Repair Confirmation

- (1) Make sure that the P5-2 Panel is correctly installed.
- (2) Make sure that the electrical connectors DP1203 and DP1207 are correctly connected to the applicable HMU.
- (3) For ENG 1 (ENG 2), remove the safety tag and close the applicable circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (4) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (5) Do one of these two optional procedures:
 - (a) Option 1:

Look at the ENG VALVE CLOSED Light as you do these steps:

EFFECTIVITY
SIA ALL

73-06 TASK 805

D633A103-SIA

Page 226
Feb 15/2023

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

- 1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 2) Let the engine become stable at idle.
 - 3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 4) If the ENG VALVE CLOSED Light operated correctly, then you corrected the problem.
 - 5) If the ENG VALVE CLOSED Light did not operate correctly, then continue the Fault Isolation Procedure at the subsequent step.
- (b) Option 2:
- Record the steps that you completed to find and repair the problem.
- 1) Make sure that the ENG VALVE CLOSED Light is DIM.
 - 2) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

806. Engine Automatic Acceleration, with No Thrust Lever Movement - Fault Isolation

A. Description

- (1) The engine had an uncommanded acceleration.
 - (a) The engine recovered on its own, or it was stopped.

B. Possible Causes

- (1) HMU, M1823
- (2) N2 Speed Sensor, T422
- (3) N1 Speed Sensor, T421
- (4) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 73-25-11)
- (3) (SSM 73-25-21)
- (4) (WDM 73-22-11)

EFFECTIVITY
SIA ALL

73-06 TASKS 805-806

D633A103-SIA

Page 227
Feb 15/2023

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

- (5) (WDM 73-25-11)
- (6) (WDM 73-25-21)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC, HMU, and FMV maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this task: Engine Exceedance Page Check, AMM TASK 71-00-00-740-801-F00.
 - (a) Record the exceedances that you find.
 - 1) If you found exceedances, then reset the exceedance.
 - (b) If you find an N2 or N1 exceedance, then, do this task: Inspection After Engine Operations Above the Limits and High Engine Stress, AMM TASK 71-00-00-800-804-F00.
 - 1) If the inspection is not satisfactory, then
These are the tasks:
Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,
Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.
 - 2) If the inspection is satisfactory, then continue.
 - (c) If you did not find an exceedance, then continue.
- (3) Replace the HMU (the most likely LRU from the Possible Causes list).
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.

F. Repair Confirmation

- (1) Do one of these two procedures:
 - (a) If there was an engine shutdown during the flight, do this task: Test 5 - Power Assurance Check, AMM TASK 71-00-00-700-813-F00
 - 1) If the engine run was satisfactory, then you corrected the fault.
 - (b) If an engine shutdown did not occur during the flight, record of the steps that you completed to find and repair this fault in the airplane log book.
 - 1) Monitor the airplane on subsequent flights.

————— END OF TASK —————

807. Engine Flameout, Engine Restart Satisfactory - Fault Isolation

A. Description

- (1) The engine had a flameout, after a restart the engine parameters were normal.

EFFECTIVITY
SIA ALL

73-06 TASKS 806-807

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 228
Feb 15/2023

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

B. Possible Causes

- (1) Fuel supply system
- (2) HMU, M1823
- (3) Fuel pump.
- (4) Bleed air check valve (stage 5)

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 73-25-11)
- (3) (SSM 73-25-21)
- (4) (WDM 73-22-11)
- (5) (WDM 73-25-11)
- (6) (WDM 73-25-21)

E. Fault Isolation Procedure

- (1) If you think that a stall occurred, do this task: Engine Stall/Surge, Engine Parameters Normal Or Not Normal, Engine Recovered Or Shutdown - Fault Isolation, 71-05 TASK 805.
- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC, HMU, and FMV maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (3) Look for water in the fuel supply system, do this task: Fuel System Sumping, AMM TASK 12-11-00-680-801.
 - (a) If you find water in the fuel, then remove the water and continue.
- (4) Examine the fuel pump:
 - (a) Do this task: The Visual Inspection of the Impeller Rotation, AMM TASK 73-11-01-200-801-F00.
Do not operate the engine as directed in the Lubrication Flow Screen Installation Test.
 - 1) Make sure that the N2 rotor turns freely and smoothly as you do the fuel pump impeller inspection.

EFFECTIVITY
SIA ALL

73-06 TASK 807

D633A103-SIA

Page 229
Feb 15/2023

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

- a) If the N2 rotor does not turn freely and smoothly, then replace the engine.
These are the tasks:
Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,
Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.
- 2) If the fuel pump impeller inspection is not satisfactory, then replace the fuel pump.
 - a) These are the tasks:
Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,
Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - b) Do the Repair Confirmation at the end of this task.
 - c) If the Repair Confirmation is not satisfactory, then continue.
- 3) If you do not find a problem, then continue.
- (5) Examine the fuel filter for signs of contamination.
 - (a) Do this task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - (b) If there are large amounts of aluminum or bronze particles, do these steps:
 - 1) Replace the fuel filter.
These are the tasks:
Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00,
Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - 2) Replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 3) Replace the fuel pump.
These are the tasks:
Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,
Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - 4) Replace the fuel nozzle filter.
These are the tasks:
Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00,
Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.
 - 5) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (c) If contamination is not found, do this task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00
then continue.
- (6) Examine the fuel supply system:
 - (a) Do this task: Engine Fuel Feed Pumps - Functional Test, AMM TASK 28-22-00-730-801.
 - 1) If you find a problem, then do these steps:
 - a) Repair the problem that you find.

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

- b) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find a problem or the fault continues, then continue.
- (b) To make sure that the actuator is engaged to the valve body and the valve moves from closed to open, do this task: Fuel Boost Pump Output Pressure Test, AMM TASK 28-22-00-720-803.
 - 1) Do this test for the applicable fuel pump. This pump pressurizes the engine fuel feed manifold.

NOTE: To pass this test, the spar valve must open and the pump must develop pressure. This test will show if the valve opens, but cannot show if the valve is fully open or not fully open. If the engine does not get high-power then examine the spar valve body. Entry to the fuel tank is necessary.
 - 2) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find a problem, then continue.
- (7) Do this task: Bleed Air Check Valve Inspection, AMM TASK 36-11-02-200-801.
 - (a) If you find a problem during the inspection, then do the corrective action shown in the inspection procedure.
 - 1) Do the repair confirmation at the end of this task.
 - (b) If you don't find a problem during the inspection, then install the bleed air check valve and continue.
 - 1) This is the task: Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801.
- (8) Do this task: Bleed Air Check Valve - Removal, AMM TASK 36-11-02-000-801.
 - (a) Visually examine the bleed air check valve as follows:
 - 1) Make sure that the valve is not damaged and is complete.
 - 2) Make sure that the valve components move freely and smoothly.
 - (b) If the visual inspection is not satisfactory, install a new bleed air check valve.

This is the task:

Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801

 - 1) Do the repair confirmation at the end of the task.
 - (c) If the visual inspection is satisfactory, install the bleed air check valve that you removed and continue.

This is the task:

Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801
- (9) Replace the HMU (the most likely LRU from the Possible Causes list).

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.

 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

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

F. Repair Confirmation

- (1) Record of the steps that you completed to find and repair this fault in the airplane log book.
 - (a) Monitor the airplane on subsequent flights.

————— END OF TASK —————

808. Engine Flameout, Engine Restart not OK - Fault Isolation

A. Description

- (1) The engine had a flameout, an engine restart was not successful due to one or more of these conditions:
 - (a) Low fuel flow
 - (b) Zero fuel flow
 - (c) Low windmill N2
 - (d) Unknown reasons
 - (e) Restart not attempted.

B. Possible Causes

- (1) Fuel pump
- (2) Fuel supply system
- (3) HMU, M1823
- (4) PS3
- (5) EEC, M1818
- (6) Bleed air check valve (stage 5)

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 73-25-11)
- (3) (SSM 73-25-21)
- (4) (WDM 73-22-11)
- (5) (WDM 73-25-11)
- (6) (WDM 73-25-21)

EFFECTIVITY
SIA ALL

73-06 TASKS 807-808

D633A103-SIA

Page 232
Feb 15/2023

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

E. Fault Isolation Procedure

- (1) Visually examine the engine inlet and exhaust for evidence of an internal engine failure.
 - (a) Make sure that the fan turns freely and smoothly as you do the examination.
 - (b) If you find indications of an internal engine failure, then replace the engine.
These are the tasks:
Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,
Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.
 - (c) If you do not find a problem, then continue.
- (2) Do this task: Chip Detectors and Scavenge Screens - Inspection, AMM TASK 79-00-00-200-804-F00.
 - (a) If the chip detector inspection indicates an internal engine or gearbox failure, then replace the engine.
These are the tasks:
Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,
Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.
 - (b) If you do not find a problem, then continue.
- (3) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC, HMU, PS3, and FMV maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (4) Do these steps to examine the engine fuel supply system:
 - (a) Look for water in the fuel supply system, do this task: Fuel System Sumping, AMM TASK 12-11-00-680-801.
 - 1) If you find water in the fuel, then remove the water and continue.
 - (b) To make sure that the actuator indication is correct and that the actuator moves to the commanded position, do this task: Engine Fuel Spar Valve - Electrical Control and Indication Test, AMM TASK 28-22-00-710-801.
 - 1) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 2) If you do not find a problem, then continue.
 - (c) To make sure that the actuator is engaged to the valve body and the valve moves from closed to open, do this task: Fuel Boost Pump Output Pressure Test, AMM TASK 28-22-00-720-803.
 - 1) Do this test for the applicable fuel pump. This pump pressurizes the engine fuel feed manifold.
NOTE: To pass this test, the spar valve must open and the pump must develop pressure. This test will show if the valve opens, but cannot show if the valve is fully open or not fully open. If the engine does not get high-power then examine the spar valve body. Entry to the fuel tank is necessary.
 - 2) If you find a problem, then repair or replace components as it is necessary.

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

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find a problem, then continue.
- (5) Examine the PS3 tubes and hoses for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the tube or hose.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (6) Examine the fuel pump:
 - (a) Do this task: The Visual Inspection of the Impeller Rotation, AMM TASK 73-11-01-200-801-F00.
 - 1) Do not operate the engine as directed in the Lubrication Flow Screen Installation Test.
 - 2) Make sure that the N2 rotor turns freely and smoothly as you do the fuel pump impeller inspection.
 - a) If the N2 rotor does not turn freely and smoothly, then replace the engine.
These are the tasks:
Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,
Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.
 - 3) If the fuel pump impeller inspection is not satisfactory, then replace the fuel pump.
These are the tasks:
Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,
Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - 4) If you do not find a problem, then continue.
- (b) Do this task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
- (c) Examine the fuel filter for signs of contamination:
 - 1) If there are large amounts of aluminum or bronze particles, do these steps:
 - a) Replace the fuel filter.
These are the tasks:
Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00,
Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - b) Replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - c) Replace the fuel pump.
These are the tasks:
Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,
Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.

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

- d) Replace the fuel nozzle filter.
These are the tasks:
Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00,
Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.
- e) Do the Repair Confirmation at the end of this task.
- f) If the Repair Confirmation is not satisfactory, then continue.
- 2) If contamination is not found, do this task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00
then continue.
- (7) Do this task: Bleed Air Check Valve Inspection, AMM TASK 36-11-02-200-801.
 - (a) If you find a problem during the inspection, then do the corrective action shown in the inspection procedure.
 - 1) Do the repair confirmation at the end of this task.
 - (b) If you don't find a problem during the inspection, then install the bleed air check valve and continue.
 - 1) This is the task: Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801.
- (8) Do this check of the HMU and fuel pump:
 - (a) Do this task: HMU Removal, AMM TASK 73-21-10-000-801-F00.
 - (b) With the HMU removed, turn the N2 rotor to make sure that the fuel pump output shaft turns freely and smoothly in each direction.
 - (c) If the fuel pump output shaft operates correctly, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - (d) If the fuel pump output shaft does not operate correctly, then replace the fuel pump.
These are the tasks:
Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,
Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) If it is necessary, do these steps to prepare for the procedure:
 - (a) For engine 1, remove these 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

EFFECTIVITY
SIA ALL

73-06 TASK 808

D633A103-SIA

Page 235
Feb 15/2023

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (c) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
 (2) Do this task: Test 5 - Power Assurance Check, AMM TASK 71-00-00-700-813-F00.
 (a) If the engine run was satisfactory, then you corrected the fault.

————— **END OF TASK** —————

809. Engine Fuel - N1, N2, EGT, and Fuel Flow are Low or Fluctuates - Fault Isolation**A. Description**

- (1) Engine parameters are not normal; N1, N2, EGT, and Fuel flow are low or fluctuate.
NOTE: An on-ground engine stall at low power can cause an uncommanded engine shutdown.

B. Possible Causes

- (1) Crosswind or tailwind
- (2) Sensors T12, T25, PS3, and P0; and, related tubes and electrical harnesses
- (3) Fuel supply system
- (4) Bleed air check Valve (Stage 5)
- (5) Engine bleed air system
- (6) HMU, M1823
- (7) Aircraft Bleed System
- (8) Compressor inefficiency (dirty, damaged or eroded).

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-06 TASKS 808-809

D633A103-SIA

Page 236
Feb 15/2023

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

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 73-25-11)
- (3) (SSM 73-25-21)
- (4) (WDM 73-22-11)
- (5) (WDM 73-25-11)
- (6) (WDM 73-25-21)

E. Fault Isolation Procedure

- (1) If you think that a stall occurred, do this task: Engine Stall/Surge, Engine Parameters Normal Or Not Normal, Engine Recovered Or Shutdown - Fault Isolation, 71-05 TASK 805.
- (2) Make sure that the fault did not occur during ground operation where there were crosswinds or tailwinds.
 - (a) If crosswinds or tailwinds were present, turn the airplane into the wind and operate the engine at the same thrust levels and engine loads at which the fault occurred (AMM TASK 71-00-00-800-807-F00).
 - 1) If the engine operation was satisfactory, then put the engine back in service.
 - 2) If the fault continued, then continue the fault isolation procedure below.
 - (b) If crosswinds or tailwinds were not present, then continue.
- (3) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC, HMU, and FMV maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (4) Examine the sensors T12, T25, PS3, and P0; and, related tubes and electrical harnesses for damage:
 - (a) If you find damage, repair or replace components as it is necessary.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find damage, then continue.
- (5) Do these steps to examine the engine fuel supply system:
 - (a) Do this task: Engine Fuel Spar Valve - Electrical Control and Indication Test, AMM TASK 28-22-00-710-801.
 - 1) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.

EFFECTIVITY
SIA ALL

73-06 TASK 809

D633A103-SIA

Page 237
Feb 15/2023

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

- 2) If you do not find a problem, then continue.
- (6) Do these checks of the engine bleed air distribution system:
 - (a) Do this task: Test 1 - Pneumatic Leak Check, AMM TASK 71-00-00-700-809-F00.
Also, do a check for leaks upstream of the PRSOV.
 - 1) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 2) If you do not find a problem, then continue.
 - (b) Do this task: Bleed Air Check Valve Inspection, AMM TASK 36-11-02-200-801Bleed Air Check Valve Inspection, AMM TASK 36-11-02-200-801.
 - 1) If you find a problem during the inspection, then do the corrective action shown in the inspection procedure.
 - a) Do the repair confirmation at the end of this task.
 - 2) If you don't find a problem during the inspection, then install the bleed air check valve and continue.
 - a) This is the task: Bleed Air Check Valve - Installation, AMM TASK 36-11-02-400-801.
 - (c) Do this task: Engine Bleed Air Crossover Operational Test, AMM TASK 36-11-00-710-801.
 - 1) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 2) If you do not find a problem, then continue.
- (7) Replace the HMU (the most likely LRU from the Possible Causes list).
These are the tasks:
 HMU Removal, AMM TASK 73-21-10-000-801-F00,
 HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the EEC (the subsequent LRU from the Possible Causes list).
These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (a) Operate the engine to the thrust level at which the fault occurred.
 - (b) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - (c) If the engine operation was satisfactory, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

73-06 TASK 809

D633A103-SIA

Page 238
Feb 15/2023

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

812. Engine Thrust Loss (Automatic Deceleration), Engine Parameters are Normal after Engine Recovery - Fault Isolation

A. Description

- (1) The engine had a thrust loss (automatic deceleration) with no movement of the thrust levers, the engine parameters normal after the engine recovered.

B. Possible Causes

- (1) TRA Adjustment
- (2) PS3
- (3) EEC, M1818
- (4) HMU, M1823

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301, 73-06 TASK SUPPORT Figure 302)
- (2) (SSM 73-31-11)
- (3) (WDM 73-22-11)
- (4) (WDM 73-31-11)

E. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC, HMU, TRA, and PS3 sensor maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this task: Thrust Lever Adjustment and Thrust Reverser Position Adjustment Test, AMM TASK 73-21-00-700-806-F00.
 - (a) If you find a problem, then adjust the thrust levers.
 - 1) Do this task: Engine 1 and Engine 2 Thrust Lever Angle Resolver Alignment Test, AMM TASK 73-21-00-700-807-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.

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

- (b) If you did not find a problem, then continue.
- (3) Examine the PS3 tube for signs of a blockage, obvious damage, and loose connections.
 - (a) If you find a problem, then repair or replace the tube or hose.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (4) Replace the HMU (the most likely LRU from the Possible Causes list).
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the HMU (the subsequent LRU from the Possible Causes list).
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do one of these two procedures:
 - (a) Option 1,
 - do this task: Test 5 - Power Assurance Check, AMM TASK 71-00-00-700-813-F00
 - 1) If the engine run was satisfactory, then you corrected the fault.
 - (b) Option 2,
 - Record of the steps that you completed to find and repair this fault in the airplane log book.
 - 1) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

813. ENGINE CONTROL Light is Off when Commanded On during the EEC Test - Fault Isolation Procedure

A. Description

- (1) The ENGINE CONTROL light does not go ON during the EEC Test.

B. Possible Causes

- (1) ENGINE CONTROL light, L2 (ENG 1) or L4 (ENG 2)
- (2) Wiring between the DEU and the ENGINE CONTROL light
- (3) EEC, M1818
- (4) DEU, M1808 (DEU1) or M1809 (DEU2)

EFFECTIVITY
SIA ALL

73-06 TASKS 812-813

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

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	13	C01179	INDICATOR MASTER DIM SECT 7

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	14	C01180	INDICATOR MASTER DIM SECT 8

D. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301)
- (2) (SSM 33-18-42)
- (3) (SSM 73-32-11)
- (4) (WDM 33-18-42)
- (5) (WDM 73-32-11)

E. Fault Isolation Procedure

- (1) Do this check of the ENGINE CONTROL light:
 - (a) Push and hold the DIM/BRT/TEST switch (P1) to the TEST position.
 - (b) Make sure that the applicable ENGINE CONTROL light goes on.
 - (c) Release the DIM/BRT/TEST switch.
 - 1) If the light does not go on, then replace the light. To replace it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the light goes on, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE test shows an internal DEU fault or EEC data fault, then go to the fault isolation task for the applicable maintenance message and correct the fault.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If the CDS BITE test does not show an internal DEU fault or EEC data fault, then continue.

EFFECTIVITY
SIA ALL

73-06 TASK 813

D633A103-SIA

Page 241
Feb 15/2023

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

- (3) Do this check for 28 VDC at the ENGINE CONTROL light:
- (a) Remove the applicable ENGINE CONTROL light. To remove it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - (b) Do a check for 28 VDC between pin 5 of connector D2952 (Eng 1) or D3172 (Eng 2) and structure ground.
 - (c) If there is not 28 VDC at pin 5, then do these steps:
 - 1) Repair the wiring between pin 5 of D2952 (Eng 1) or D3172 (Eng 2) and the applicable master dim circuit breaker.
 - 2) Do the Repair Confirmation at the end of this task.
 - (d) If there is 28 VDC at pin 5, then do these steps:
 - 1) Do a wiring check between these pins of the connector for the ENGINE CONTROL light (P5-68 module) and connectors for the DEUs:

ENGINE 1

P5-68	DEU
CONNECTOR	CONNECTOR
D2952	D3973B (DEU1)
pin 8	pin F2

ENGINE 1

P5-68	DEU
CONNECTOR	CONNECTOR
D2952	D3975B (DEU2)
pin 8	pin F2

ENGINE 2

P5-68	DEU
CONNECTOR	CONNECTOR
D3172	D3973E (DEU1)
pin 8	pin F2

ENGINE 2

P5-68	DEU
CONNECTOR	CONNECTOR
D3172	D3975E (DEU2)
pin 8	pin F2

- 2) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Do the Repair Confirmation at the end of this task.
 - 3) If you do not find a problem with the wiring, then continue.
- (4) Replace the applicable ENGINE CONTROL light (the most likely LRU from the Possible Causes list). To replace it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
- (a) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-06 TASK 813

D633A103-SIA

Page 242
Feb 15/2023

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

- (b) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
- 1) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (a) If the ENGINE CONTROL light goes on and off correctly during the test, then you corrected the fault.

————— END OF TASK —————

814. Maintenance Messages will not Erase - Fault Isolation Procedure

A. Description

- (1) The EEC Maintenance Messages will not erase.

B. Possible Causes

- (1) EEC, M1818.

C. Related Data

- (1) Component Location (73-06 TASK SUPPORT Figure 301)

D. Fault Isolation Procedure

- (1) For the applicable EEC, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (a) Do the corrective action for the INTERNAL EEC maintenance messages that you find.
NOTE: If the maintenance messages will not erase, there is an internal EEC problem.
- 1) Do the Repair Confirmation at the end of this task.
- (b) If you do not find INTERNAL EEC maintenance messages, then replace the applicable EEC.
- These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Do this task: Erase All EEC Faults, AMM TASK 73-21-00-800-801-F00.
- (a) If you can erase the maintenance messages, then you corrected the fault.

————— END OF TASK —————

815. ENG VALVE CLOSED Light stays OFF for All Start Lever Positions - Fault Isolation

A. Description

- (1) The ENG VALVE CLOSED light is always Off.
- (2) The ENG VALVE CLOSED light should be in these states when the high pressure shut-off valve (HPSOV) is in these positions:

Table 205

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
OFF	OPEN	IDLE

EFFECTIVITY
SIA ALL

73-06 TASKS 813-815

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

Table 205 (Continued)

ENG VALVE CLOSED LIGHT	HPSOV POSITION	START LEVER
DIM	CLOSED	CUTOFF
BRIGHT	VALVE IS NOT IN THE COMMANDED POSITION	IDLE/ CUTOFF

- (a) The HPSOV controls the high pressure fuel flow to the engine manifold. The HPSOV is inside the HMU.

B. Possible Causes

- (1) ENG VALVE CLOSED light, LX1 (Eng 1) or LX2 (Eng 2)
- (2) Module Assembly - Fuel Control, P5-2

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

D. Related Data

- (1) (SSM 76-21-11)
- (2) (SSM 76-21-21)
- (3) (WDM 76-21-11)
- (4) (WDM 76-21-21)

E. Fault Isolation Procedure

- (1) Do this check of the ENG VALVE light:
 - (a) Push and hold the DIM/BRT/TEST switch (P1) to the TEST position.
 - (b) Make sure that the applicable ENG VALVE light goes on.

EFFECTIVITY
SIA ALL

73-06 TASK 815

D633A103-SIA

Page 244
Feb 15/2023

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

- (c) Release the DIM/BRT/TEST switch.
- 1) If the light does not go on, then replace the light. To replace it, do this task: Indicator Light - Lamp Replacement, AMM TASK 33-18-00-960-801.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the light goes on, then continue.
- (2) Do these steps to to get access to electrical connector D626 (Eng 1) or D628 (Eng 2):
- (a) For engine 1, open these circuit breakers and attach safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) For engine 2, open these circuit breakers and attach safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (c) Lower the P5 panel to get access to the electrical connectors D626 (Eng 1) or D628 (Eng 2).
- (d) Disconnect the electrical connectors D626 (Eng 1) or D628 (Eng 2) from the P5-2 panel.
- (e) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (f) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (3) Make sure that the applicable Start Lever is in the CUTOFF position and the Fire Handle is not pulled.
- (4) Do this resistance check between airplane ground and these pins of the applicable electrical connector D626 (Eng 1) or D628 (Eng 2):

Table 206

PINS	RESISTANCE VALUE
25	LESS THAN 10 OHMS
12	LESS THAN 25 OHMS
11	GREATER THAN 20 MEG OHMS

- (a) If the resistance for Pin 25 is not in the specified range, then examine and repair the wire between pin 25 and the airplane ground connection GD503-DC (Eng 1) or GD515-DC (Eng 2).
- 1) Do the Repair Confirmation at the end of this Task.
- (b) If the resistance for Pin 12 is not in the specified range, then examine and repair the wire from pin 12 through the HMU to the airplane ground connection GD3836-DC (Eng 1) or GD3936-DC (Eng 2).
- 1) Do the Repair Confirmation at the end of this Task.
- (c) If the resistance for Pin 11 is not in the specified range, then examine and repair the wire between pin 11 and the HMU electrical connector DP1207 Pin 2.
- 1) Do the Repair Confirmation at the end of this Task.
- (d) If the three resistances are in the specified range, then continue.
- (5) Do a voltage check between airplane ground and these pins of the applicable electrical connector D626 (Eng 1) or D628 (Eng 2):

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

Table 207

PINS	VOLTAGE VALUE
27	LESS THAN 0.5 VDC
24	GREATER THAN 22 VDC
3	GREATER THAN 22 VDC

- (a) If the voltage was not in the specified range at pins 24 and 27, then examine and repair the wires from the applicable electrical connector, D626 (Eng 1) or D628 (Eng 2), through the Engine Start Switch, to the applicable Engine Fuel HPSOV Cont circuit breaker.
 - 1) Do the Repair Confirmation at the end of this Task.
- (b) If the voltage was not in the specified range at pin 3, then examine and repair the wires from the applicable electrical connector, D626 (Eng 1) or D628 (Eng 2) to the applicable Engine Fuel HPSOV Ind circuit breaker.
 - 1) Do the Repair Confirmation at the end of this Task.
- (c) If the voltage is in the specified range, then continue.
- (6) If the tests above are satisfactory, then do these steps:
 - (a) For engine 1, open these circuit breakers and attach safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (b) For engine 2, open these circuit breakers and attach safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (c) Replace the P5-2 panel.
- (d) Do the Repair Confirmation at the end of this Task.
 - 1) If the problem continues, then replace the P5-2 panel.

EFFECTIVITY
SIA ALL

73-06 TASK 815

D633A103-SIA

Page 247
Feb 15/2023

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

F. Repair Confirmation

(1) Prepare for the procedure:

- (a) Make sure that the P5-2 panel is correctly installed.
- (b) For engine 1, make sure that the safety tags are removed and these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (c) For engine 2, make sure that the safety tags are removed and these circuit breakers are closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (d) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Do one of these two optional procedures:
 - (a) Option 1,
 - Look at the ENG VALVE CLOSED light as you do these steps:
 - 1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 2) Let the engine become stable at idle.
 - 3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 4) If the ENG VALVE CLOSED light operated correctly, then you corrected the fault.
 - (b) Option 2,
 - Record the steps that you completed to find and repair the fault.
 - 1) Make sure that the ENG VALVE CLOSED light is DIM.

EFFECTIVITY
SIA ALL

73-06 TASK 815

D633A103-SIA

Page 248
Feb 15/2023

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

- 2) Monitor the airplane on subsequent flights.

————— END OF TASK —————

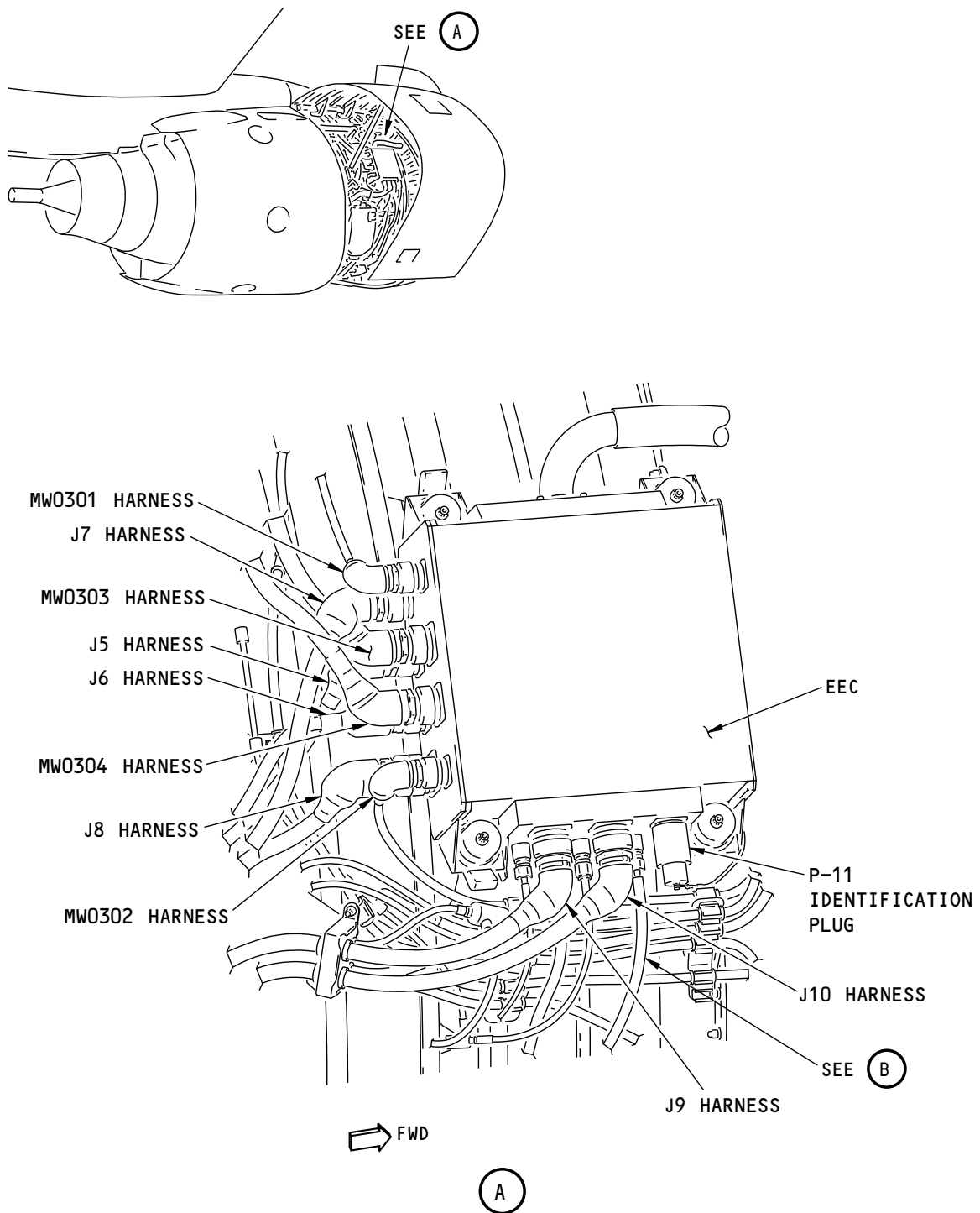
EFFECTIVITY
SIA ALL

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

73-06 TASK 815

Page 249
Feb 15/2023

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


H82804 S0006745656_V1

Electronic Engine Controller
Figure 301/73-06-00-990-801-F00 (Sheet 1 of 2)

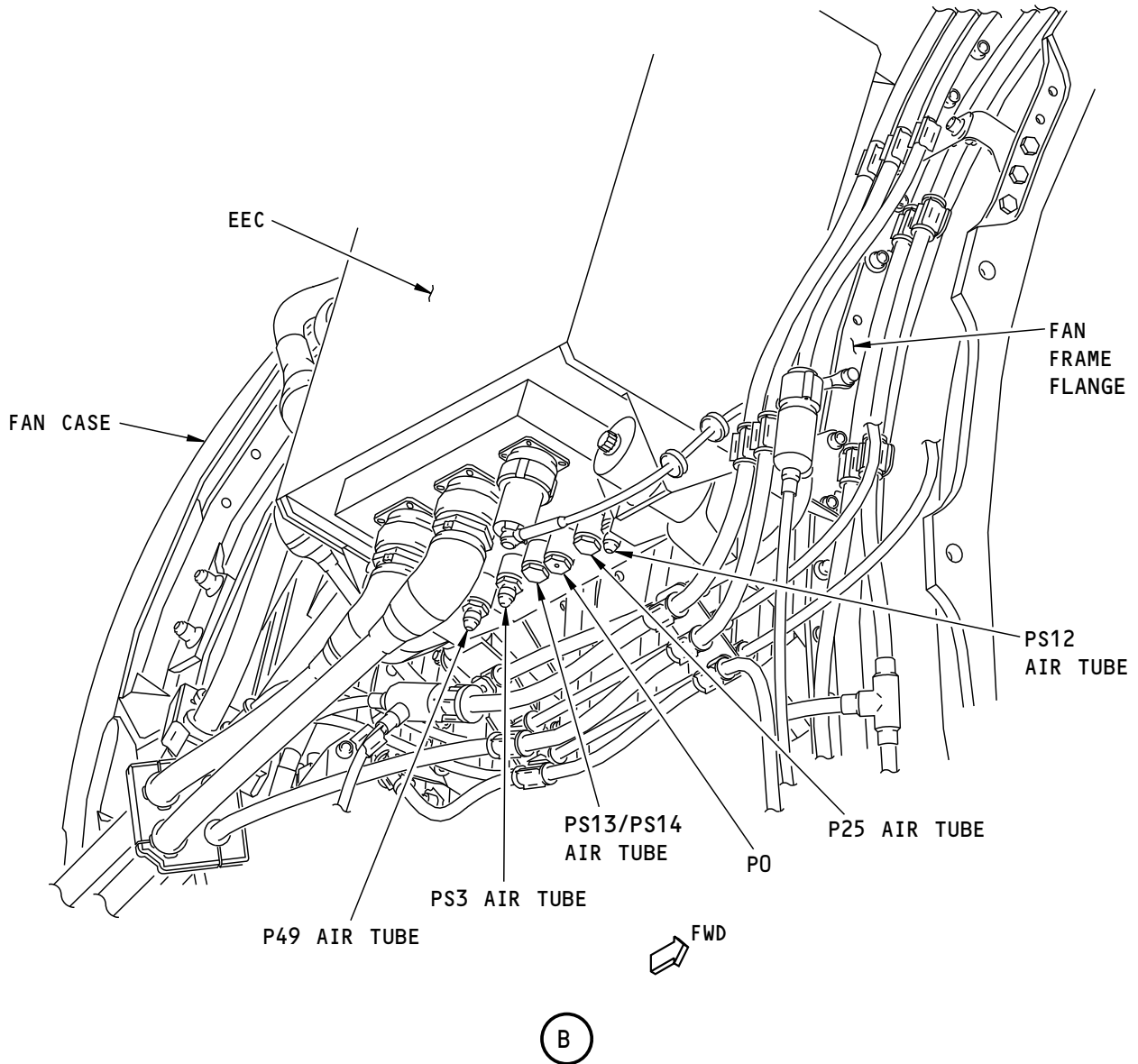
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73-06 TASK SUPPORT

D633A103-SIA

Page 301
 Oct 15/2021

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



H82855 S0006745657_V1

Electronic Engine Controller
Figure 301/73-06-00-990-801-F00 (Sheet 2 of 2)

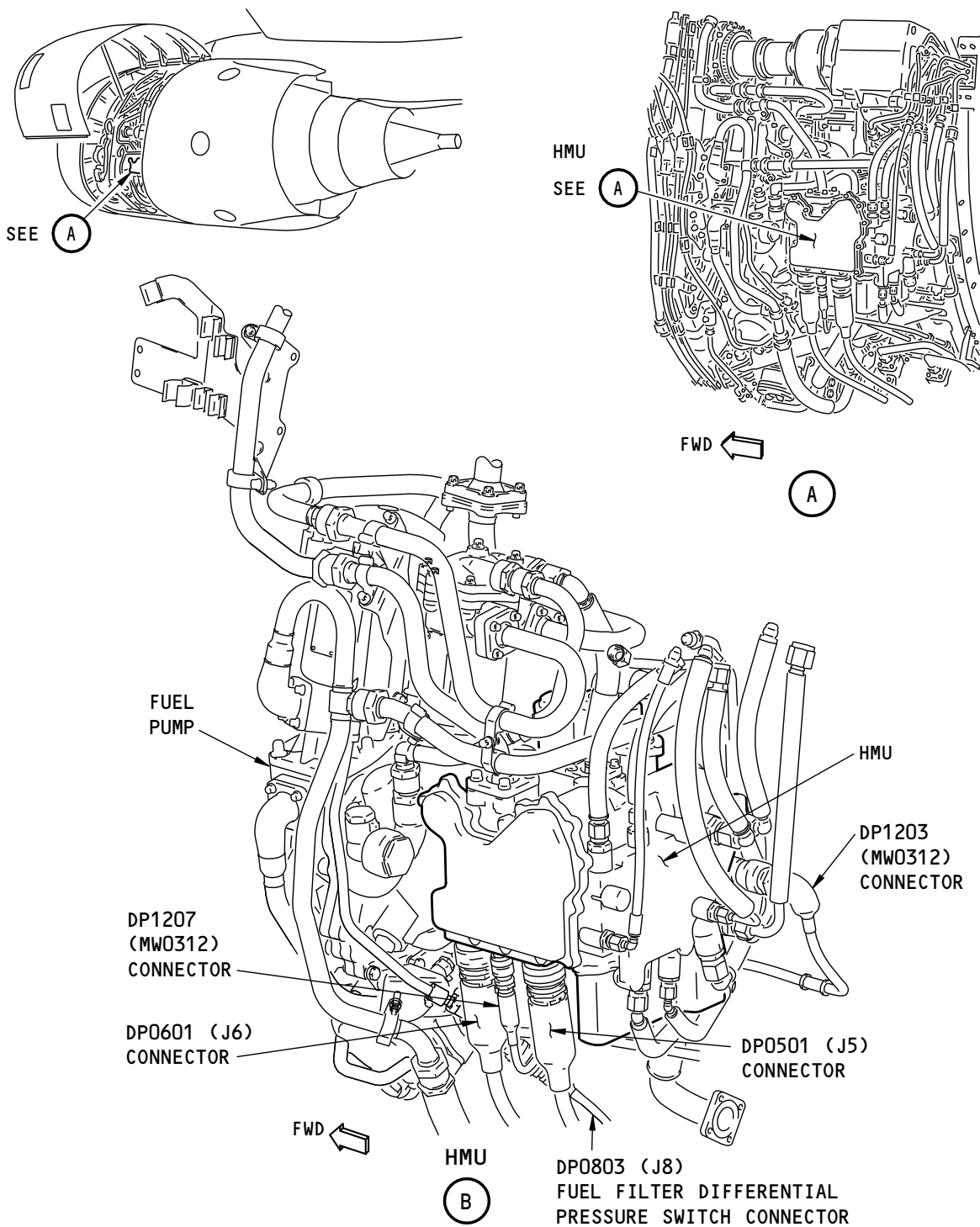
EFFECTIVITY
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73-06 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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



H82872 S0006745658_V1

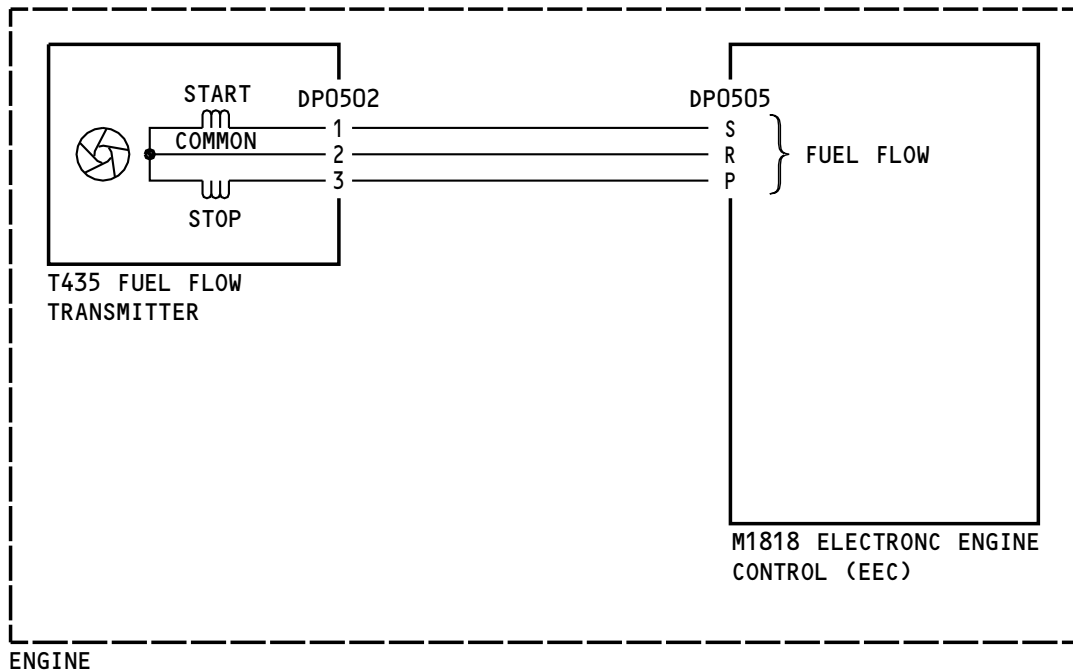
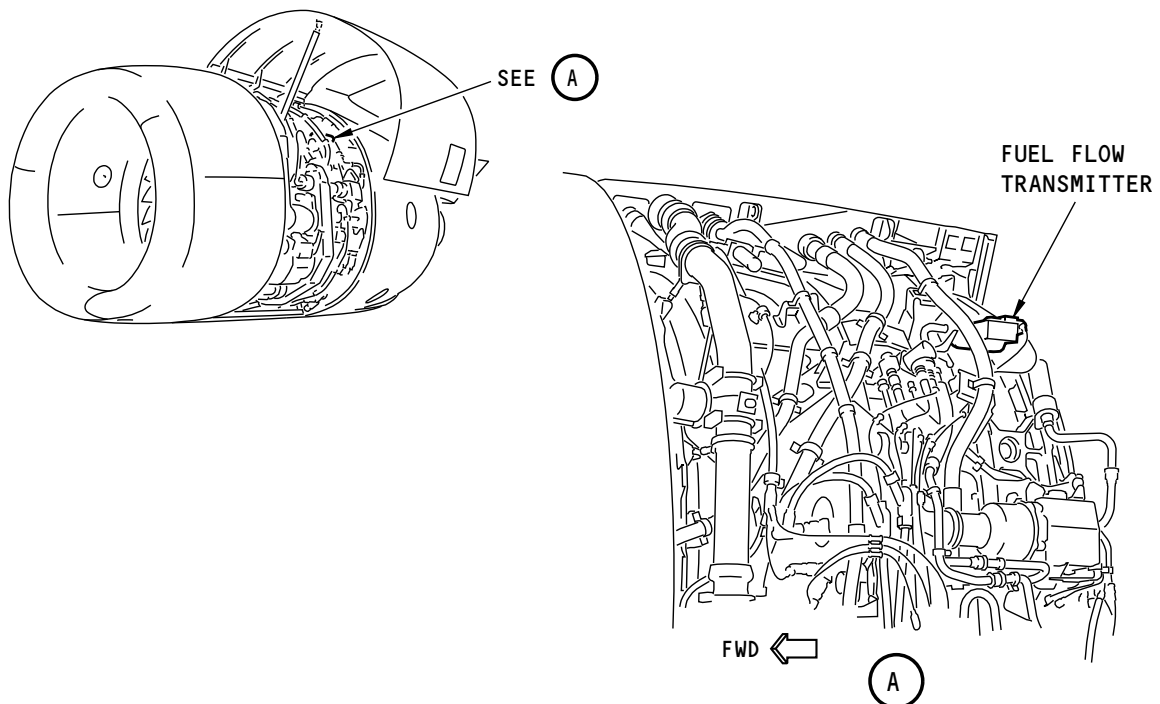
Fuel Pump and Hydromechanical Unit (HMU)
Figure 302/73-06-00-990-802-F00

EFFECTIVITY
SIA ALL

73-06 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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


H82874 S0006745659_V1

Fuel Flow Transmitter and Simplified Schematic
Figure 303/73-06-00-990-803-F00

EFFECTIVITY
SIA ALL

73-06 TASK SUPPORT

D633A103-SIA

Page 304
Oct 15/2021

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

801. Engine Fuel, Fuel Used Display is not Normal (High, Low, or Blank), Fuel Flow is Normal - Fault Isolation

A. Description

- (1) The fuel used display is not normal (high, low, or blank). The fuel flow display is normal.
 - (a) The applicable Fuel Flow Transmitter (FFT) sends an analog signal to the EEC. The EEC converts the analog into the digital ARINC format and sends the digital signal to the DEU's. The DEU's use the FFT data to calculate the fuel used and display it on the airplane Display Unit (DU).

B. Possible Causes

- (1) DEU, M1808 (DEU1) or M1809 (DEU2)

C. Fault Isolation Procedure

- (1) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for related DEU and DU data maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Replace one of the DEU's.

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 Repair Confirmation is not satisfactory, then replace the other DEU.

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.

D. Repair Confirmation

- (1) Record the steps that you completed to find and repair the fault.
 - (a) Monitor the airplane on subsequent flights.

———— **END OF TASK** ————

802. Engine Fuel, Fuel Flow Display is not Normal (High, Low, Intermittent, or Blank), Other Engine Parameters (N1, N2, and EGT) are Normal - Fault Isolation

A. Description

- (1) The fuel flow display is not normal (high, low, intermittent, or blank). The other engine parameters (N1, N2, and EGT) are normal.
 - (a) The applicable Fuel Flow Transmitter (FFT) sends an analog signal to the EEC. The EEC converts the analog into the digital ARINC format and sends the digital signal to the DEU's. The DEU's displays the FFT data on the airplane Display Unit (DU).

**737-600/700/800/900
FAULT ISOLATION MANUAL****B. Possible Causes**

- (1) Fuel Flow Transmitter, T435
- (2) EEC, M1818
- (3) DEU, M1808 (DEU1) or M1809 (DEU2)
- (4) Wires and connectors between the EEC and the FFT.

C. Related Data

- (1) Component Location (73-07 TASK SUPPORT Figure 301)
- (2) (SSM 73-24-11)
- (3) (SSM 73-24-12)
- (4) (SSM 73-24-21)
- (5) (SSM 73-31-11)
- (6) (WDM 73-22-11)
- (7) (WDM 73-24-11)
- (8) (WDM 73-24-12)
- (9) (WDM 73-24-21)
- (10) (WDM 73-31-11)

D. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for related INTERNAL EEC and Fuel Flow Transmitter (FFT) maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for related EEC data and DEU data maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (3) Replace the applicable FFT, T435 (the most likely LRU from the Possible Causes list).

These are the tasks:

Fuel Flow Transmitter Removal, AMM TASK 73-31-01-000-801-F00,
Fuel Flow Transmitter Installation, AMM TASK 73-31-01-400-801-F00.

 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Do one of these two optional procedures:
 - (a) Option 1,
Look at the Fuel Flow/Fuel Used (FF/FU) Display as you do these steps:

EFFECTIVITY
SIA ALL

73-07 TASK 802

D633A103-SIA

Page 202
Oct 15/2021

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

- 1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 2) Let the engine become stable at idle.
 - 3) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - 4) If the FF/FU Display operated correctly, then you corrected the fault.
- (b) Option 2,
- Record the steps that you completed to find and repair the fault.
- 1) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

803. Engine Idle Speed, Approach Idle Speed Low, Engine Anti-Ice is ON - Fault Isolation

A. Description

- (1) The engine approach idle speed is low while the ENGINE ANTI-ICE CONTROL Switch is ON.
 - (a) The applicable ENGINE ANTI-ICE CONTROL Switch sends an analog signal to the two DEU's. The DEU's converts the analog into the digital ARINC format and sends the digital signal to the EEC's.

B. Possible Causes

- (1) ENGINE ANTI-ICE CONTROL Switch, S1 (Eng1) or S2 (Eng2)
- (2) Wires and connectors between the ENGINE ANTI-ICE CONTROL Switch and the DEU's.
- (3) DEU, M1808 (DEU1) or M1809 (DEU2)
- (4) EEC, M1818

C. Related Data

- (1) Component Location (73-07 TASK SUPPORT Figure 301)
- (2) (SSM 73-23-11)
- (3) (SSM 73-24-11)
- (4) (SSM 73-24-12)
- (5) (SSM 73-24-21)
- (6) (WDM 73-22-11)
- (7) (WDM 73-23-11)
- (8) (WDM 73-24-11)
- (9) (WDM 73-24-12)
- (10) (WDM 73-24-21)

D. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for related INTERNAL EEC and DEU maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.

EFFECTIVITY
SIA ALL

73-07 TASKS 802-803

D633A103-SIA

Page 203
Oct 15/2021

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

- (a) Do the corrective action for related EEC data and DEU data maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If you do not find the maintenance messages or the problem continues, then continue.
- (3) Remove the two DEU's, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (a) Examine the wires between the DEU connectors and the applicable ENGINE ANTI-ICE CONTROL Switch:

Table 201

CONNECTOR	SWITCH POSITION	PINS	EXPECTED RESULTS
ENGINE 1 D3973B (DEU 1) D3975B (DEU 2)	OFF	PIN A11 TO GROUND	CONTINUITY
	ON	PIN A11 TO GROUND	OPEN
ENGINE 2 D3973E (DEU 1) D3975E (DEU 2)	OFF	PIN A11 TO GROUND	CONTINUITY
	ON	PIN A11 TO GROUND	OPEN

- (b) If the electrical check is not satisfactory, then remove the applicable ENGINE ANTI-ICE CONTROL Switch and examine its operation.
 - 1) If the switch does not operate correctly, then replace it.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the switch operates correctly, then examine and repair the wires between the switch and the DEU.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If the electrical check is satisfactory, then do these steps:
 - 1) Install the two DEU's, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Install the ENGINE ANTI-ICE CONTROL Switch.
 - 3) Continue.
- (4) Replace the applicable EEC, M1818 (the most likely LRU from the Possible Causes list).
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Record the steps that you completed to find and repair the fault.
 - (a) Monitor the airplane on subsequent flights.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-07 TASK 803

D633A103-SIA

Page 204
Oct 15/2021

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

804. Engine Idle Speed, Approach Idle Speed Low, Landing Flaps Selected - Fault Isolation

A. Description

- (1) The engine approach idle speed is low while the Flaps are extended.
 - (a) The airplane flaps send a digital signal to the two DEU's. The DEU's send that digital signal to the EEC's.

B. Possible Causes

- (1) EEC, M1818
- (2) DEU, M1808 (DEU1) or M1809 (DEU2).

C. Related Data

- (1) Component Location (73-07 TASK SUPPORT Figure 301)
- (2) (SSM 73-24-11)
- (3) (SSM 73-24-12)
- (4) (SSM 73-24-21)
- (5) (WDM 73-24-11)
- (6) (WDM 73-24-12)
- (7) (WDM 73-24-21)

D. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for related INTERNAL EEC and DEU maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for related Flap data, EEC data, and DEU data maintenance messages that you find first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (3) Replace the applicable EEC, M1818 (the most likely LRU from the Possible Causes list).
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Record the steps that you completed to find and repair the fault.
 - (a) Monitor the airplane on subsequent flights.

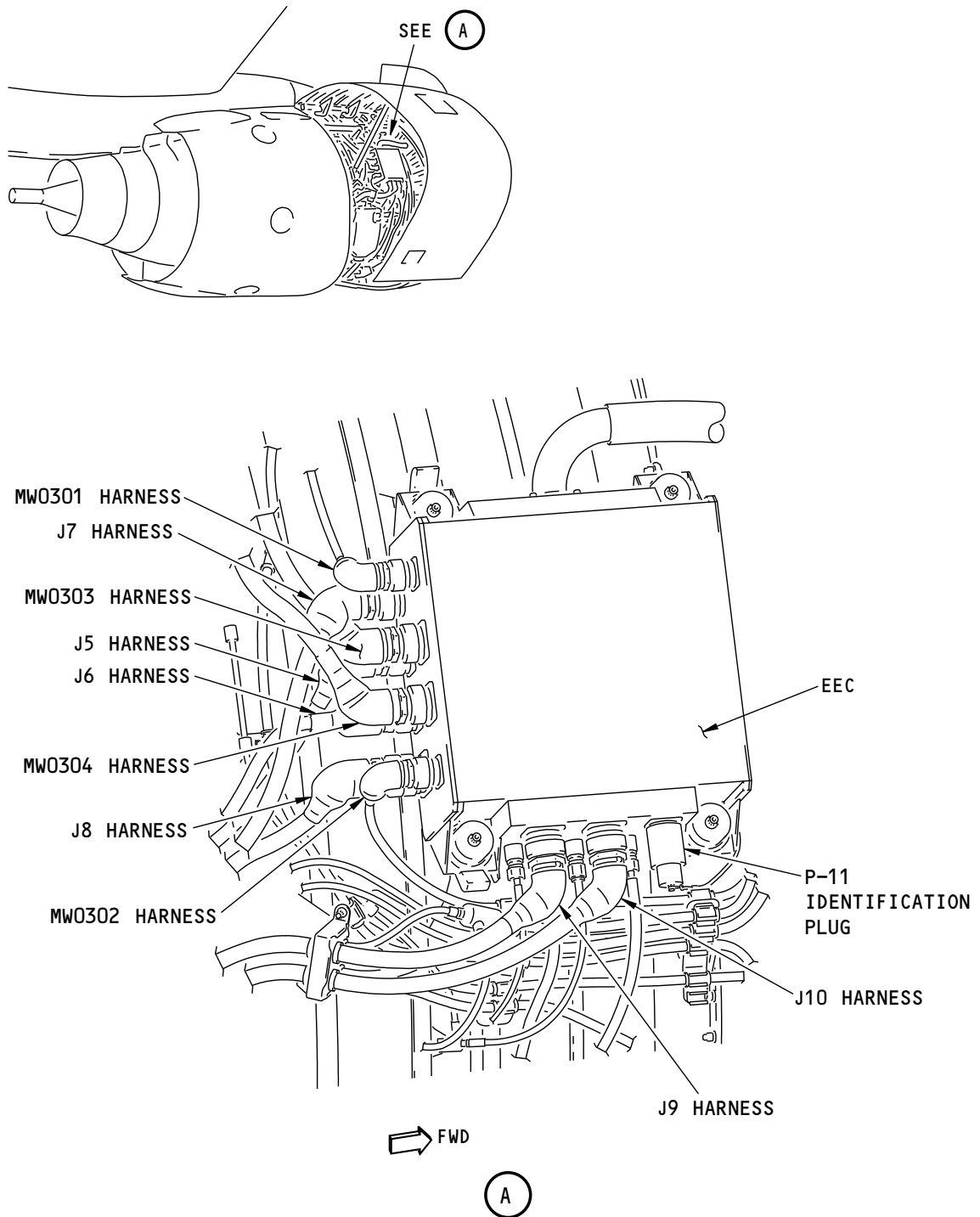
———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

73-07 TASK 804

D633A103-SIA

Page 205
Oct 15/2021

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


H82750 S0006745670_V1

**Electronic Engine Control Installation
Figure 301/73-07-00-990-801-F00**

EFFECTIVITY
SIA ALL

73-07 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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

801. Upper EGT Sectors Reading High - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) 73-11371, 73-11372, 73-21371, 73-21372, 73-31371 and 73-31372.
 - (b) For the maintenance message 73-X137Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2), do the Fault Isolation Procedure.
- (2) This fault is reported when these conditions occur:
 - (a) Either EGT sector 1 or sector 4 reads more than 100 degrees above the average of sectors 2 and 3.
 - (b) During start-up after the engine reaches ground idle.

B. Possible Causes

- (1) Bad electrical contact at connections or loose connections.
- (2) High flowing fuel nozzles in the upper EGT sector.

C. Circuit Breakers

- (1) Not applicable

D. Related Data

- (1) Not applicable

E. Initial Evaluation

- (1) Do the Input Monitoring of the T49.5 system with engine operation:
 - (a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 1) Let the engine become stable at idle for five minutes..
 - (b) Do these steps to get access to the T49.5 Input Monitoring screen:
 - 1) Push the INIT REF key to show the PERF INIT screen on the FMCS CDU.
 - 2) Push the INDEX key to show the INIT/REF INDEX screen.
 - 3) Push these line select keys (LSK):
 - a) MAINT
 - b) ENGINE
 - c) Applicable ENGINE X (X=1 or 2)
 - d) INPUT MONITORING
 - e) CONTINUE
 - f) CONTROL TEMPERATURES
 - 4) Push the NEXT PAGE key on the FMCS CDU.
 - a) Push the T49.5 LSK.
 - 5) Examine the T49.5 Input Monitoring screen .

NOTE: The EEC channel that is in control will show first.

- a) Make sure that the four T49.5 parameters are available.

NOTE: If an indication is not available, then the field will show question marks (?).

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

- b) Make sure that the four T49.5 parameters are not out of range.

NOTE: If an indication is out of range, then the field will show dashes (-).

<1> If any of the T49.5 parameters are out of range, do the applicable task.

<a> 77-21 TASK 801

 77-21 TASK 802

<c> 77-21 TASK 803

<d> 77-21 TASK 804.

- c) Make sure that the four T49.5 parameters do not fluctuate.

<1> If any of the T49.5 parameters fluctuate, do this task, Engine EGT Indication High, Low, Blank or Fluctuates - Fault Isolation, 77-05 TASK 801.

- 6) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
- 7) If a sector 1 or sector 4 T49.5 parameter is more than 100 degrees above sector 2 and 3 T49.5 parameters, then continue to the Fault Isolation Procedure.

F. Fault Isolation Procedure

- (1) Do this optional task, T49.5 Probe and EGT System Inspection, AMM TASK 77-21-01-200-801-F00.

- (a) If you found and repaired a problem, then do the Initial Evaluation again.
- (b) If you did not find a problem, then continue.

- (2) If necessary, replace the upper 11 fuel nozzles. These are the tasks:

NOTE: This fault can be caused by deteriorated fuel nozzles which can lead to high fuel flow in the upper EGT sector during engine start. CFM has released Service Bulletin 73-0132 and recommended fuel nozzle upgrade. At the next available opportunity with no effect on revenue service, it is recommended to replace the upper 11 fuel nozzles.

- (a) Fuel Nozzle Removal, AMM TASK 73-11-04-000-805-F01 or Fuel Nozzle Removal, AMM TASK 73-11-04-000-804-F02
- (b) Fuel Nozzle Installation, AMM TASK 73-11-04-400-805-F01 or Fuel Nozzle Installation, AMM TASK 73-11-04-400-804-F02
- (c) Do the Repair Confirmation at the end of the task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (a) If the maintenance message does not show a fault in Flight Leg Zero, then you corrected the problem.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-11 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

801. Internal EEC Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:

NOTE: These messages are listed in sequence by unique fault number DDD in the standard format 73-XDDDY, where:

X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and

Y = Engine Position (1=ENG 1, 2=ENG 2)

- (a) 73-10011, 73-10012, 73-20011, 73-20012, 73-30011, 73-30012, 73-10021, 73-10022, 73-20021, 73-20022, 73-30021, 73-30022, 73-10031, 73-10032, 73-20031, 73-20032, 73-30031, 73-30032, 73-10041, 73-10042, 73-20041, 73-20042, 73-30041, 73-30042, 73-10051, 73-10052, 73-20051, 73-20052, 73-30051, 73-30052, 73-10061, 73-10062, 73-20061, 73-20062, 73-30061, 73-30062, 73-10071, 73-10072, 73-20071, 73-20072, 73-30071, 73-30072, 73-10081, 73-10082, 73-20081, 73-20082, 73-30081, 73-30082, 73-10091, 73-10092, 73-20091, 73-20092, 73-30091, 73-30092, 73-10111, 73-10112, 73-20111, 73-20112, 73-30111, 73-30112, 73-10121, 73-10122, 73-20121, 73-20122, 73-30121, 73-30122, 73-10131, 73-10132, 73-20131, 73-20132, 73-30131, 73-30132, 73-10151, 73-10152, 73-20151, 73-20152, 73-30151, 73-30152, 73-10161, 73-10162, 73-20161, 73-20162, 73-30161, 73-30162, 73-10171, 73-10172, 73-20171, 73-20172, 73-30171, 73-30172, 73-10181, 73-10182, 73-20181, 73-20182, 73-30181, 73-30182, 73-10191, 73-10192, 73-20191, 73-20192, 73-30191, 73-30192, 73-10201, 73-10202, 73-20201, 73-20202, 73-30201, 73-30202, 73-10211, 73-10212, 73-20211, 73-20212, 73-30211, 73-30212, 73-10221, 73-10222, 73-20221, 73-20222, 73-30221, 73-30222, 73-10281, 73-10282, 73-20281, 73-20282, 73-30281, 73-30282, 73-10301, 73-10302, 73-20301, 73-20302, 73-30301, 73-30302, 73-10731, 73-10732, 73-20731, 73-20732, 73-30731, 73-30732, 73-10741, 73-10742, 73-20741, 73-20742, 73-30741, 73-30742, 73-10781, 73-10782, 73-20781, 73-20782, 73-30781, 73-30782, 73-11081, 73-11082, 73-21081, 73-21082, 73-31081, 73-31082, 73-11111, 73-11112, 73-21111, 73-21112, 73-31111, 73-31112, 73-11401, 73-11402, 73-21401, 73-21402, 73-31401, 73-31402, 79-11151, 79-11152, 79-21151, 79-21152, 79-31151, 73-11731, 73-21731, 73-11732, 73-21732 and 79-31152.
- (b) For 73-10101, 73-10102, 73-20101, 73-20102, 73-30101, 73-30102, refer to this task: (Internal EEC Fault, CCDL - Fault Isolation, 73-21 TASK 807).

- (2) These faults are caused by an internal Electronic Engine Control (EEC) problem.

- (3) The faults are reported when the EEC has Electrical Power.

B. Possible Causes

- (1) For Maintenance Messages 73-10151, 73-10152, 73-20151, 73-20152, 73-30151, or 73-30152:
- (a) Display Electronic Unit (DEU)-1 (2) M1808 (M1809)
- (2) EEC Software Problem
- (3) EEC, M1818
- (4) ENG 1 CH-A (CH-B) Start Lever Relay, R566 (R565)
- (5) ENG 2 CH-A (CH-B) Start Lever Relay, R568 (R567)
- (6) ENG-1 CH-A (CH-B) Start Lever Switch, S1024 (S1025)
- (7) ENG-2 CH-A (CH-B) Start Lever Switch, S1027 (S1028)

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

(8) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) WDM 76-21-11
- (2) WDM 76-21-21

E. Initial Evaluation

- (1) Do the applicable task(s) for the maintenance messages indicated below:
 - (a) For the 73-X010Y group of messages, do this task: Internal EEC Fault, CCDL - Fault Isolation, 73-21 TASK 807.
 - (b) For all other maintenance messages except 73-X016Y and 73-X078Y, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (c) For maintenance messages 73-X016Y and 73-X078Y, do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
- (2) If the maintenance message does not show on the Flight Management Computer System (FMCS) Control Display Unit (CDU), then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - (a) For an intermittent fault you must use your judgment, your airline policies, the Fault Isolation Procedure, and the Possible Causes list to make the decision if you will try to correct the fault.
 - (b) Monitor the airplane on the subsequent flight(s).
- (3) If the maintenance message shows, then do the Fault Isolation Procedure below.

NOTE: The procedure is for Single Channel or Dual Channel Faults.

F. Fault Isolation Procedure

- (1) For Maintenance Messages 73-X010Y, do this task: Internal EEC Fault, CCDL - Fault Isolation, 73-21 TASK 807.
 - (a) For maintenance messages 73-10151, 73-10152, 73-20151, 73-20152, 73-30151, 73-30152, if the fault continues, replace one of the DEUs. 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.
 - (b) If the fault continues, then replace the other DEU. These are the tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801

EFFECTIVITY
SIA ALL

73-21 TASK 801

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

- Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (2) For maintenance messages 73-10011, 73-10012, 73-20011, 73-20012, 73-11731, 73-11732, 73-21731, or 73-21732, load the installed version of the EEC Software. This is the task: EEC Software Load, AMM TASK 73-21-60-470-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) If the maintenance message still shows, replace the EEC. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.
- (4) For maintenance messages 73-10191, 73-10192, 73-20191, 73-20192, 73-20391, or 73-20392, if a message still shows, do these steps:
 - (a) Remove the two Engine Start Lever Relays for the applicable engine:
 - ENG 1 CH-A (CH-B) Start Lever Relay, R566 (R565)
 - ENG 2 CH-A (CH-B) Start Lever Relay, R568 (R567)
 - (b) For ENG-1 (2), close the applicable circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

- (c) Refer to the table below and do the indicated electrical checks at the applicable Relay Receptacle:

Table 201

RECEPTACLE D10922 ENG 1 CH-A D10920 ENG 1 CH-B D10926 ENG 2 CH-A D10924 ENG 2 CH-B	ENGINE START LEVER POSITION	PINS	EXPECTED RESULTS
	CUTOFF	X1 TO GROUND	28V DC
		X2 TO GROUND	CONTINUITY
		Y2 TO GROUND	OPEN CIRCUIT
	IDLE or RUN	Y1 TO GROUND	28V DC
		Y2 TO GROUND	CONTINUITY
		X2 TO GROUND	OPEN CIRCUIT

- 1) If you do not find 28V DC at pins X1 and Y1, then examine and repair the wires between the Relay Receptacle and the applicable circuit breaker.

EFFECTIVITY
SIA ALL

73-21 TASK 801

D633A103-SIA

Page 203
Oct 15/2021

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

- a) Do the Repair Confirmation at the end of this task.
- 2) If you do not find continuity or open circuit (as applicable) at pins Y2 and X2, then examine and repair the wires between the Relay Receptacle and the applicable Engine Start Lever Switch Module.

I SIA 702-714

- a) If you do not find a wire problem, then replace the applicable switch in the ENG 1 (ENG 2) Start Lever Switch Module, M1824 (M1825). These are the tasks:
 - Engine Start Brake Assembly Switch Removal, AMM TASK 76-11-11-010-801-F00
 - Engine Start Brake Assembly Switch Installation, AMM TASK 76-11-11-420-801-F00

SIA 716-999

- b) If you do not find a wire problem, then replace the applicable ENG 1 (ENG 2) Start Lever, S1221 (S1222). These are the tasks:
 - Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00

SIA ALL

- c) Do the Repair Confirmation at the end of this task.
- 3) If the electrical checks above are correct, replace the applicable ENG 1 (ENG 2) Start Lever Relay(s):
 - ENG 1 CH-A (CH-B) Start Lever Relay, R566 (R565)
 - ENG 2 CH-A (CH-B) Start Lever Relay, R568 (R567)
- a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For all maintenance messages except 73-X016Y and 73-X078Y, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (2) For maintenance messages 73-X016Y and 73-X078Y, do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

802. Internal EEC S/W Versions Disagree - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10141, 73-10142, 73-20141, 73-20142, 73-30141, and 73-30142
 - (b) The maintenance messages 73-X014Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).

EFFECTIVITY
SIA ALL

73-21 TASKS 801-802

D633A103-SIA

Page 204
Oct 15/2023

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

- (2) This fault is reported when the EEC has electrical power.
- (3) The EEC senses that the software versions for the two internal channels are not the same.

B. Possible Causes

- (1) EEC Programming
 - (a) Programming that was completed on the wing or in the shop.
- (2) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) (SSM 73-22-11)
- (2) (WDM 73-22-11)

E. Initial Evaluation

- (1) There are two procedures for the initial evaluation.
 - (a) You can do either one of the procedures that follow to determine if the fault is active.
- (2) Procedure 1,
do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00
 - (a) If the maintenance message shows after the test, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) Monitor the airplane on the subsequent flight.
- (3) Procedure 2,
do this task: IDENT/CONFIG, AMM TASK 73-21-00-700-808-F00
 - (a) If the EEC software versions agree, then the EEC S/W VER will show on the CDU display.

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

- (b) If the EEC software versions do not agree, then the EEC S/W VER will be blank on the CDU display.

NOTE: The EEC S/W VER will show "----".

- 1) If the EEC software versions is blank, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do these steps if the maintenance message shows and the software was not recently changed in the EEC:
 - (a) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (b) Do the Repair Confirmation at the end of this task.
- (2) Do these steps if the maintenance message shows and the software was recently changed in the EEC:
 - (a) Use the applicable CFMI Service Bulletin to load the software again.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the fault continues, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

803. EEC Temperature is more than 105 Degrees C - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10231, 73-10232, 73-20231, 73-20232, 73-30231, and 73-30232
 - (b) The maintenance messages 73-X023Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The EEC senses that its internal temperature is more than the limit. This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) EEC cooling tube/ram air scoop
- (2) Engine cowl anti-ice valve/duct leak
- (3) EEC, M1818.

NOTE: The EEC is usually not the primary cause of the overtemperature; however, the EEC must be changed if the internal temperature was more than the limit.

EFFECTIVITY
SIA ALL

73-21 TASKS 802-803

D633A103-SIA

Page 206
Oct 15/2021

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

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Initial Evaluation

- (1) This fault cannot be confirmed.

- (a) The fault is not set after the EEC temperature cools to an acceptable limit.

NOTE: You can use the EEC BITE procedure to get the fault from RECENT FAULTS or FAULT HISTORY (73-00 TASK 801).

E. Fault Isolation Procedure

- (1) Replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- (a) Do these steps as you replace the EEC:

- 1) Visually examine the EEC cooling tube and the ram air scoop.
- 2) Make sure that they are not clogged or damaged.
 - a) If you find damage, then replace the component.
 - b) If you find a clog, then remove it.



WARNING

DO NOT TOUCH THE COWL TAI DUCTS OR TAI VALVE WHEN THEY ARE HOT. IF YOU ARE NOT CAREFUL, INJURIES TO PERSONS CAN OCCUR.

- (b) Do a check of the engine cowl TAI valve/duct for leaks per the valve installation test (AMM TASK 30-21-11-400-801).

- 1) If you find leaks, align the couplings to repair the leaks.

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

F. Repair Confirmation

- (1) This fault cannot be confirmed.

NOTE: The fault is not set after the EEC cools to an acceptable limit.

- (a) Monitor the problem on subsequent flights.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-21 TASK 803

D633A103-SIA

Page 207
Oct 15/2021

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

804. The ALTN MODE Light is not in the Commanded State, Internal EEC Fault - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10241, 73-10242, 73-20241, 73-20242, 73-30241, 73-30242, 73-10251, 73-10252, 73-20251, 73-20252, 73-30251, and 73-30252
 - (b) The maintenance messages 73-X024Y or 73-X025Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The EEC senses a problem with the internal relay that controls the ALTN MODE light.
 - (a) The ALTN MODE light can be on all of the time, even when the EEC does not have electrical power.
 - (b) The fault is only reported when the EEC has electrical power.

B. Possible Causes

- (1) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message shows, then do the Fault Isolation Procedure below.
NOTE: The procedure is for single channel or dual channel faults.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

E. Fault Isolation Procedure

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

F. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

- (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

805. T/R Lever Interlock is Always On, Internal EEC Fault - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10261, 73-10262, 73-20261, 73-20262, 73-30261, and 73-30262
 - (b) The maintenance messages 73-X026Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The EEC senses a problem with the internal relay that controls the Thrust Reverser (T/R) Interlock. This fault is reported when the EEC has electrical power.
 - (a) A serviceable T/R interlock prevents the movement of the reverse thrust lever to more than reverse idle until the T/R deploys at least 60%.

B. Possible Causes

- (1) EEC, M1818

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-21 TASKS 804-805

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

D. Initial Evaluation

- (1) Do this task: T/R LEVER INTLK (Interlock) TEST, AMM TASK 73-21-00-700-805-F00.
 - (a) If the maintenance message shows, then do the Fault Isolation Procedure below.
NOTE: The procedure is for single channel or dual channel faults.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

E. Fault Isolation Procedure

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: T/R LEVER INTLK (Interlock) TEST, AMM TASK 73-21-00-700-805-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

806. T/R Lever Interlock is not Available, Internal EEC Fault - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10271, 73-10272, 73-20271, 73-20272, 73-30271, and 73-30272
 - (b) The maintenance messages 73-X027Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The EEC senses a problem with the internal relay that controls the Thrust Reverser (T/R) Interlock. This fault is reported when the EEC has electrical power.
 - (a) A serviceable T/R interlock prevents movement of the reverse thrust lever to more than reverse idle until the T/R deploys at least 60%.

EFFECTIVITY
SIA ALL

73-21 TASKS 805-806

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

B. Possible Causes

- (1) EEC, M1818

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Initial Evaluation

- (1) Do this task: T/R LEVER INTLK (Interlock) TEST, AMM TASK 73-21-00-700-805-F00.
 - (a) If the maintenance message shows, then do the Fault Isolation Procedure below.
NOTE: The procedure is for single channel or dual channel faults.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

E. Fault Isolation Procedure

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-21 TASK 806

D633A103-SIA

Page 211
Oct 15/2021

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

F. Repair Confirmation

- (1) Do this task: T/R LEVER INTLK (Interlock) TEST, AMM TASK 73-21-00-700-805-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

807. Internal EEC Fault, CCDL - Fault Isolation

A. Description

(73-21 TASK SUPPORT Figure 301)

- (1) This task is for these maintenance message numbers:
 - (a) 73-10101, 73-10102, 73-20101, 73-20102, 73-30101, and 73-30102.
 - (b) The maintenance messages 73-X010Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The local channel of the EEC is receiving serial data from the cross channel.

B. Possible Causes

- (1) A problem with the electrical power supplied to the EEC.
- (2) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message shows, then do the Fault Isolation Procedure below.
NOTE: The procedure is for single channel or dual channel faults.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) For an intermittent fault you must use your judgment, your airline policies, the Fault Isolation Procedure, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 2) Monitor the airplane on the subsequent flight.

EFFECTIVITY
SIA ALL

73-21 TASKS 806-807

D633A103-SIA

Page 212
Oct 15/2021

**737-600/700/800/900
FAULT ISOLATION MANUAL****E. Fault Isolation Procedure**

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for these maintenance messages in the same flight leg with this message (73-X010Y):
 - 1) 73-11281, 73-11282, 73-21281, 73-21282, 73-31281, and 73-31282.
 - 2) If you find one or more of these messages in the same flight leg, then do the fault isolation procedure for that message (73-X128Y); do this task: An EEC Channel is not Energized with the Alternator Voltage - Fault Isolation, 73-27 TASK 805.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then continue.
 - 3) If you do not find one of the messages, then continue.
 - (2) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

———— **END OF TASK** ————

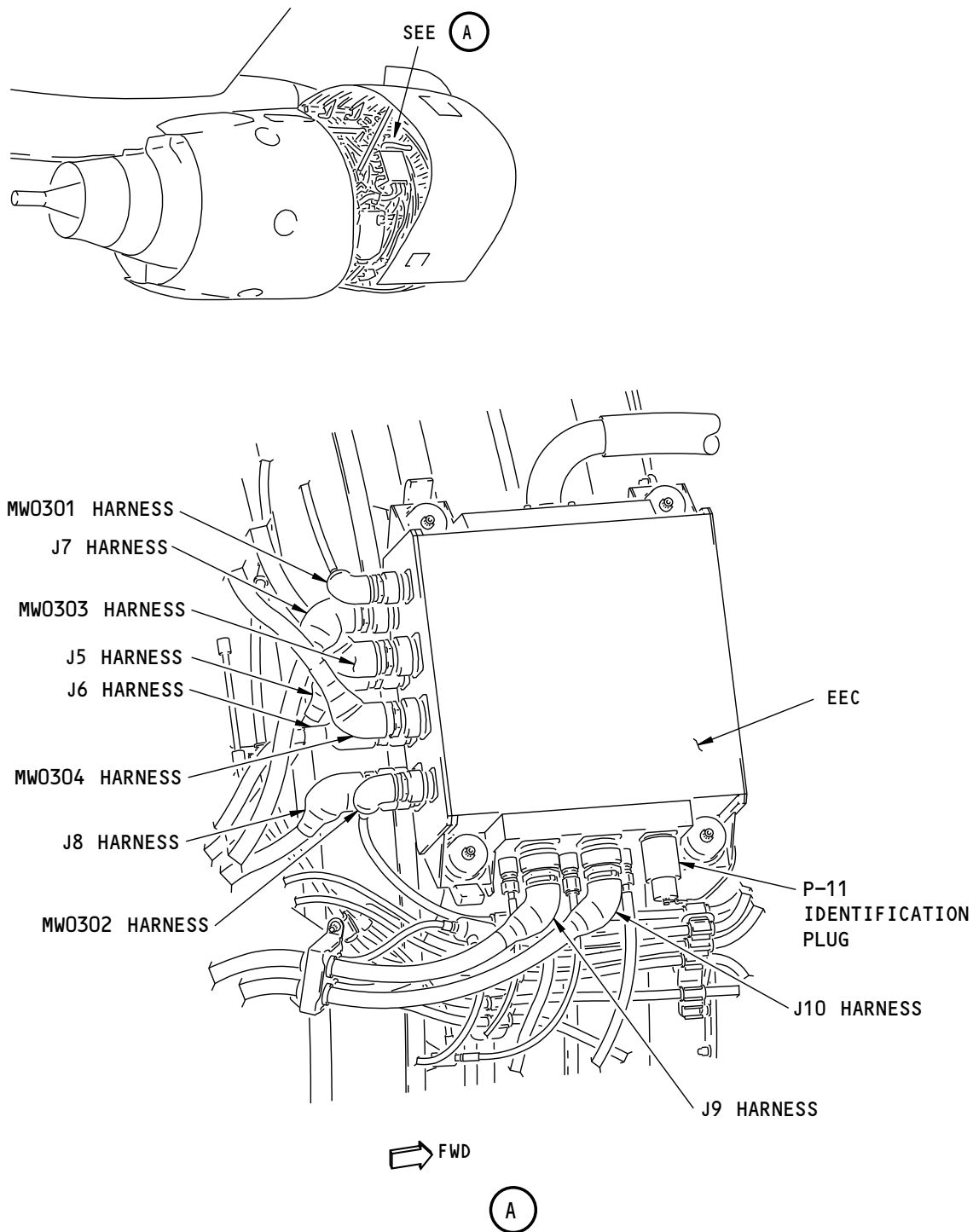
EFFECTIVITY
SIA ALL

73-21 TASK 807

D633A103-SIA

Page 213
Oct 15/2021

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



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Electronic Engine Control Installation
Figure 301/73-21-00-990-801-F00

EFFECTIVITY
 SIA ALL

73-21 TASK SUPPORT

D633A103-SIA

Page 301
 Oct 15/2021

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

801. Internal EEC Pressures are out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10611, 73-10612, 73-20611, 73-20612, 73-30611, and 73-30612.
 - (b) The maintenance messages 73-X061Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The EEC senses that all pressures are out of range on this channel, and the other channel's data is not available.
 - (a) This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)
- (3) (WDM 73-22-11)

E. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message shows after the test, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

- (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

802. N1 Trim Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11331, 73-11332, 73-21331, 73-21332, 73-31331 and 73-31332
- (2) For the maintenance message 73-X133Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2), do the applicable Fault Isolation Procedure:
 - (a) If X=1 or 2, then do the Fault Isolation Procedure - Single Channel Fault.
 - (b) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
- (3) The EEC senses that the engine N1 trim signal is not in the valid range.

B. Possible Causes

- (1) For the single channel maintenance messages:
 - (a) EEC, M1818.
- (2) For the dual channel maintenance messages:
 - (a) ID plug
 - (b) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASKS 801-802

D633A103-SIA

Page 202
Oct 15/2021

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

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active or a dual channel message:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message number 73-11331, 73-11332, 73-21331, or 73-21332 show, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If the maintenance message number 73-31331 or 73-31332 show, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Prepare for the procedure:

EFFECTIVITY
SIA ALL

73-22 TASK 802

D633A103-SIA

Page 203
Oct 15/2021

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

- (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (2) Do these steps to examine the ID plug:

- (a) See if the ID plug is correctly connected to the EEC, and then continue.

- (b) Disconnect the ID plug from the EEC.

- (c) Examine the EEC receptacle and the ID plug for damage (AMM TASK 70-70-01-200-801-F00).

- 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If the ID plug is damaged, then replace it.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the ID plug to the EEC.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If no problem was found, then continue.

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

- (3) Do a resistance check of the ID plug:

NOTE: If you do not know the trim level, you can look at the engine data plate to get the trim level of your engine.

Table 201

N1 TRIM LEVEL	PINS 38 TO 54 ^{*[1]} ^{*[2]}	PINS 37 TO 38 ^{*[1]} ^{*[2]}	PINS 38 TO 46 ^{*[1]} ^{*[2]}	PINS 38 TO 47 ^{*[1]} ^{*[2]}
	DISCRETE 14	DISCRETE 15	DISCRETE 16	DISCRETE 17
LEVEL 0	0	0	0	1
LEVEL 1	1	0	0	0
LEVEL 2	0	1	0	0
LEVEL 3	1	1	0	1
LEVEL 4	0	0	1	0
LEVEL 5	1	0	1	1
LEVEL 6	0	1	1	1
LEVEL 7	1	1	1	0

^{*[1]} 0 = Open Circuit (resistance must be greater than 100 Kohms)

^{*[2]} 1 = Closed Circuit (resistance must be less than 5 ohms)

- (a) If resistance is not in the specified range, then replace the ID plug.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

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

- (b) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

H. Repair Confirmation

- (1) Prepare for the procedure:

- (a) For engine 1, remove the safety tags and close this circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASK 802

D633A103-SIA

Page 205
Oct 15/2021

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

- (b) For engine 2, remove the safety tags and close this circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 (a) If the maintenance message does not show, then you corrected the fault.
 (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

— END OF TASK —

803. Engine Identification Plug Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 (a) 73-11321, 73-11322, 73-21321, 73-21322, 73-31321 and 73-31322
 (2) For the maintenance message 73-X132Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2), do the applicable Fault Isolation Procedure:
 (a) If X=1 or 2, then do the Fault Isolation Procedure - Single Channel Fault.
 (b) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Faults.
 (3) The EEC senses that the engine identification signal is not in the valid range.

B. Possible Causes

- (1) For the single channel maintenance messages:
 (a) EEC, M1818.
 (2) For the dual channel maintenance messages:
 (a) ID plug
 (b) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASKS 802-803

D633A103-SIA

Page 206
Oct 15/2021

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

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message number 73-11321, 73-11322, 73-21321, or 73-21322 show, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If the maintenance message number 73-31321 or 73-31322 show, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
(a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do this task: IDENT/CONFIG, AMM TASK 73-21-00-700-808-F00.
(a) Record the EEC software part number.
NOTE: If the BSV is deactivated or removed, the EEC software part number must be 1853M78P16 or later.
- (2) Prepare for the procedure:
 - (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT

EFFECTIVITY
SIA ALL

73-22 TASK 803

D633A103-SIA

Page 207
Oct 15/2021

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Do these steps to visually examine the ID plug:
- (a) See if the ID plug is correctly connected to the EEC, and then continue.
 - (b) Disconnect the ID plug from the EEC.
 - (c) Examine the ID plug and the EEC receptacle (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the ID plug is damaged, then replace it.
 These are the tasks:
 Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,
 Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the ID plug.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem was found, then continue.
- (4) Do a resistance check of the ID plug:
- NOTE:** If you do not know the engine type and rating, you can look at the engine data plate to get the data for your engine.

EFFECTIVITY
SIA ALL

73-22 TASK 803

D633A103-SIA

Page 208
Oct 15/2021

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

Table 202

ENGINE TYPE PARITY	PINS 14 TO 22 ^{*[1]} ^{*[2]}	PINS 21 TO 29 ^{*[1]} ^{*[2]}
	DISCRETE 06	DISCRETE 12
SAC ENGINES WITH BSV	1	0
SAC ENGINES WITHOUT BSV	0	0

*[1] 0 = Open Circuit (resistance must be greater than 100 Kohms)

*[2] 1 = Closed Circuit (resistance must be less than 5 ohms)

Table 203

ENGINE RATING	DISCRETE 23
	PINS 23 TO 15 ^{*[1]} ^{*[2]}
SIA 706-710, 716-999	
CFM56-7B26	1
SIA ALL	
CFM56-7B27	1

*[1] 0 = Open Circuit (resistance must be greater than 100 Kohms)

*[2] 1 = Closed Circuit (resistance must be less than 5 ohms)

Table 204

DISCRETE NUMBER	10	21
OTHER DISCRETES	PINS 40 TO 45 LESS THAN 5 OHM	PINS 41 TO 23 LESS THAN 5 OHM

- (a) If resistance is not in the specified range, then replace the ID plug.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

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

- (b) If resistance is in the specified range, then continue.

- (5) Do a continuity check of the ID plug:

Table 205

BSV PARITY	PINS 20 TO 29
BSV ACTIVE	OPEN CIRCUIT
BSV REMOVED OR DEACTIVATED	CLOSED CIRCUIT

- (a) If you do not find an open circuit, then

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-22 TASK 803

D633A103-SIA

Page 209
Jun 15/2022

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

- (b) If you find a closed circuit and the EEC software part number is not 1853M78P16 or later, then do these steps:
- 1) Use the applicable CFMI Service Bulletin to install 1853M78P16 or later software in the EEC.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If you find a closed circuit and the EEC software part number is 1853M78P16 or later, then
- These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

804. Engine Rating Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11411, 73-11412, 73-21411, 73-21412, 73-31411 and 73-31412
- (2) The maintenance messages 73-X141Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - (a) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.
 - (b) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.

EFFECTIVITY
SIA ALL

73-22 TASKS 803-804

D633A103-SIA

Page 210
Feb 15/2022

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

- (3) The EEC senses that the engine rating signal is not in a valid range.
- (4) The installed FADEC 2 software part number is not compatible with the engine configuration.

B. Possible Causes

- (1) For the single channel maintenance messages:
 - (a) EEC, M1818.
- (2) For the dual channel maintenance messages:
 - (a) ID plug
 - (b) EEC, M1818.
 - (c) FADEC 2 SAC software is loaded on engine with DAC configuration.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message number 73-11411, 73-11412, 73-21411, or 73-21412 show, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If the maintenance message number 73-31411 or 73-31412 show, make sure that FADEC 2 SAC software was not installed on an engine with DAC configuration.
 - 1) If you find no problem, then do Fault Isolation Procedure - Dual Channel Fault below.

NOTE: An example of an engine with DAC configuration is CFM56-7B22/2, the -7B22/2 describes the DAC engine.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

E. Fault Isolation Procedure - Single Channel Fault

- (1) Replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

F. Fault Isolation Procedure - Dual Channel Fault

- (1) Prepare for the procedure:

- (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Do these steps to examine the ID plug:
 - (a) See if the ID plug is correctly connected to the EEC, and then continue.
 - (b) Disconnect the ID plug from the EEC.
 - (c) Examine the ID plug and the EEC receptacle (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the ID plug is damaged, then replace it.

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

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the ID plug.
- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If no problem was found, then continue.
- (3) Do a resistance check of the ID plug for your engine:

NOTE: If you do not know the engine rating, you can look at the engine data plate to get the data for your engine.

Table 206

ENGINE RATING PARITY	PINS 12 TO 14 ^{*[1]}	PINS 53 TO 56 ^{*[1] *[2]}	PINS 53 TO 55 ^{*[1] *[2]}	PINS 53 TO 48 ^{*[1] *[2]}
	DISCRETE 4	DISCRETE 3	DISCRETE 2	DISCRETE 1
SIA 706-710, 716-999				
CFM56-7B26	0	1	0	1
SIA ALL				
CFM56-7B27	0	1	1	0

^{*[1]} 0 = Open Circuit (resistance must be greater than 100 Kohms)

^{*[2]} 1 = Closed Circuit (resistance must be less than 5 ohms)

- (a) If resistance is not in the specified range, then replace the ID plug.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- (b) If resistance is in the specified range, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Do this task: Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

EFFECTIVITY
SIA ALL

73-22 TASK 804

D633A103-SIA

Page 213
Jun 15/2022

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

- (b) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

— END OF TASK —

805. Airplane Model and Engine Rating Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
- (a) 73-11421, 73-11422, 73-21421, 73-21422, 73-31421 and 73-31422
- (b) The maintenance messages 73-X142Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- 1) If X=1 or 2, do the fault isolation procedure for a single channel fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the fault isolation procedure for a dual channel fault.
- (2) The engine rating discrete disagrees with the airplane model discrete.

B. Possible Causes

- (1) For the single channel maintenance messages:
- (a) EEC, M1818.
- (2) For the dual channel maintenance messages:
- (a) ID plug
- (b) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASKS 804-805

D633A103-SIA

Page 214
Feb 15/2022

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

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)
- (3) (SSM 73-21-11)
- (4) (WDM 73-21-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message number 73-11421, 73-11422, 73-21421, or 73-21422 show, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If the maintenance message number 73-31421 or 73-31422 show, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do this task: IDENT/CONFIG, AMM TASK 73-21-00-700-808-F00.
- (2) Examine the AIRPLANE (APL) MODEL display on the FMCS CDU display to make sure that it is correct.
 - (a) If the AIRPLANE (APL) MODEL is correct, then continue.
 - (b) If the AIRPLANE (APL) MODEL is not correct, then, do this task: Airplane Model Signal is out of Range - Fault Isolation, 73-22 TASK 807.
- (3) Examine the ENGINE MODEL (RATING) display on the FMCS CDU to make sure that they are correct.
 - (a) If the ENGINE MODEL (RATING) is correct, then do the Repair Confirmation at the end of this task.
 - (b) If the ENGINE MODEL (RATING) is not correct, then continue.
- (4) Examine the engine data plate:
 - (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) Make sure that the ENGINE MODEL (RATING) is acceptable with the AIRPLANE (APL) MODEL.

NOTE: Refer to the resistance table below that lists the acceptable ENGINE MODEL's (RATING) for your airplane.
 - (c) Make sure that the ENGINE MODEL (RATING) agrees with the FMCS CDU display.
 - 1) If it does agree, then there was an intermittent fault.
 - 2) If it does not agree, then continue.
- (5) Prepare for the procedure:
 - (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (6) Do these steps to examine the ID plug:
 - (a) See if the ID plug is correctly connected to the EEC, and then continue.
 - (b) Disconnect the ID plug from the EEC.
 - (c) Examine the ID plug and the EEC receptacle (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

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

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the ID plug is damaged, then replace it.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the ID plug.
- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If no problem was found, then continue.
- (7) Examine the resistance of the ID plug:

Table 207

ENGINE RATING	PINS 12 TO 14 ^{*[1]}	PINS 53 TO 56 ^{*[1] *[2]}	PINS 53 TO 55 ^{*[1] *[2]}	PINS 53 TO 48 ^{*[1] *[2]}
	DISCRETE 4	DISCRETE 3	DISCRETE 2	DISCRETE 1
CFM56-7B24	0	1	0	0
CFM56-7B26	0	1	0	1
CFM56-7B27	0	1	1	0

*[1] 0 = Open Circuit (resistance must be greater than 100 Kohms)

*[2] 1 = Closed Circuit (resistance must be less than 5 ohms)

- (a) If resistance is not in the specified range, then replace the ID plug.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- (b) If resistance is in the specified range, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-22 TASK 805

D633A103-SIA

Page 217
Feb 15/2022

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

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

806. Engine Position Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11380, 73-11382, 73-21380, 73-21382, 73-31380 and 73-31382.
 - (b) The maintenance messages 73-X138Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (0=Eng 1 because of this fault, 2=Eng 2).
 - 1) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
- (2) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, there is an internal EEC problem.
- (3) The EEC senses that the engine position signal is not in a valid range.
 - (a) If the fault is on Engine 1, the fault message in EEC BITE memory will end with a zero instead of a one.
 - (b) If the fault is on Engine 2, you will need to correct the fault, do this task: EEC BITE Does Not Operate - Fault Isolation, 73-05 TASK 802 before the Engine 2 EEC BITE will operate.

B. Possible Causes

- (1) For the single channel maintenance messages:
 - (a) EEC, M1818.

EFFECTIVITY
SIA ALL

73-22 TASKS 805-806

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

- (2) For the dual channel maintenance messages:
 - (a) MW0303 wire harness
 - (b) EEC, M1818.

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)
- (3) (SSM 73-21-11)
- (4) (WDM 73-21-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message number 73-11380 or 73-21380 shows, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If the maintenance message number 73-31380 shows, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - 1) This is true for Engine 1 only. For Engine 2, no fault will be found because the problem is corrected by (73-05 TASK 802).
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.

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

- c) If you find no problems, then replace components as listed in the Possible Causes list above.

- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) If the fault is on Engine 1, the fault message in EEC BITE memory will end with a zero instead of a one.

- (2) If the fault is on Engine 2, you will need to correct the fault EEC BITE Does Not Operate, before the Engine 2 EEC BITE operates; do this task: EEC BITE Does Not Operate - Fault Isolation, 73-05 TASK 802.

- (3) Do these steps to prepare for the procedure:

- (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (4) Examine the electrical connector, DP0303 on the wire harness MW0303 (J3, Ch A), at the EEC:

- (a) See if the electrical connector, DP0303 (Ch A) is correctly connected to the EEC, and then continue.

- (b) Disconnect the electrical connector, DP0303 (Ch A) from the EEC.

- (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

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

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the MW0303 (J3, Ch A) wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the DP0303 connector.
- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (5) Do a resistance check of these pins on the wire harness connector, DP0303 (Ch A):
- NOTE: The electrical connector, DP0303 (J3, Ch A) is on the MW0303 wire harness.

Table 208

ENGINE	PINS	RESISTANCE
ENG 1	PINS FF TO x	LESS THAN 5 OHM
	PIN FF TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (b) If the resistance is not in the specified range, then continue.
- (6) Disconnect the MW0303 wire harness connector, DP3024 from the receptacle in the strut.
- (a) Do a resistance check of these pins on the strut receptacle, D30224 (Eng 1):

Table 209

ENGINE	PINS	RESISTANCE
ENG 1	PINS 27 TO 28	LESS THAN 5 OHM
	PIN 13 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-22 TASK 806

D633A103-SIA

Page 221
Feb 15/2022

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

- 1) If the resistance is not in the specified range, then repair or replace the wires at the electrical receptacle, D30224 (Eng 1) in the strut.
 - a) Do the Repair Confirmation at the end of this task.
- 2) If the resistance is in the specified range, then replace the MW0303 wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

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

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure that the MW0303 wire harness connector, DP0324 is connected to the receptacle, D30224 (Eng 1) in the strut.
 - (b) Make sure the electrical connector, DP0303 (J3, Ch A) is connected to the EEC.
 - (c) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

807. Airplane Model Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11391, 73-11392, 73-21391, 73-21392, 73-31391 and 73-31392
 - (b) The maintenance messages 73-X139Y; where X = Electronic Engine Control (EEC) Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.

EFFECTIVITY
SIA ALL

73-22 TASKS 806-807

D633A103-SIA

Page 222
Feb 15/2022

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

- 2) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
- (2) The EEC senses that the airplane model signal is not in a valid range. The signal is received on Ch B but is split internally in the EEC to the two channels.
- (3) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, there is an internal EEC problem.
 - (a) This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) For the single channel maintenance messages:
 - (a) EEC, M1818
- (2) For the dual channel maintenance messages:
 - (a) Wire Harness, MW0304
 - (b) EEC, M1818

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)
- (3) SSM 73-21-11
- (4) WDM 73-21-11

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If the maintenance message does not show on the Flight Management Computer System (FMCS) Control Display Unit (CDU), then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.

EFFECTIVITY
SIA ALL

73-22 TASK 807

D633A103-SIA

Page 223
Feb 15/2022

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

- 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
- 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the Wiring Diagram Manual (WDM) references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.
- (c) If the maintenance message number 73-11391, 73-11392, 73-21391, or 73-21392 shows, then do the Fault Isolation Procedure - Single Channel Fault below.
- (d) If the maintenance message number 73-31391 or 73-31392 shows, then do the Fault Isolation Procedure - Dual Channel Fault below.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do these steps to prepare for the procedure:
 - (a) For ENG 1 (ENG 2), open the applicable circuit breakers and make sure that they have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the electrical connector on the wire harness MW0304 (J4, Ch B) at the EEC:
 - (a) See if the electrical connector DP0404 (J4, Ch B) is correctly connected to the EEC, and then continue.
 - (b) Disconnect the electrical connector DP0404 (J4, Ch B) from the EEC.

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

- (c) Visually examine the EEC receptacle and wire harness connector (Standard Engine Wiring and Equipment Check, AMM TASK 70-70-01-200-801-F00).
- 1) If the EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the harness connector is damaged, then replace the MW0304 (J4, Ch B) wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the electrical connector DP0404.
 - a) Do the Repair Confirmation at the end of this task.
 - 4) If you did not find a problem, then continue.
- (3) Do a resistance check of these pins on the DP0404 wire harness connector:
- NOTE: The DP0404 (J4, Ch B) electrical connector is on the MW0304 wire harness.

Table 210

AIRPLANE	PINS	RESISTANCE
737-800	PINS CC TO FF	LESS THAN 5 OHM
	PIN CC TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS HH TO FF	GREATER THAN 10 MEGOHMS
	PIN HH TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS BB TO FF	GREATER THAN 10 MEGOHMS
	PIN BB TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS V TO FF	GREATER THAN 10 MEGOHMS
	PIN V TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the resistance is not in the specified range, then continue.
- (4) Disconnect the wire harness connector DP0460 from the receptacle in the strut.
- (a) Do a resistance check of these pins on the strut receptacle ENG 1 (ENG 2) D30260 (D30460):

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

Table 211

AIRPLANE	PINS	RESISTANCE
737-800	PINS 20 TO 36	LESS THAN 5 OHM
	PIN 20 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS 35 TO 36	GREATER THAN 10 MEGOHMS
	PIN 35 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS 19 TO 36	GREATER THAN 10 MEGOHMS
	PIN 19 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
	PINS 31 TO 36	GREATER THAN 10 MEGOHMS
	PIN 31 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- 1) If the resistance is not in the specified range, then repair or replace the wires at the receptacle ENG 1 (ENG 2) D30260 (D30460).
 - a) Do the Repair Confirmation at the end of this task.
- 2) If the resistance is in the specified range, then replace the MW0304 wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure that the MW0304 wire harness connector DP0460 is connected to the receptacle ENG 1 (ENG 2) D30260 (D30460).
 - (b) Make sure that the MW0304 electrical connector DP0404 (J4, Ch B) is connected to the EEC.
 - (c) For ENG 1 (ENG 2), remove the safety tags and close the applicable circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the problem.
 - 1) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

EFFECTIVITY
SIA ALL

73-22 TASK 807

D633A103-SIA

Page 226
Feb 15/2022

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

- (b) If the maintenance message shows, then continue the Fault Isolation Procedure at the subsequent step.
- 1) For ENG 1 (ENG 2), open the applicable circuit breakers and make sure that they have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

— END OF TASK —

808. Airplane Voltage Input to the EEC is Out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
- (a) 73-11351, 73-11352, 73-21351, 73-21352, 73-31351, or 73-31352.
- (b) The maintenance messages 73-X135Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- 1) If X=1 or 2, do the fault isolation procedure for a single channel fault.
- 2) If X=1 and 2 (two messages), or X=3, do the fault isolation procedure for a dual channel fault.
- (2) The EEC senses that the airplane power supply is less than 96 volts when the engine start lever is in the IDLE position.
- (a) This fault is reported when the EEC has electrical power from the EEC Alternator, M1826.

B. Possible Causes

- (1) ENG 1 (ENG 2) Alternate Power Relay, R576 (R575)
- (2) DEU 1 (DEU 2) Display Electronic Unit (DEU), M1808 (M1809)
- (3) EEC, M1818

SIA 702-714

- (4) ENG 1 (ENG 2) Engine Start Lever Switch Module, M1824 (M1825)

SIA 716-999

- (5) ENG 1 (ENG 2) Engine Start Lever, S1221 (S1222)

SIA ALL

- (6) Wiring

EFFECTIVITY
SIA ALL

73-22 TASKS 807-808

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

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-22 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-22 TASK SUPPORT Figure 302)
- (3) (SSM 73-22-11)
- (4) (SSM 73-22-31)
- (5) (SSM 76-21-11)
- (6) (SSM 76-21-21)
- (7) (WDM 73-22-11)
- (8) (WDM 73-22-31)
- (9) (WDM 76-21-11)
- (10) (WDM 76-21-21)

E. Initial Evaluation

- (1) For the two engines, do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) If the FOR CH B ONLY, CH A EEC DATA NOT AVAILABLE alert message shows, then do the Fault Isolation Procedure - Single Channel Fault for 73-11351 or 73-11352 (Channel A of the applicable engine).
 - (b) If the FOR CH A ONLY, CH B EEC DATA NOT AVAILABLE alert message shows, then do the Fault Isolation Procedure - Single Channel Fault for 73-21351 or 73-21352 (Channel B of the applicable engine).
 - (c) If you can not get access to the EEC BITE Test for one of the EEC's, then do the Fault Isolation Procedure - Dual Channel Fault for 73-31351 (Eng 1) or 73-31352 (Eng 2).
 - (d) If the alert messages do not show, and one or more of the maintenance messages 73-x135y does show, then there was a momentary loss of electrical power to the applicable channel or channels of the EEC, M1818.

EFFECTIVITY
SIA ALL

73-22 TASK 808

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

- 1) Do a check of the airplane pilots' log for indication of a momentary power interruption on the airplane or on the 115 VAC transfer bus 1 (Eng 1) or 2 (Eng 2). If you find a report, then this was the cause of this fault. If no report was made, then you could have an intermittent fault.

F. Fault Isolation Procedure - Single Channel Fault

NOTE: This procedure is for maintenance messages 73-11351, 73-11352, 73-21351, or 73-21352.

- (1) Prepare for the procedure:

- (a) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (b) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

- (c) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Examine the DP0101 (Ch A) or DP0202 (Ch B) electrical connector at the EEC, M1818.
 - (a) See if the electrical connector, DP0101 (Ch A) or DP0202 (Ch B), is correctly connected to the EEC, M1818, and then continue.
 - (b) Disconnect the DP0101 (Ch A) or DP0202 (Ch B) electrical connector from the EEC, M1818.
 - (c) Visually examine the EEC, M1818 receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the MW0301 or MW0302 wire harness. These are the tasks:

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

- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
- Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then connect the electrical connectors.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (3) Examine the electrical power at the EEC, M1818:
 - (a) Make sure that the DP0101 (Ch A) or DP0202 (Ch B) electrical connector is disconnected from the EEC, M1818.
 - (b) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For engine 2, remove the safety tags and close these circuit breakers:
- ### F/O Electrical System Panel, P6-2
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A
- (d) For the applicable engine, put the applicable engine START switch on the Overhead Panel, P5 to CONT.
 - 1) Stop for a minimum of 5 seconds.
 - (e) Look for 115 VAC between pins C and D (ground) of the applicable connector.
 - 1) If you found the voltage, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you did not find the voltage, then continue.
 - (4) Examine the electrical power at the strut:
 - (a) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASK 808

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

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Make sure that applicable START switch is in the CONT position.
- (d) Disconnect the DP0112 (Ch A) or DP0256 (Ch B) electrical connector from the strut receptacle.
- (e) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (f) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (g) For Engine 1,

Look for 115 VAC between pins 4 and 5 of the strut receptacle D30212 (Ch A) or pins 2 and 7 of the strut receptacle D30256 (Ch B).

- (h) For Engine 2,

Look for 115 VAC between pins 4 and 5 of the strut receptacle D30412 (Ch A) or pins 2 and 7 of the strut receptacle D30456 (Ch B).

- 1) If you found the voltage, then replace the MW0301 (Ch A) or MW0302 (Ch B) wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
- 2) If you did not find the voltage, then look for airplane ground at pin 5 of the Channel A strut receptacle (D30212 or D30412) or pin 7 of the Channel B strut receptacle (D30256 or D30456).
 - a) If you did not find the ground, then examine and repair the wires between the strut receptacle and GD3840-AC (ENG 1) or GD3940-AC (ENG 2).
 - b) Do the Repair Confirmation at the end of this task.
- 3) If you found the ground, then continue.

- (5) Examine the electrical power at the ENG 1 (ENG 2) Alternate Power Relay, R576 (R575):

- (a) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 231
Oct 15/2021

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01312	ENGINE 1 RUN/PWR

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- 1) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Remove the applicable ENG 1 (ENG 2) Alternate Power Relay, R576 (R575) .
 (d) For engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR

- (e) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (f) Look for 115 VAC between these pins and airplane ground:

Table 212

ENGINE	CHANNEL	RELAY RECEPTACLE	PIN
ENG 1	CH A	D10954	A2 TO GROUND
	CH B	D10954	B2 TO GROUND
ENG 2	CH A	D10952	A2 TO GROUND
	CH B	D10952	B2 TO GROUND

- 1) If you did not find the voltage, then examine and repair the wires between the receptacle and the applicable circuit breaker.
 a) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 232
Oct 15/2021

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

- 2) If you found the voltage, then replace the applicable ENG 1 (ENG 2) Alternate Power Relay, R576 (R575).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then examine and repair the wires between the relay receptacle and the applicable strut receptacle.
 - c) Do the Repair Confirmation at the end of this task.
- (6) Do this check for 28 VDC to the Engine Start Lever Relays:
 - (a) Remove the two engine start lever relays for the applicable engine:
 - 1) ENG 1 Start Lever Relay, R566 (Ch A) and R565 (Ch B)
 - 2) ENG 2 Start Lever Relay, R568 (Ch A) and R567 (Ch B)
 - 3) For the applicable engine:
 - a) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

- (b) Look for 28 VDC and ground at these pins of the applicable relay receptacle:

Table 213

RECEPTACLE D10922 ENG1 CHA D10920 ENG1 CHB D10926 ENG2 CHA D10924 ENG2 CHB	ENGINE START LEVER POSITION	PINS	EXPECTED RESULTS
	CUTOFF	X1 TO GROUND	28 VDC
		X2 TO GROUND	CONTINUITY
		Y2 TO GROUND	OPEN CIRCUIT
	IDLE or RUN	Y1 TO GROUND	28 VDC
		Y2 TO GROUND	CONTINUITY
		X2 TO GROUND	OPEN CIRCUIT

- (c) If you do not find 28 VDC at pins X1 and Y1, then examine and repair the wires between the relay receptacle and the applicable circuit breaker.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
- (d) If you do not find continuity or open circuit (as applicable) at pins Y2 and X2, then examine and repair the wires between the relay receptacle and the applicable engine start lever switch module.

EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 233
Oct 15/2021

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

SIA 702-714

- 1) If you do not find a wire problem, then replace the applicable switch in the ENG 1 (ENG 2) Engine Start Lever Switch Module, M1824 (M1825). These are the tasks:
 - Engine Start Brake Assembly Switch Removal, AMM TASK 76-11-11-010-801-F00
 - Engine Start Brake Assembly Switch Installation, AMM TASK 76-11-11-420-801-F00

SIA 716-999

- 2) If you do not find a wire problem, then replace the applicable ENG 1 (ENG 2) Engine Start Lever, S1221 (S1222). These are the tasks:
 - Start Lever Removal, AMM TASK 76-11-02-010-802-F00
 - Start Lever Installation, AMM TASK 76-11-02-400-801-F00

SIA ALL

- 3) Do the Repair Confirmation at the end of this task.
- 4) If the Repair Confirmation is not satisfactory, then continue.
- (e) If the electrical check was in the specified range, then do these steps and continue:
 - 1) For the applicable engine:
 - a) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

- 2) Install the applicable Engine Start Lever Relay:
 - a) ENG 1 start lever relay, R566 (Ch A) or R565 (Ch B)
 - b) ENG 2 start lever relay, R568 (Ch A) or R567 (Ch B)
- 3) For the applicable engine:
 - a) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 234
Oct 15/2023

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

G. Fault Isolation Procedure - Dual Channel Fault

NOTE: This procedure is for maintenance messages numbers 73-31351 or 73-31352.

- (1) Do this task: EEC BITE Does Not Operate - Fault Isolation, 73-05 TASK 802.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then do the fault isolation procedures for maintenance messages, 76-x156y and 76-x157y:
 - 1) Do this task: Start Lever Signal and the DEU Data Disagree - Fault Isolation, 76-11 TASK 802.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) If it is necessary for engine 1, 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	3	C01312	ENGINE 1 RUN/PWR

- (b) If it is necessary for engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B

- (c) Make sure that the DP0101 (Ch A) and DP0202 (Ch B) electrical connectors are correctly installed at the EEC, M1818.
- (d) Make sure that the DP0112 (Ch A) and DP0256 (Ch B) electrical connectors are correctly installed at the strut receptacles.
- (e) Make sure that the ENG 1 (ENG 2) Alternate Power Relay, R576 (R575) are correctly installed.
- (f) Make sure that the start levers are in the CUTOFF position.
- (g) Make sure that the engine START switches are in the OFF position.
- (h) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR

EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 235
Oct 15/2021

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

- (i) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do these steps to make sure that you corrected the fault:
- (a) For Engine 1 and 2,
do this task: EEC BITE Procedure, 73-00 TASK 801
- (b) If you can get access to the EEC BITE Test and no FOR CH B (A), CH A (B) EEC DATA NOT AVAILABLE alert messages show, then you corrected the fault.

———— **END OF TASK** ————

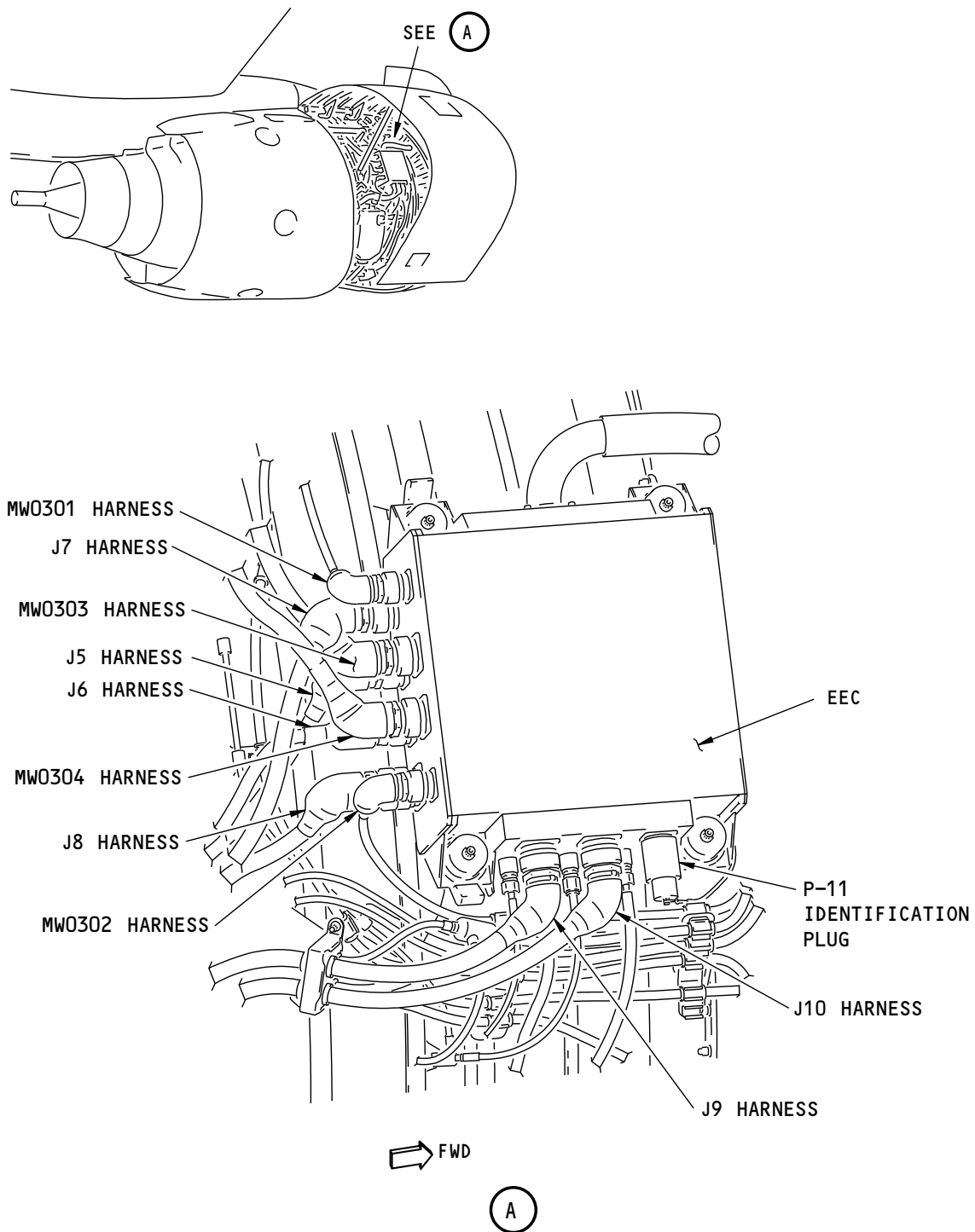
EFFECTIVITY
SIA ALL

73-22 TASK 808

D633A103-SIA

Page 236
Oct 15/2021

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



H35548 S0006745710_V1

Electronic Engine Control Installation
Figure 301/73-22-00-990-801-F00

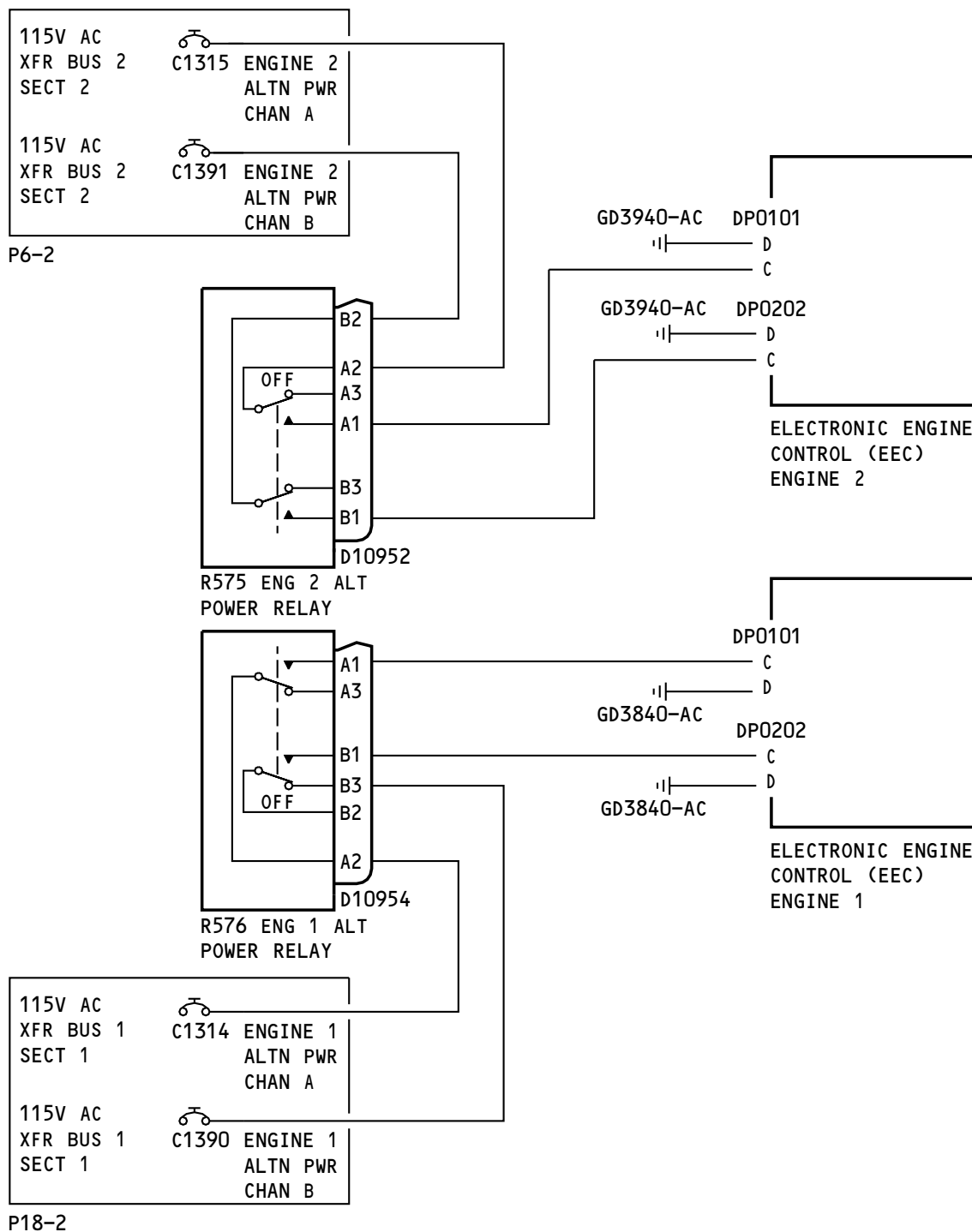
EFFECTIVITY
SIA ALL

73-22 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H30902 S0006745711_V1

ECC/Airplane Power Simplified Schematic
Figure 302/73-22-00-990-802-F00

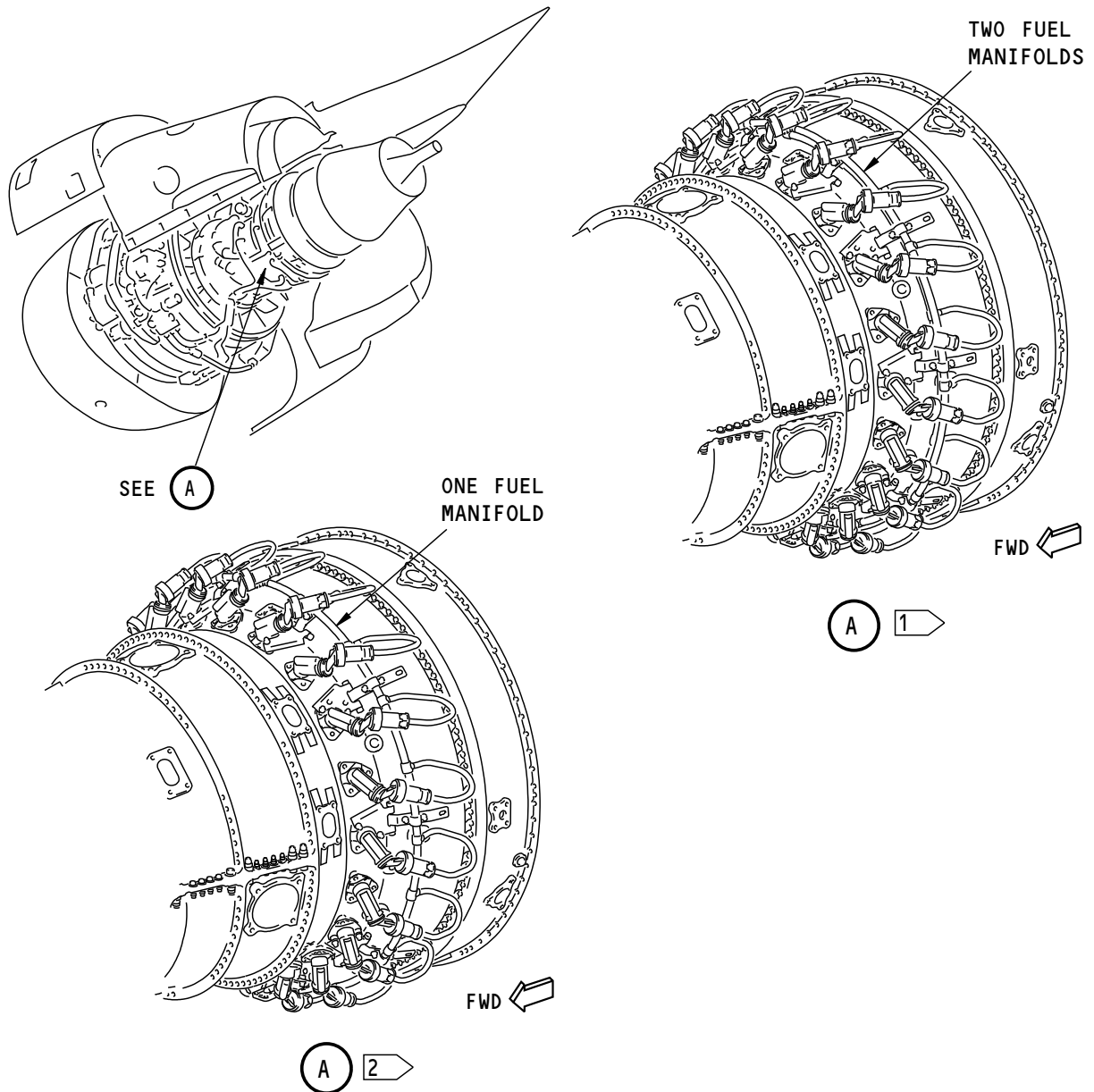
EFFECTIVITY
SIA ALL

73-22 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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



- 1 PRE- AND POST-CFMI-SB 72-239 ENGINES WITH THE BSV INSTALLED HAVE TWO FUEL MANIFOLDS. ONE GOING TO EVERY OTHER FUEL NOZZLE, THE OTHER GOING TO THE REMAINING FUEL NOZZLES. ENGINE WITH TWO FUEL MANIFOLD CAN HAVE EITHER AN ACTIVE OR DEACTIVATED BSV. YOU MUST LOOK AT THE AIRPLANE RECORDS FOR CFMI-SB 72-239.
- 2 ENGINES WITH THE BSV REMOVED HAVE ONLY ONE FUEL MANIFOLD THAT GOES TO ALL 20 FUEL NOZZLES.

L34582 S0006745712_V1

BSV Active, Deactivated, or Removed
Figure 303/73-22-00-990-803-F00

EFFECTIVITY
SIA ALL

73-22 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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

801. Thrust Lever Angle Position Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11451, 73-11452, 73-21451, 73-21452, 73-31451, and 73-31452
 - (b) The maintenance messages 73-X145Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, do the Fault Isolation Procedure for channel A.
 - 2) If X=2, do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure for channels A and B.
- (2) This fault is reported when the EEC has electrical power.
- (3) This message can be set by one of these five conditions:
 - (a) The EEC senses that the thrust lever angle resolver signal is less than 3.0 degrees or greater than 87.0 degrees.
 - (b) The EEC senses that the sine or the cosine signal is less than -3.84 VRMS or greater than 3.84 VRMS.
 - (c) The EEC senses that the sum of the squares of the sine and cosine voltage is less than 7.75 or greater than 17.00.
 - (d) The EEC has an internal failure of its input circuitry.
 - (e) These messages can be caused by a short in the resolver excitation circuit or the oil pressure sensor excitation circuit.
- (4) Also, because the Channel A excitation circuit for the engine oil pressure (PEO) position LVDT and the thrust lever angle (TLA) resolver are from a common source in the EEC, a short in one of the two excitation circuits can set Channel A fault messages for the two systems.
- (5) Also, because the Channel B excitation circuit for the engine oil pressure (PEO) position LVDT and the thrust lever angle (TLA) resolver are from a common source in the EEC, a short in one of the two excitation circuits can set Channel B fault messages for the two systems.

B. Possible Causes

- (1) Adjustment of the applicable thrust lever angle resolver
- (2) The wires and connectors between the resolver and the EEC
- (3) Thrust Lever Angle Resolver, M1819 (Eng 1) or M1822 (Eng 2).
- (4) EEC, M1818

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-23 TASK 801

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

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Simplified Schematic and Component Location (73-23 TASK SUPPORT Figure 302)
- (2) (SSM 73-21-21)
- (3) (WDM 73-21-21)

E. Initial Evaluation

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) If one of these groups of maintenance messages show, then do the applicable Fault Isolation Procedure:

NOTE: These messages can be caused by a short in the excitation circuit for the thrust lever angle (TLA) resolver or the LVDT for the engine oil pressure (PEO). For more information, see the Description section.

 - 1) 79-11091 and 73-11451 (Engine 1, Ch A)
 - a) Do this task: FADEC2/FADEC3 (Ch A) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 813.
 - 2) 79-11092 and 73-11452 (Engine 2, Ch A)
 - a) Do this task: FADEC2/FADEC3 (Ch A) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 813.
 - 3) 79-21091 and 73-21451 (Engine 1, Ch B)
 - a) Do this task: FADEC2/FADEC3 (Ch B) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 814.
 - 4) 79-21092 and 73-21452 (Engine 2, Ch B).
 - a) Do this task: FADEC2/FADEC3 (Ch B) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 814.
- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If one of the single channel maintenance messages show; 73-11451, 73-11452, 73-21451, or 73-21452, then do the Fault Isolation Procedure for the applicable channel.
 - (b) If one of the dual channel maintenance messages show; 73-31451 or 73-31452, then do the Fault Isolation Procedure for the two channels.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.

EFFECTIVITY
SIA ALL

73-23 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

- 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
- 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.

NOTE: A loose electrical connector at the Wing/Body Pressure Seal (Eng 1; D39917, D39919, D39921, and D39923 or Eng 2; D39918, D39920, D39922, and D39924) has caused this problem.

 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) Do the Initial Evaluation to see if there is a fault in the excitation circuit and if the fault is still active.

NOTE: A fault in the excitation circuit of the thrust lever angle resolver or oil pressure sensor can cause this fault. For more information, see the Description section.

- (2) Prepare for the procedure:

- (a) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Examine the applicable electrical connectors on the wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B) at the EEC:
 - (a) See if the electrical connector, DP0303 (J3, Ch A) or DP0404 (J4, Ch B) is correctly connected to the EEC, and continue.
 - (b) Disconnect the electrical connector, DP0303 or DP0404 from the EEC.
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

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

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the applicable wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B).

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (4) Do a check of the resistance at these pins on the wire harness connector, DP0303 (J3, Ch A) or DP0404 (J4, Ch B) through the applicable thrust lever angle resolver, M1819 (Eng 1) or M1822 (Eng 2):

Table 201

CONNECTORS	PINS	RESISTANCE
DP0303 & DP0404	PINS G TO F	125 TO 175 OHMS
	PINS J TO d	50 TO 95 OHMS
	PINS H TO b	50 TO 95 OHMS
	PIN G TO GROUND	GREATER THAN 10 MEGOHMS
	PIN J TO GROUND	GREATER THAN 10 MEGOHMS
	PIN H TO GROUND	GREATER THAN 10 MEGOHMS
	PINS G TO d	GREATER THAN 10 MEGOHMS
	PINS J TO b	GREATER THAN 10 MEGOHMS
	PINS H TO F	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the limits, then, do this task: Thrust Lever Angle Resolver Adjustment, AMM TASK 76-11-05-820-801-F00.

EFFECTIVITY
SIA ALL

73-23 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- (b) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then do one of these steps:

NOTE: Because an excitation circuit fault in a different system can set this fault, the replacement of the EEC will not necessarily correct this fault.

- 1) Replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) TLA Resolver and PEO LVDT Excitation Circuit Fault Isolation for the applicable channel.
 - a) For Channel A,

do this task: FADEC2/FADEC3 (Ch A) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 813
 - b) For Channel B,

do this task: FADEC2/FADEC3 (Ch B) Excitation Group 1: Thrust Lever Angle Resolver and PEO (CH B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 814
 - c) Do the Repair Confirmation at the end of this task.
- (5) Examine the applicable electrical connectors on the wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B) at the strut:
 - (a) See if the electrical connector, DP0324 (Ch A), or DP0460 (Ch B) is correctly connected to the strut, and continue.
 - (b) Disconnect the electrical connector, DP0324 (Ch A), or DP0460 (Ch B) from the strut.
 - (c) Visually examine the strut receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the receptacle (AMM TASK 70-70-01-200-801-F00).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the applicable wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B).

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

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

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

- b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (6) Do these steps to examine the wire harness between the strut connections and the applicable thrust lever angle resolver:
 - (a) Examine the resistance at these pins on the applicable strut receptacle; Engine 1 D30224 (Ch A), D30260 (Ch B) or Engine 2 D30424 (Ch A), D30460 (Ch B):

Table 202

RECEPTACLES	PINS	RESISTANCE
D30224 & D30424	PINS 6 TO 7	125 TO 175 OHMS
	PINS 18 TO 34	50 TO 95 OHMS
	PINS 17 TO 33	50 TO 95 OHMS
	PIN 6 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 18 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 17 TO GROUND	GREATER THAN 10 MEGOHMS
D30260 & D30460	PINS 11 TO 25	125 TO 175 OHMS
	PINS 12 TO 26	50 TO 95 OHMS
	PINS 13 TO 27	50 TO 95 OHMS
	PIN 11 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 12 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 13 TO GROUND	GREATER THAN 10 MEGOHMS

- 1) If the resistance is in the limits, then replace the wire harness MW0303 (J3, Ch A) or MW0304 (J4, Ch B).

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- 2) If the resistance is not in the specified range, examine and repair the wires between the strut receptacle and the applicable thrust lever angle resolver.

NOTE: A loose electrical connector at the Wing/Body Pressure Seal (Eng 1; D39917, D39919, D39921, and D39923 or Eng 2; D39918, D39920, D39922, and D39924) has caused this problem.

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

EFFECTIVITY
SIA ALL

73-23 TASK 801

D633A103-SIA

Page 206
Oct 15/2021

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

G. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure the electrical connectors, DP0303 (Ch A) and DP0404 (Ch B) are correctly connected to the EEC.
 - (b) For engine 1, 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

— END OF TASK —

802. Thrust Lever Angle Position Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11461, 73-11462, 73-21461, 73-21462, 73-31461, and 73-31462
 - (b) The maintenance messages 73-X146Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, do the Fault Isolation Procedure for channel A.
 - 2) If X=2, do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure for channels A and B.
- (2) This fault is reported when the EEC has electrical power.
- (3) The EEC senses that the absolute value of the difference between the local and cross channel values for the thrust lever angle resolver signal is greater than 2.0 degrees.

B. Possible Causes

- (1) The wires and connectors between the thrust lever angle resolver and the EEC
- (2) EEC, M1818
- (3) Thrust lever angle resolver, M1819 (Eng 1) or M1822 (Eng 2).

EFFECTIVITY
SIA ALL

73-23 TASKS 801-802

D633A103-SIA

Page 207
Oct 15/2021

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

C. Circuit Breakers

- (1) For engine 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2, these are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-23 TASK SUPPORT Figure 301, 73-23 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-23 TASK SUPPORT Figure 302)
- (3) (SSM 73-21-21)
- (4) (WDM 73-21-21)

E. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If one of the single channel maintenance messages 73-11461 (Ch A, Eng 1), 73-11462 (Ch A, Eng 2), 73-21461 (Ch B, Eng 1), 73-21462 (Ch B, Eng 2), shows, then do the Fault Isolation Procedure for the applicable channel.
 - (b) If one of the dual channel maintenance messages, 73-31461 (Ch A and B, Eng 1), and 73-31462 (Ch A and B, Eng 1), shows, then do the Fault Isolation Procedure for the two channels.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.

NOTE: A loose electrical connector at the Wing/Body Pressure Seal (Eng 1; D39917, D39919, D39921, and D39923 or Eng 2; D39918, D39920, D39922, and D39924) has caused this problem.

 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

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

F. Fault Isolation Procedure

(1) Prepare for the procedure:

(a) For Engine 1,

1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(b) For Engine 2,

1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

(2) Examine the applicable electrical connectors on the wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B) at the EEC:

(a) See if the electrical connector, DP0303 (J3, Ch A) or DP0404 (J4, Ch B) is correctly connected to the EEC, and continue.

(b) Disconnect the electrical connector, DP0303 or DP0404 from the EEC.

(c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).

1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

2) If the harness connector is damaged, then replace the applicable wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B).

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

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

b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-23 TASK 802

D633A103-SIA

Page 209
Oct 15/2021

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

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (3) Examine the resistance at these pins on the wire harness connector, DP0303 (J3, Ch A) or DP0404 (J4, Ch B) through the thrust lever angle resolver:

Table 203

CONNECTORS	PINS	RESISTANCE
DP0303 & DP0404	PINS G TO F	125 TO 175 OHMS
	PINS J TO d	50 TO 95 OHMS
	PINS H TO b	50 TO 95 OHMS
	PIN G TO GROUND	GREATER THAN 10 MEGOHMS
	PIN J TO GROUND	GREATER THAN 10 MEGOHMS
	PIN H TO GROUND	GREATER THAN 10 MEGOHMS
	PINS G TO d	GREATER THAN 10 MEGOHMS
	PINS J TO b	GREATER THAN 10 MEGOHMS
	PINS H TO F	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 2) Replace the applicable thrust lever angle resolver, M1819 (Eng 1) or M1822 (Eng 2).

These are the tasks:

Thrust Lever Angle Resolver and Autothrottle Brake Assembly Removal, AMM TASK 76-11-05-000-801-F00,

Thrust Lever Angle Resolver and Autothrottle Brake Assembly Installation, AMM TASK 76-11-05-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then continue.

EFFECTIVITY
SIA ALL

73-23 TASK 802

D633A103-SIA

Page 210
Oct 15/2021

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

- (4) Examine the applicable electrical connectors on the wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B) at the strut:
- See if the electrical connector, DP0324 (Ch A), or DP0460 (Ch B) is correctly connected to the strut, and continue.
 - Disconnect the electrical connector, DP0324 (Ch A), or DP0460 (Ch B) from the strut.
 - Visually examine the strut receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - If the strut receptacle is damaged, then repair or replace the receptacle (AMM TASK 70-70-01-200-801-F00)
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - If the harness connector is damaged, then replace the applicable wire harness, MW0303 (J3, Ch A) or MW0304 (J4, Ch B).
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If you did not find a problem, then continue.
- (5) Do these steps to examine the wire harness between the strut connection and the thrust lever angle resolver:
- Examine the resistance at these pins on the strut receptacles; Engine 1 D30224 (Ch A), D30260 (Ch B) or Engine 2 D30424 (Ch A), D30460 (Ch B) through the thrust lever angle resolver:

Table 204

CONNECTORS	PINS	RESISTANCE
D30224 & D30424	PINS 6 TO 7	125 TO 175 OHMS
	PINS 18 TO 34	50 TO 95 OHMS
	PINS 17 TO 33	50 TO 95 OHMS
	PIN 6 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 18 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 17 TO GROUND	GREATER THAN 10 MEGOHMS

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

Table 204 (Continued)

CONNECTORS	PINS	RESISTANCE
D30260 & D30460	PINS 11 TO 25	125 TO 175 OHMS
	PINS 12 TO 26	50 TO 95 OHMS
	PINS 13 TO 27	50 TO 95 OHMS
	PIN 11 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 12 TO GROUND	GREATER THAN 10 MEGOHMS
	PIN 13 TO GROUND	GREATER THAN 10 MEGOHMS

- 1) If the resistance is in the limits, then replace the wire harness MW0303 (J3, Ch A) or MW0304 (J4, Ch B).

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- 2) If the resistance is not in the specified range, examine and repair the wires between the strut receptacle and the applicable thrust lever angle resolver.

NOTE: A loose electrical connector at the Wing/Body Pressure Seal (Eng 1; D39917, D39919, D39921, and D39923 or Eng 2; D39918, D39920, D39922, and D39924) has caused this problem.

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

G. Repair Confirmation

- (1) Prepare for the procedure:

- (a) Make sure the electrical connectors, DP0303 (Ch A) and DP0404 (Ch B) are correctly connected to the EEC.

- (b) For Engine 1,

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (c) For Engine 2,

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-23 TASK 802

D633A103-SIA

Page 212
Oct 15/2021

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

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

803. Alternate Mode Signal and DEU Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11581, 73-11582, 73-21581, 73-21582, 73-31581, 73-31582, 73-11591, 73-11592, 73-21591, 73-21592, 73-31591, and 73-31592.
 - (b) The maintenance messages 73-X158Y or 73-X159Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) For message 73-X158Y, do the fault isolation procedure for DEU 1.
 - 2) For message 73-X159Y, do the fault isolation procedure for DEU 2.
- (2) This fault is reported when the EEC has electrical power.
- (3) The EEC senses a difference between the analog values of the alternate mode switch input and the alternate mode value that is defined by the DEU.
 - (a) The EEC senses that the two analog values from the alternate mode switch agree.

B. Possible Causes

- (1) The wires and connectors of the system
- (2) EEC ON/ALTN Switch, S1 (Eng 1) or S2 (Eng 2)
- (3) DEU, M1808 (DEU1) or M1809 (DEU2)
- (4) EEC, M1818

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

EFFECTIVITY
SIA ALL

73-23 TASKS 802-803

D633A103-SIA

Page 213
Oct 15/2021

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

- (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-23 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-23 TASK SUPPORT Figure 303)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-21-12)
- (6) (WDM 31-62-11)
- (7) (WDM 31-62-21)
- (8) (WDM 73-21-12)
- (9) (WDM 73-22-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If you did not find one or more of the messages, then set the ALTN MODE Switch to ALTN.
 - (c) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (d) If one of the maintenance messages; 73-11581 (Ch A, Eng 1), 73-11582 (Ch A, Eng 2), 73-21581 (Ch B, Eng 1), 73-21582 (Ch B, Eng 2), 73-11591 (Ch A, Eng 1), 73-11592 (Ch A, Eng 2), 73-21591 (Ch B, Eng 1), 73-21592 (Ch B, Eng 2), 73-31581 (Eng 1), 73-31582 (Eng 2), 73-31591 (Eng 1), or 73-31592 (Eng 2) shows, then do the Fault Isolation Procedure.
 - 1) For message 73-X1581 or 73-X1582, do the Fault Isolation Procedure for DEU 1.
 - 2) For message 73-X1591 or 73-X1592, do the Fault Isolation Procedure for DEU 2.
 - (e) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.

EFFECTIVITY
SIA ALL

73-23 TASK 803

D633A103-SIA

Page 214
Oct 15/2021

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

- 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
- 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) Prepare for the procedure:

- (a) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-23 TASK 803

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Set the Alternate Mode Switch to NORM.
- (d) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the applicable electrical connectors on the wire harness, MW0303 (J3, Ch A) at the EEC:
 - (a) See if the electrical connector, DP0303 (J3, Ch A) is correctly connected to the EEC, and continue.
 - (b) Disconnect the electrical connector, DP0303 from the EEC.
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the applicable wire harness, MW0303.
 These are the tasks:
 Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
 Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (3) Do a resistance check between these pins, to examine the wires between the EEC and the EEC ON/ALTN Switch:

EFFECTIVITY
SIA ALL

73-23 TASK 803

D633A103-SIA

Page 216
Oct 15/2021

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

Table 205

CONNECTOR	EEC ON/ALTN SWITCH POSITION	PINS	RESISTANCE
DP0303	ON	E TO D	GREATER THAN 10 MEGOHMS
	ON	E TO GROUND	GREATER THAN 10 MEGOHMS
	ON	D TO GROUND	GREATER THAN 10 MEGOHMS
	ALTN	E TO D	LESS THAN 10 OHMS
	ALTN	E TO GROUND	GREATER THAN 10 MEGOHMS
	ALTN	D TO GROUND	GREATER THAN 10 MEGOHMS

- (a) If you find continuity when the switch is set to ON, then do these steps:
- 1) Remove the applicable EEC ON/ALTN Switch, S1 (Eng 1) or S2 (Eng 2).
 - 2) Do the resistance check, for the EEC ON/ALTN Switch in the ON position, again.
NOTE: Do the part of the check that looks for an open circuit (resistance greater than 10 megohms).
 - a) If the resistance is in the specified range, then install a new EEC ON/ALTN Switch, S1 (Eng 1) or S2 (Eng 2).
 - b) Do the Repair Confirmation at the end of this task.
 - 3) If the resistance is not in the specified range, then continue. Re-install the EEC ON/ALTN switch.
- (4) Examine the electrical connector DP0324 on the wire harness, MW0303 at the strut:
- (a) See if the electrical connector, DP0324 is correctly connected to the strut receptacle, D30224 (Eng 1) or D30424 (Eng 2), and continue.
 - (b) Disconnect the electrical connector, DP0324 from the strut.
 - (c) Visually examine the strut receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the applicable wire harness, MW0303.
 These are the tasks:
 Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
 Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-23 TASK 803

D633A103-SIA

Page 217
Oct 15/2021

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

- b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
 - 1) Do a resistance check between these pins, to examine the wires between the applicable strut receptacle and the EEC ON/ALTN Switch:

Table 206

CONNECTOR	EEC ON/ALTN SWITCH POSITION	PINS	RESISTANCE
D30224, ENG1 D30424, ENG2	ON	20 TO 37	GREATER THAN 10 MEGOHMS
	ON	20 TO GROUND	GREATER THAN 10 MEGOHMS
	ON	37 TO GROUND	GREATER THAN 10 MEGOHMS
	ALTN	20 TO 37	LESS THAN 10 OHMS
	ALTN	20 TO GROUND	GREATER THAN 10 MEGOHMS
	ALTN	37 TO GROUND	GREATER THAN 10 MEGOHMS

- 2) If the resistance is in the specified range, then replace the MW0303 wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the resistance is not in the specified range, then examine and repair the wires between the EEC ON/ALTN Switch and the strut receptacle.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- (e) If the resistance is in the specified range, then continue.
- (5) Do a resistance check, between these pins, to examine the wires between the applicable DEU and the EEC ON/ALTN Switch in the ALTN and ON positions:
 - (a) For message 73-3158Y, do the steps that follow for DEU 1.
 - (b) For message 73-3159Y, do the steps that follow for DEU 2.

EFFECTIVITY
SIA ALL

73-23 TASK 803

D633A103-SIA

Page 218
Oct 15/2021

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

- (c) Get access to the E3-1 shelf in the EE Bay.

Number **Name/Location**

117A Electronic Equipment Access Door

- (d) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (e) Do a resistance check, between these pins, to examine the wires between the applicable DEU and the EEC ON/ALTN Switch in the ALTN and ON positions.

Table 207

CONNECTOR	EEC ON/ALTN SWITCH POSITION	PINS	RESISTANCE
ENG 1, DEU 1 DP3973B	ON	PIN J7 GROUND	GREATER THAN 10 MEGOHMS
ENG 1, DEU 2 DP3975B	ON	PIN J7 GROUND	GREATER THAN 10 MEGOHMS
ENG 2, DEU 1 DP3973E	ON	PIN J7 GROUND	GREATER THAN 10 MEGOHMS
ENG 2, DEU 2 DP3975E	ON	PIN J7 GROUND	GREATER THAN 10 MEGOHMS
ENG 1, DEU 1 DP3973B	ALTN	PIN J7 GROUND	LESS THAN 10 OHMS
ENG 1, DEU 2 DP3975B	ALTN	PIN J7 GROUND	LESS THAN 10 OHMS
ENG 2, DEU 1 DP3973E	ALTN	PIN J7 GROUND	LESS THAN 10 OHMS
ENG 2, DEU 2 DP3975E	ALTN	PIN J7 GROUND	LESS THAN 10 OHMS

- (f) If the resistance is not in the specified range, then remove the EEC ON/ALTN Switch, S1 (Eng 1) or S2 (Eng 2), and continue:
- 1) Do the resistance check again, and use the resistance values above for the EEC ON/ALTN Switch in the ON position.
NOTE: Do the part of the check that looks for an open circuit (resistance greater than 10 megohms).
 - 2) If the resistance is not in the specified range, then repair or replace the wires between the DEU and the EEC ON/ALTN Switch.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the resistance is in the specified range, then replace the EEC ON/ALTN Switch, S1 (Eng 1) or S2 (Eng 2).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- (g) If the resistance is in the specified range, then continue.

EFFECTIVITY
SIA ALL

73-23 TASK 803

D633A103-SIA

Page 219
Oct 15/2021

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

- (6) Replace the applicable DEU (the most likely LRU from the Possible Causes list).

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 Repair Confirmation was not satisfactory, then replace the other DEU.

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.
- 2) If the Repair Confirmation was not satisfactory, then replace a subsequent LRU from the Possible Causes list.
- 3) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Prepare for the procedure:

- (a) Make sure that EEC ON/ALTN Switch is correctly installed.
- (b) Make sure that the DEU's are correctly installed, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (c) Make sure the electrical connector, DP0303 (J3, Ch A) is correctly connected to the EEC.
- (d) Make sure that the electrical connector DP0324 is correctly connected to the receptacles (D30224, Eng 1 and D30424, Eng 2) at the strut.
- (e) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (f) For Engine 2,
- 1) 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

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

————— END OF TASK —————

804. ADIRU Data From a DEU is Missing - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11601, 73-11602, 73-21601, 73-21602, 73-31601, 73-31602, 73-11611, 73-11612, 73-21611, 73-21612, 73-31611, and 73-31612.
 - (b) The maintenance messages 73-X160Y or 73-X161Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) Do the Fault Isolation Procedure for the applicable ADIRU and DEU, where 73-X160Y is for ADIRU 1 and DEU 1, and 73-X161Y is for ADIRU 2 and DEU 2.
- (2) This fault is reported when the EEC has electrical power.
- (3) The EEC senses that the labels for Total Pressure (L242), TAT (L211), P0 (L246) and Probe Heat ON (L270-12) are missing or the SM (Status Matrix) is set to FW (Fail Warning) or NCD (No Computed Data) on the DEU.

B. Possible Causes

- (1) Wires and connectors of the system
- (2) ADIRU, M1749 (ADIRU 1), M1752 (ADIRU 2)
- (3) DEU, M1808 (DEU 1), M1809 (DEU 2)
- (4) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,

EFFECTIVITY
SIA ALL

73-23 TASKS 803-804

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

- (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

- (a) 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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-23 TASK 804

D633A103-SIA

Page 222
Oct 15/2021

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

D. Related Data

- (1) Component Location (73-23 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-23 TASK SUPPORT Figure 304)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-24-12)
- (6) (WDM 31-62-11)
- (7) (WDM 31-62-21)
- (8) (WDM 73-24-12)
- (9) (WDM 73-22-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If one of the maintenance messages; 73-11601 (Ch A, Eng 1), 73-11602 (Ch A, Eng 2), 73-21601 (Ch B, Eng 1), 73-21602 (Ch B, Eng 2), 73-11611 (Ch A, Eng 1), 73-11612 (Ch A, Eng 2), 73-21611 (Ch B, Eng 1), 73-21612 (Ch B, Eng 2) 73-31601 (Eng 1), 73-31602 (Eng 2), 73-31611 (Eng 1), or 73-31612 (Eng 2) show, then do the Fault Isolation Procedure.
 - 1) Do the Fault Isolation Procedure for the applicable ADIRU and DEU, where 73-X160Y is for ADIRU 1 and DEU 1, and 73-X161Y is for ADIRU 2 and DEU 2.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for these maintenance messages:
 - 1) For DEU 1,
73-X1431, 73-X1432, 73-X1431 or 73-X1432
 - 2) For DEU 2,
73-X1441, 73-X1442, 73-X1441 or 73-X1442.

EFFECTIVITY
SIA ALL

73-23 TASK 804

D633A103-SIA

Page 223
Oct 15/2021

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

- (b) If one or more of the messages show, then do the corrective action for those messages first.
- (c) If one or more of the messages do not show, then continue.
- (2) Do these steps to see if P0 shows on the input monitoring display:
 - (a) Get access to the input monitoring screen on the Flight Management Computer/Control Display Unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
NOTE: This causes the PERF INIT INDEX to show.
 - 2) Push the INDEX line select key (LSK).
 - 3) Push the MAINT (LSK).
 - 4) Push the ENGINE LSK.
 - 5) Push the line select key for the applicable engine (ENGINE 1 or ENGINE 2).
NOTE: This causes the ENGINE X BITE TEST MAIN MENU to show.
 - 6) Push the INPUT MONITORING LSK.
 - 7) Push the CONTINUE LSK.
NOTE: This causes the INPUT MONITORING MENU to show
 - 8) Push the CONTROL PRESSURES LSK.
NOTE: This causes the INPUT MONITORING PRESSURES - PSIA screen to show.
 - 9) Push the P0 LSK.
NOTE: This causes the INPUT MONITORING P0 SELECTION - PSIA screen to show.
 - (b) Look for a numerical value beside the applicable P0 ADIRU (or ADC) X display.
NOTE: If P0 ADIRU (or ADC) X is followed by ---- instead of a numerical value, then the applicable ADIRU is not sending the P0 data.
 - (c) Push the INIT REF key to end the INPUT MONITORING, then continue.
- (3) Do these steps if P0 ADIRU (or ADC) X shows a numerical value:
 - NOTE: P0 ADIRU (or ADC) X is not followed by ----.
 - (a) Look at the airplane log to see if the power bus to the applicable ADIRU lost power for more than 15 seconds.
 - 1) If the power bus had a power loss, then no further corrective action is necessary.
NOTE: The power loss caused the message to show, and it should not show when the engine is started again.
 - 2) If the power bus did not have a power loss, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the repair confirmation at the end of this task.
- (4) Do these steps if P0 ADIRU (or ADC) X does not show a numerical value:
 - NOTE: P0 ADIRU (or ADC) X is followed by ----.
 - (a) Do this task: CDS BITE Procedure, 31-62 TASK 801.

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

- 1) Look for these maintenance messages:
 - a) For ADIRU 1,
31-67051 or 31-68051
 - b) For ADIRU 2,
31-67062 or 31-68062.
- (b) If one or more of the messages show, then do the fault isolation for the messages that show.
- (c) If none of the messages show, then replace the applicable ADIRU (the most likely LRU from the Possible Causes list).

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.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - c) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

———— **END OF TASK** ————

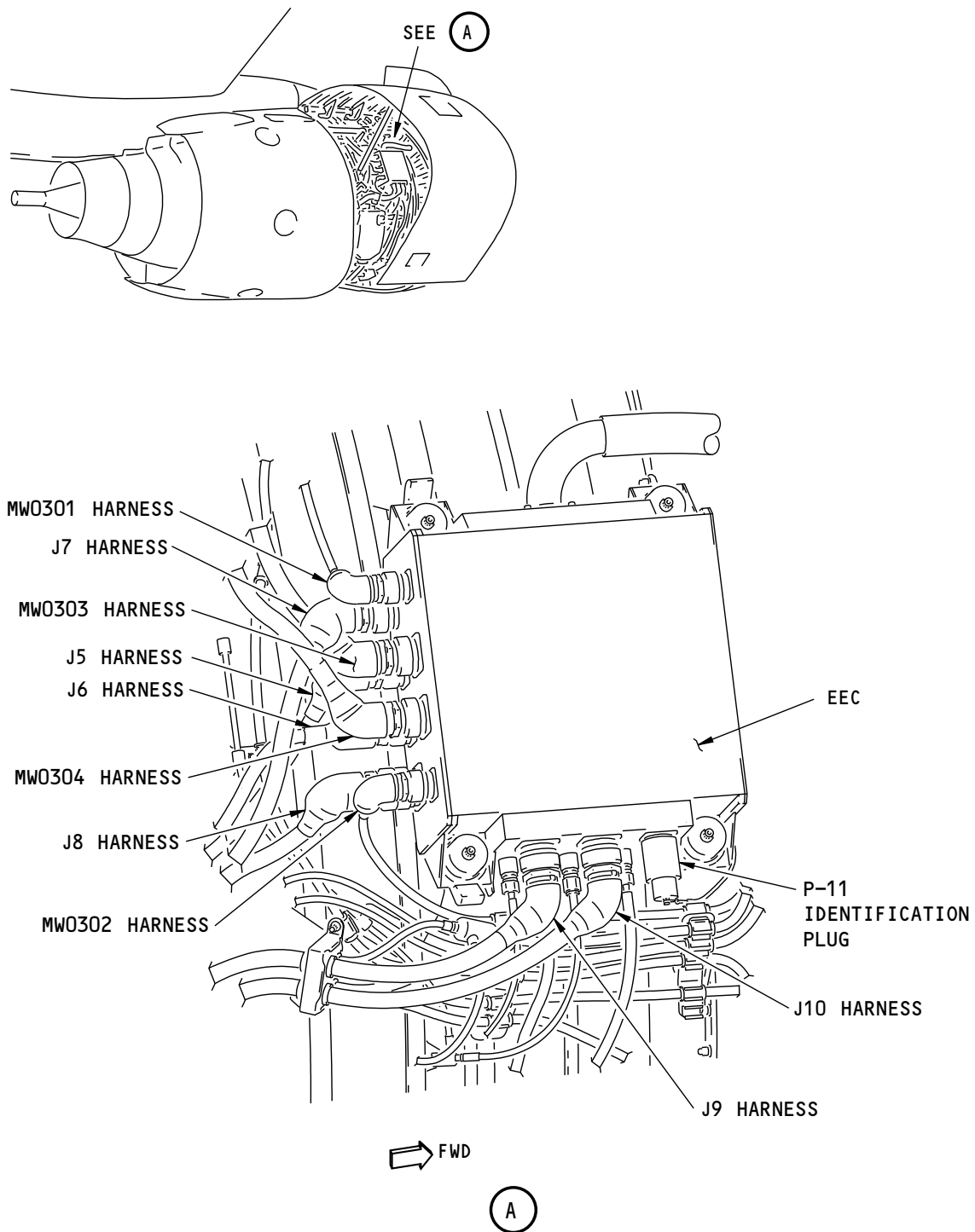
EFFECTIVITY
SIA ALL

73-23 TASK 804

D633A103-SIA

Page 225
Oct 15/2021

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



H34209 S0006745728_V1

Electronic Engine Controller
Figure 301/73-23-00-990-801-F00

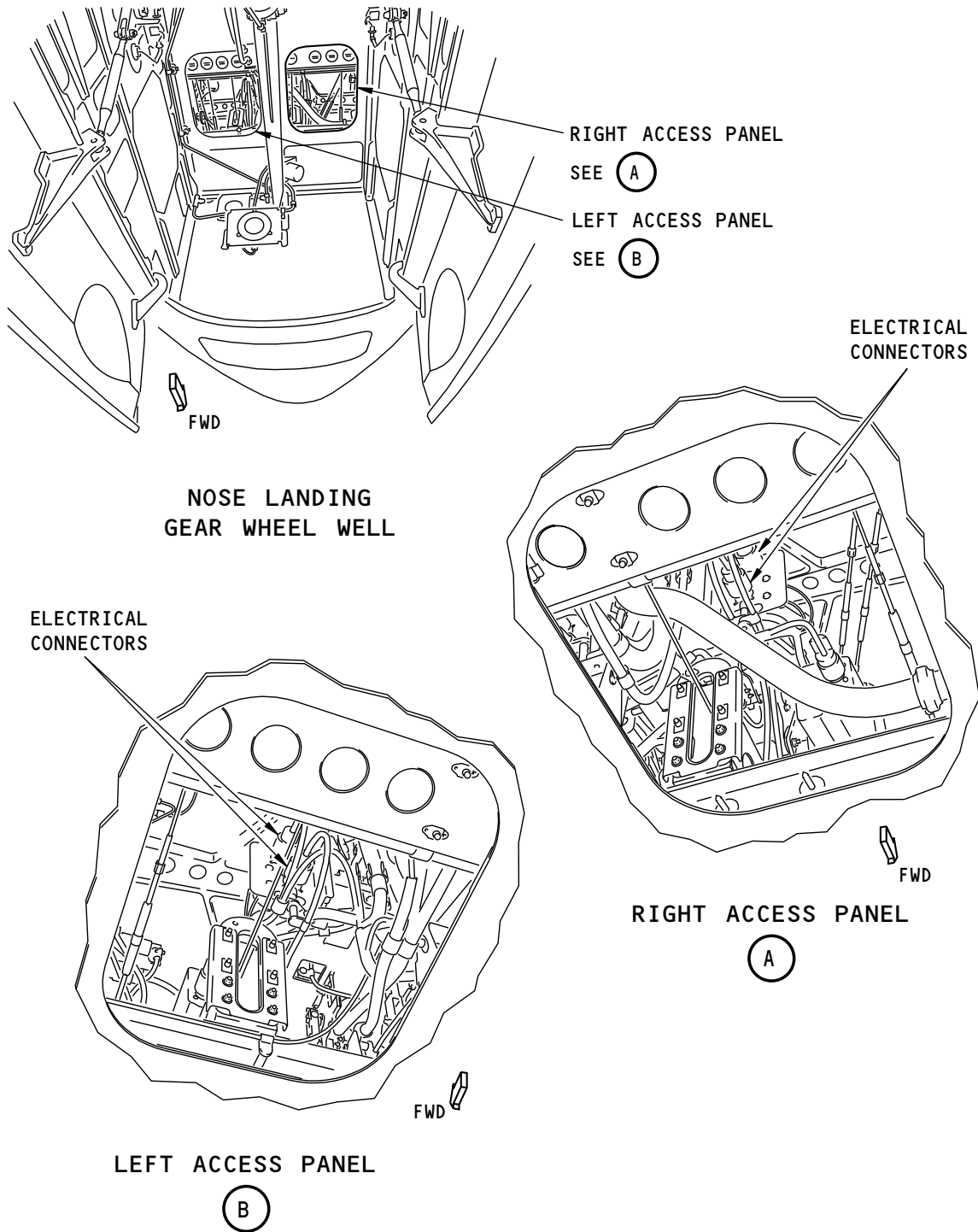
EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H34442 S0006745729_V1

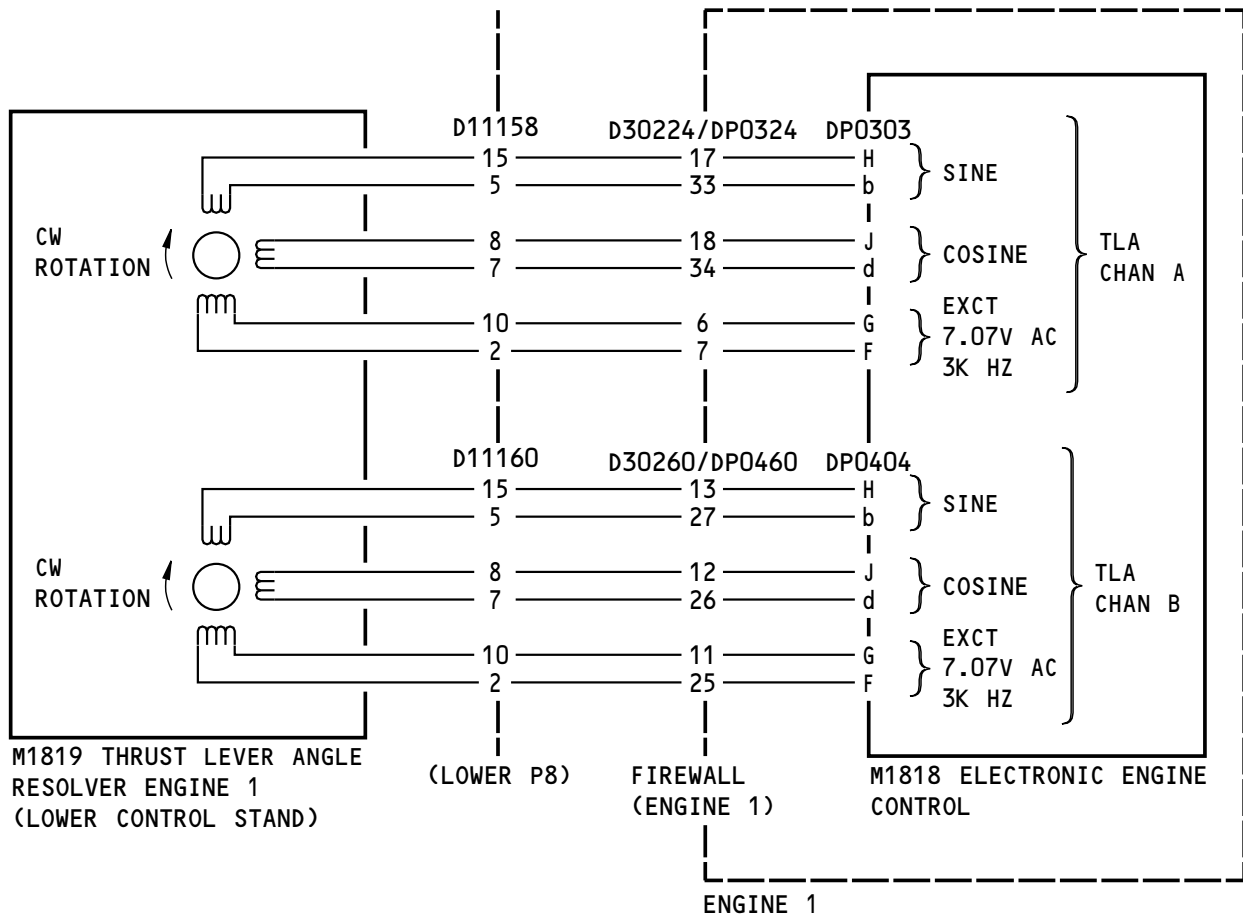
**Thrust Lever Angle Resolver and Simplified Schematic
Figure 302/73-23-00-990-802-F00 (Sheet 1 of 3)**

EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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


H34444 S0006745730_V1

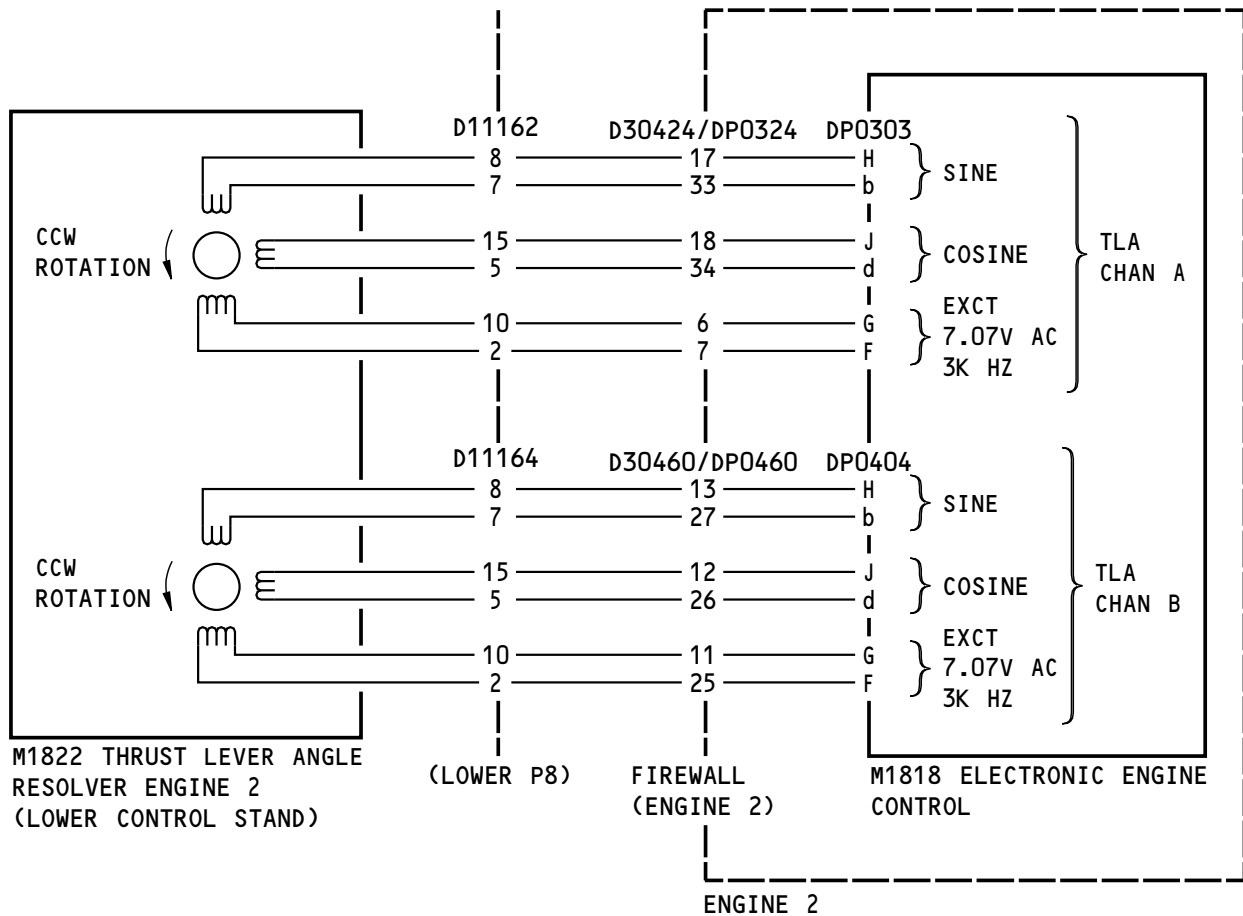
Thrust Lever Angle Resolver and Simplified Schematic
Figure 302/73-23-00-990-802-F00 (Sheet 2 of 3)

EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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


H34443 S0006745731_V1

Thrust Lever Angle Resolver and Simplified Schematic
Figure 302/73-23-00-990-802-F00 (Sheet 3 of 3)

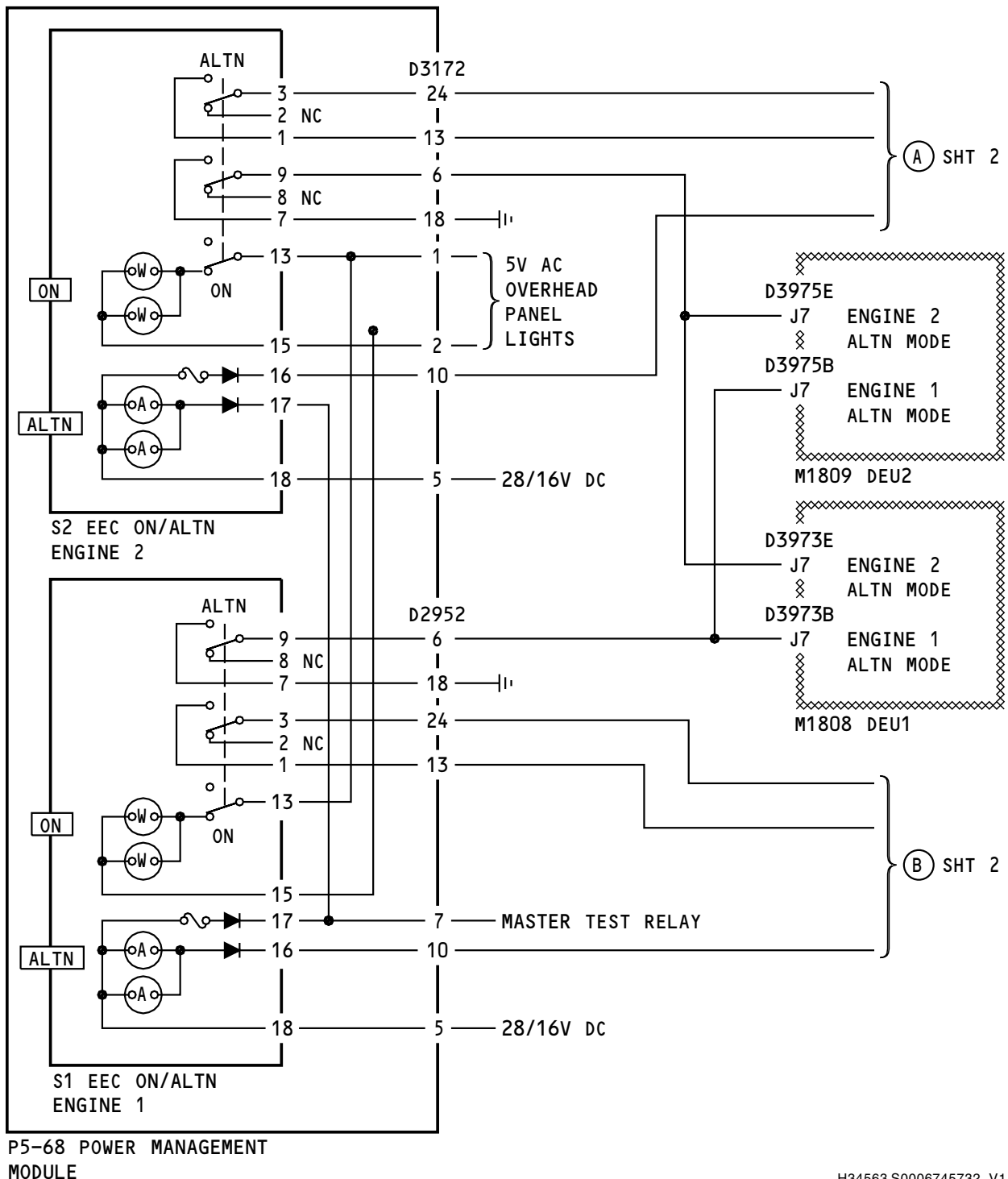
EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 304
Oct 15/2021

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



H34563 S0006745732_V1

Alternate Mode/DEU/EEC Analog Simplified Schematic
Figure 303/73-23-00-990-803-F00 (Sheet 1 of 2)

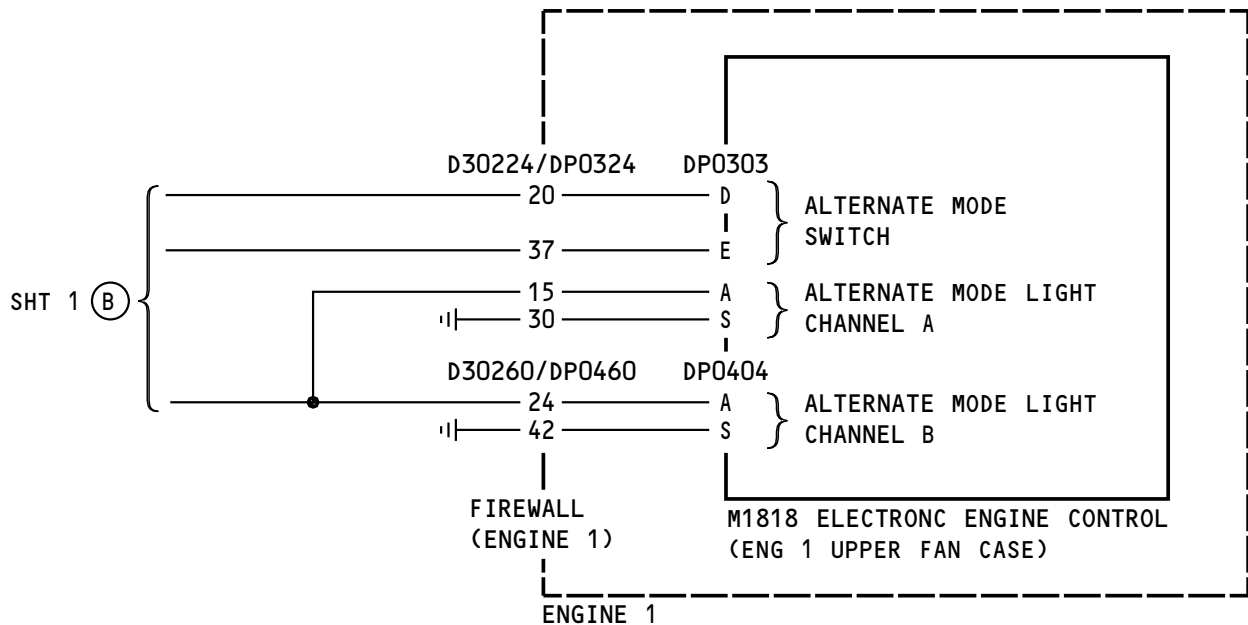
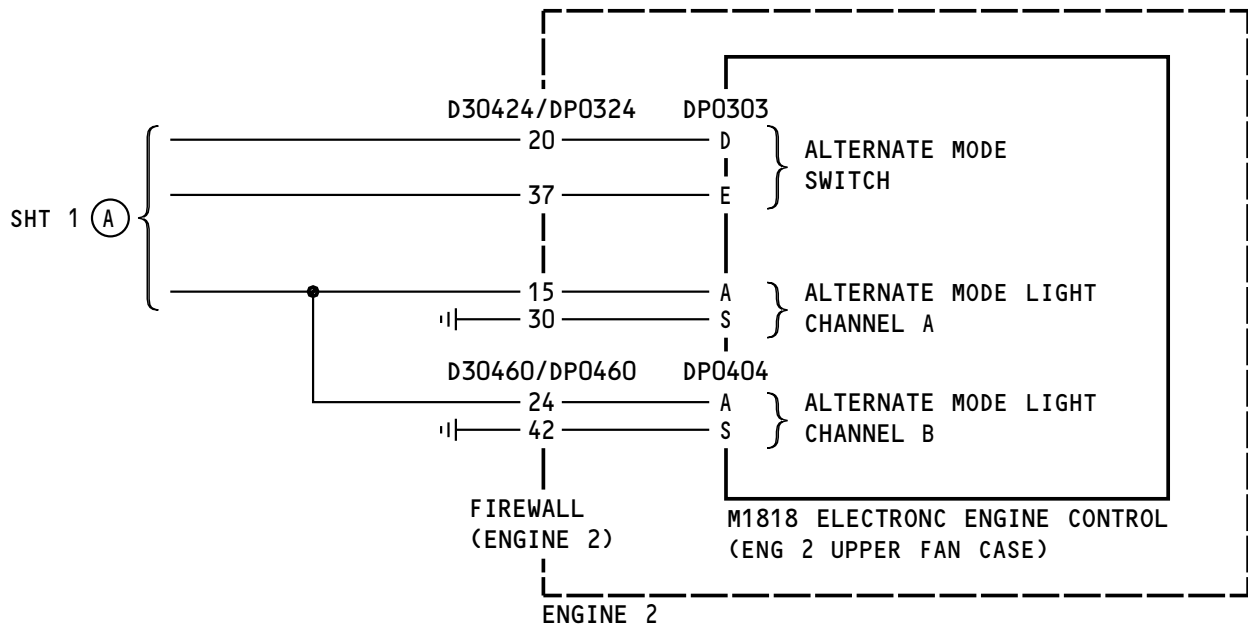
EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 305
Oct 15/2021

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



H34632 S0006745733_V1

Alternate Mode/DEU/EEC Analog Simplified Schematic
Figure 303/73-23-00-990-803-F00 (Sheet 2 of 2)

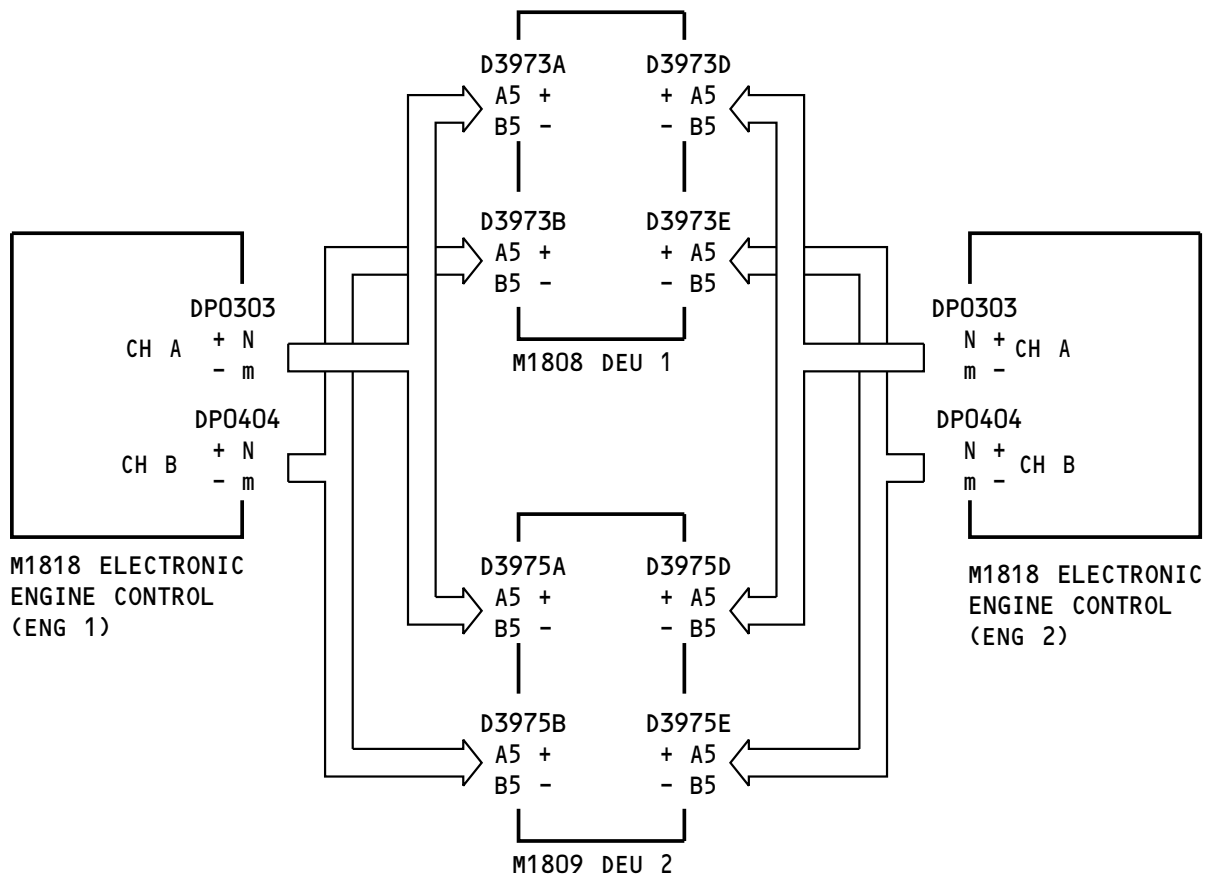
EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 306
Oct 15/2021

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



H34643 S0006745734_V1

EEC to DEU (ARINC 429) Simplified Schematic
Figure 304/73-23-00-990-804-F00

EFFECTIVITY
SIA ALL

73-23 TASK SUPPORT

D633A103-SIA

Page 307
Oct 15/2021

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

801. A DEU Cannot Read Channel A Data from an EEC - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) For DEU 1,
73-11191 (Ch A, Eng 1) and 73-11192 (Ch A, Eng 2).
 - (b) For DEU 2,
73-11201 (CH A, Eng 1) and 73-11202 (CH A, Eng 2).
- (2) This fault is reported on Channel A when the EEC has electrical power.
- (3) Data from Channel A of an EEC is not available at a DEU.

B. Possible Causes

- (1) The wires and connectors between the DEU and the EEC
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
 - (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 201
Oct 15/2021

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 303)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-24-11)
- (6) (SSM 73-24-21)
- (7) (WDM 31-62-11)
- (8) (WDM 31-62-21)
- (9) (WDM 73-22-11)
- (10) (WDM 73-24-11)
- (11) (WDM 73-24-21)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If only one of the maintenance messages show, then do the Fault Isolation Procedure - Single DEU Fault.
 - (c) If the maintenance messages show for DEU 1 and DEU 2, then do the Fault Isolation Procedure - Dual DEU Fault.

NOTE: Messages 73-1119X and 73-1119X, or 73-1120X and 73-1120X must show at the same time (where X= engine position, 1=Eng 1 or 2=Eng 2).
- (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

F. Fault Isolation Procedure - Single DEU Fault

(1) Prepare for the procedure:

(a) For Engine 1,

1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(b) For Engine 2,

1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

(d) Disconnect the DP0303 wire harness connector from the EEC.

(e) Get access to the E3-1 shelf in the EE bay.

(2) Do a resistance check between these pins, to examine the wires between the applicable DEU and the terminal block TB3102:

(a) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

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

Table 201

CONNECTOR	PINS	RESISTANCE
ENG 1 DEU 1 DP3973A	PIN A5 TO TB3102 PIN YA35	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB35	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 1 DEU 2 DP3975A	PIN A5 TO TB3102 PIN YA35	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB35	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 2 DEU 1 DP3973D	PIN A5 TO TB3102 PIN YA77	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB77	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 2 DEU 2 DP3975D	PIN A5 TO TB3102 PIN YA77	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB77	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (b) If the resistance is not in the specified range, then repair or replace the wires between TB3102 and the DEU wire harness connector.
- 1) Do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- (c) If the resistance is in the specified range, then replace the applicable DEU (the most likely LRU from the Possible Causes list).
- 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.
 - a) If the Repair Confirmation was not satisfactory, then replace the EEC (the subsequent LRU from the Possible Causes list).

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - b) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual DEU Fault

- (1) Prepare for the procedure:
 - (a) For Engine 1,

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the DEU (Ch A) electrical connector on the MW0303 wire harness at the EEC:
- See if the DP0303 (Ch A) electrical connector is correctly connected to the EEC, and continue.
 - Disconnect the DP0303 (Ch A) electrical connector from the EEC.
 - Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the MW0303 wire harness.
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (3) Get access to the E3-1 shelf in the EE Bay and install a jumper between these pins of the terminal block TB3102:
 - (a) For Engine 1,
YA35 and YB35
 - (b) For Engine 2,
YA77 and YB77
- (4) Do a resistance check between these pins of the wire harness connector, to examine the wires between the EEC and the terminal block TB3102:

Table 202

CONNECTOR	PINS	RESISTANCE
DP0303	PINS N TO M	LESS THAN 10 OHMS
	PIN N TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 2) If the fault continues, then replace one of the DEU's (the most likely LRU from the Possible Causes list).

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.

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 206
Oct 15/2021

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

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the fault continues, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
 - (b) If the resistance is not in the specified range, then continue.
- (5) Examine the DEU (Ch A) electrical connector DP0324 on the MW0303 wire harness at the strut:
 - (a) See if the DP0324 (Ch A) electrical connector is correctly connected to the strut receptacle, and continue.
 - (b) Disconnect the DP0324 (Ch A) electrical connector from the strut.
 - (c) Visually examine the strut receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the MW0303 wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (6) Examine the resistance at these pins on the strut receptacle, D30224 (Ch A, Eng 1) or D30424 (Ch A, Eng 2):

Table 203

RECEPTACLE D30224 & D30424	RESISTANCE
PINS 1 TO 4	LESS THAN 10 OHMS
PIN 1 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the wire harness MW0303.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 207
Oct 15/2021

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

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then examine and repair the wires between the applicable strut connector and the terminal block TB3102.
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Remove the jumper from the terminal block TB3102.
 - (b) Make sure that the electrical connector, DP0324 (Ch A), is connected to the receptacle in the strut.
 - (c) Make sure that the DP0303 (MW0303, J3) electrical connector is connected to the EEC.
 - (d) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (e) For Engine 2,
 - 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-24 TASK 801

D633A103-SIA

Page 208
Oct 15/2021

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

———— **END OF TASK** ————

802. A DEU Cannot Read Channel B Data from an EEC - Fault Isolation**A. Description**

- (1) This task is for these maintenance message numbers:
 - (a) For DEU 1,
73-21211 (Ch B, Eng 1) and 73-21212 (Ch B, Eng 2).
 - (b) For DEU 2,
73-21221 (CH B, Eng 1) and 73-21222 (CH B, Eng 2).
- (2) This fault is reported on Channel B when the EEC has electrical power.
- (3) Data from Channel B of an EEC is not available at a DEU.

B. Possible Causes

- (1) The wires and connectors between the DEU and the EEC
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
 - (a) 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	5	C01359	DISPLAY DEU 1 PRI

EFFECTIVITY
SIA ALL

73-24 TASKS 801-802

D633A103-SIA

Page 209
Oct 15/2021

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 303)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-24-11)
- (6) (SSM 73-24-21)
- (7) (WDM 31-62-11)
- (8) (WDM 31-62-21)
- (9) (WDM 73-22-11)
- (10) (WDM 73-24-11)
- (11) (WDM 73-24-21)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If only one of the maintenance messages show for only one DEU, then do the Fault Isolation Procedure - Single DEU Fault.
 - (c) If the maintenance messages show for DEU 1 and DEU 2, then do the Fault Isolation Procedure - Dual DEU Fault.

NOTE: Messages 73-2121X and 73-2121X, or 73-2122X and 73-2122X must show at the same time (where X=engine position, 1=Eng 1 or 2=Eng 2).
- (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the fault isolation procedure below.

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 210
Oct 15/2021

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single DEU Fault

(1) Prepare for the procedure:

(a) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(b) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (d) Disconnect the DP0404 (Ch B) electrical connector from the EEC.
- (e) Get access to the E3-1 shelf in the EE bay.

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 211
Oct 15/2021

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

- (2) Do a resistance check between these pins, to examine the wires between the applicable DEU and the terminal block TB3102:
- (a) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

Table 204

CONNECTOR	PINS	RESISTANCE
ENG 1 DEU 1 DP3973B	PIN A5 TO TB3102 PIN YA37	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB37	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 1 DEU 2 DP3975B	PIN A5 TO TB3102 PIN YA37	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB37	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 2 DEU 1 DP3973E	PIN A5 TO TB3102 PIN YA75	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB75	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
ENG 2 DEU 2 DP3975E	PIN A5 TO TB3102 PIN YA75	LESS THAN 10 OHMS
	PIN B5 TO TB3102 PIN YB75	LESS THAN 10 OHMS
	PIN A5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
	PIN B5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (b) If the resistance is not in the specified range, then repair or replace the wires between TB3102 and the DEU wire harness connector (AMM TASK 70-70-01-200-801-F00).
- 1) Do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 212
Oct 15/2021

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

- a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- (c) If the resistance is in the specified range, then replace the applicable DEU (the most likely LRU from the Possible Causes list).

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.
 - a) If the Repair Confirmation was not satisfactory, then replace the subsequent LRU from the Possible Causes list.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue with the Fault Isolation Procedure - Dual DEU Fault.

G. Fault Isolation Procedure - Dual DEU Fault

- (1) Prepare for the procedure:

- (a) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 213
Oct 15/2021

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the DEU (Ch B) electrical connector on the MW0304 wire harness at the EEC:
- (a) See if the DP0404 (Ch B) electrical connector is correctly connected to the EEC, and continue.
 - (b) Disconnect the DP0404 (Ch B) electrical connector from the EEC.
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the MW0304 wire harness.
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (3) Get access to the E3-1 shelf in the EE bay and install a jumper between these pins of the terminal block TB3102:
- (a) For Engine 1,
YA37 and YB37
 - (b) For Engine 2,
YA75 and YB75
- (4) Do a continuity check between these pins of the wire harness connector, to examine the wires between the EEC and the terminal block TB3102:

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

Table 205

CONNECTOR	PINS	RESISTANCE
DP0404	PINS N TO M	LESS THAN 10 OHMS
	PIN N TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 2) If the fault continues, then replace one of the DEU's (the most likely LRU from the Possible Causes list).

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 Repair Confirmation was not satisfactory, then replace the other DEU (the subsequent LRU from the Possible Causes list).
 - c) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then continue.
- (5) Examine the DEU (Ch B) electrical connector DP0460 on the MW0304 wire harness at the strut:
 - (a) See if the DP0460 (Ch B) electrical connector is correctly connected to the strut receptacle, and continue.
 - (b) Disconnect the DP0460 (Ch B) electrical connector from the strut.
 - (c) Visually examine the strut receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the MW0304 wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 215
Oct 15/2021

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

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - d) If you did not find a problem, then continue.
- (6) Examine the resistance at these pins on the strut receptacle, D30260 (Ch B, Eng 1) or D30460 (Ch B, Eng 2):

Table 206

RECEPTACLE D30260 & D30460	RESISTANCE
PINS 1 TO 4	LESS THAN 10 OHMS
PIN 1 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the wire harness MW0304.
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then examine and repair the wires between the applicable strut connector and the terminal block TB3102.
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that you removed the jumper from the terminal block TB3102.
 - (b) Make sure the electrical connector, DP0460 (Ch B), is connected to the receptacles in the strut.
 - (c) Make sure that the electrical connector DP0404 (MW0304, J4), is connected to the EEC.
 - (d) For Engine 1,
 - 1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

EFFECTIVITY
SIA ALL

73-24 TASK 802

D633A103-SIA

Page 216
Oct 15/2021

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

(e) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

————— **END OF TASK** —————

804. DEU 1 Bleed Data and DEU 2 Bleed Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11291, 73-11292, 73-21291, 73-21292, 73-31291, and 73-31292.

NOTE: 73-X129Y:

X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel)

Y = Engine Position (1=ENG 1, 2=ENG 2)
- (2) This maintenance message should show as a Dual Channel Fault.
 - (a) The Dual Channel Message should show on the two engines.
 - 1) If you find only one Dual Channel Message, then there is most likely an ARINC Data Bus problem.
 - (b) If a single channel fault occurs, it is most likely a problem internal to the EEC or DEU.
 - (c) This fault is reported when the EEC has electrical power.
- (3) The Bleed Data from DEU 1 and the Bleed Data from DEU 2 do not agree.

B. Possible Causes

- (1) DEU 1 (2), M1808 (M18092)
- (2) EEC, M1818
- (3) Wires and connectors between the DEUs and the applicable Bleed Data Source.

EFFECTIVITY
SIA ALL

73-24 TASKS 802-804

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

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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303, 73-24 TASK SUPPORT Figure 304)
- (3) SSM 73-23-11
- (4) SSM 73-23-11
- (5) WDM 73-21-31
- (6) WDM 73-23-11.

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do the EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - 1) If you have a 73-X143Y or 73-X144Y message, there is an ARINC Bus problem between the DEUs and the EEC. Refer to the 73-MAINT MSG INDEX to find and do the applicable FIM Tasks for the maintenance message that shows.
NOTE: Single Channel faults (for example 73-11291 and 73-21291) that occur on the same flight leg can be considered as a Dual Channel Fault (e.g. 73-31291).
 - 2) If you have a Single Channel Fault on one or both EECs (73-11291, 73-11292, 73-21291, 73-21292), the cause is most likely an internal DEU or EEC problem.
 - a) Do the Fault Isolation Procedure - Single Channel fault on One or Both EECs.
 - 3) If you have a Dual Channel Fault on one or both EECs, (73-31291, 73-31292) the cause could be a wiring problem between the DEUs and the EECs. Depending on where the problem is, it could affect the DEU1 or DEU2 signal to one EEC or both EECs. Look for the 73-3143Y and/or 73-3144Y faults.
 - a) If the 73-3143Y and/or 73-3144Y faults show, refer to the 73-MAINT MSG INDEX to find the applicable FIM Task(s) to correct the problem.

EFFECTIVITY
SIA ALL

73-24 TASK 804

D633A103-SIA

Page 218
Oct 15/2021

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

- 4) If the maintenance message does not show on the FMCS CDU, then do the Fault Isolation Procedure - Dual Channel Fault below for the applicable message.
 - a) If the switches (listed at the front of the Fault Isolation Procedure - Dual Channel Fault) are not in the FAILED position when the EEC Test is run, then the test will not detect the fault.

F. Fault Isolation Procedure - Single Channel Fault on One or Both EECs

- (1) Do the EEC BITE Procedure, 73-00 TASK 801.
- (2) Look for one or more of these maintenance messages:
 - (a) 73-11291, 73-11292, 73-21291, 73-21292.
- (3) Remove power from airplane to make sure that both the EEC and DEU are not powered.
- (4) Apply Power to the airplane.
- (5) Do the EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
- (6) Do the "Fault Isolation Procedure - DEU 1 & DEU 2 Bleed Data Disagree" below.
 - (a) If the Single Channel Fault occurs on one EEC and if no DEU or Bus Faults show, replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - (b) If the Single Channel Fault occurs on both EECs, a DEU probably has an internal problem.

G. Fault Isolation Procedure - Dual Channel Fault on One EEC

- (1) Do the EEC BITE Procedure, 73-00 TASK 801.
- (2) Look for one or more of these maintenance messages:

NOTE: This is most likely a fault between one of the DEUs and the two EECs.

 - 73-31431
 - 73-31432
 - (a) If you found and repaired a DEU Data message, then do the Initial Evaluation again.

NOTE: This maintenance message (73-3129Y) should now show on the two engines.
 - (b) If you do not find a DEU Data message, then do the "Fault Isolation Procedure - DEU 1 & DEU 2 Bleed Data Disagree" below.

H. Fault Isolation Procedure - Dual Channel Fault on Two EECs

- (1) Do the EEC BITE Procedure, 73-00 TASK 801.
- (2) Look for one or more of these maintenance messages:

NOTE: This is most likely a fault between one of the DEUs and the two EECs.

 - 73-31431
 - 73-31432
 - (a) Do the "Fault Isolation Procedure - DEU 1 & DEU 2 Bleed Data Disagree" below.

EFFECTIVITY
SIA ALL

73-24 TASK 804

D633A103-SIA

Page 219
Oct 15/2021

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

I. Fault Isolation Procedure - DEU 1 & DEU 2 Bleed Data Disagree

- (1) This maintenance message will show if there is a difference between DEU 1 and DEU 2 for one of the Parameter Discretes indicated on the table that follows:

Table 207

COMPONENT	ENG 1 DEU INPUT MONITORING OF DISCRETE DISPLAYS	ENG 2 DEU INPUT MONITORING OF DISCRETE DISPLAYS
LEFT PACK VALVE NORMAL RELAY	Pin A2, INSERT B	
RIGHT PACK VALVE NORMAL RELAY		Pin A2, INSERT E
ENGINE ANTI-ICE SWITCH 1	Pin A11, INSERT B	
ENGINE ANTI-ICE SWITCH 2		Pin A11, INSERT E
WING ANTI-ICE RELAY	Pin B8, INSERT B (not engine specific)	Pin B8, INSERT B (not engine specific)
LEFT PACK CONTROL AND SHUTOFF VALVE	Pin C6, INSERT B	
RIGHT PACK CONTROL AND SHUTOFF VALVE		Pin C6, INSERT E
BLEED 1 SWITCH	Pin E7, INSERT B	
BLEED 2 SWITCH		Pin E7, INSERT E
BLEED AIR ISOLATION VALVE	Pin J8, INSERT B (not engine specific)	PinN J8, INSERT B (not engine specific)

- (2) Do this task: APU Starting and Operation, AMM TASK 49-11-00-860-801.
- (a) Keep the APU in operation during the Fault Isolation Procedure and the Repair Confirmation.
- (b) Use the APU to provide bleed air to the systems under test.
- (3) Make sure that the thrust levers are in the idle position.
- (4) Make sure that the airplane is in this configuration:
- (a) Make sure that the L PACK and R PACK Switches are set to the OFF position.
- 1) This should close the Left and Right Pack Control/Shutoff Valve (C6) and relax the Left and Right Pack Normal Relay (A2).
- (b) Make sure that the ENG ANTI-ICE Switch 1 and ENG ANTI-ICE Switch 2 (A11) are set to the OFF position.
- (c) Make sure that the WING ANTI-ICE Switch (B8) is set to the OFF position.
- (d) Make sure that the Bleed Air Isolation Switch is set to the AUTO position.
- (e) Make sure that the BLEED 1 and BLEED 2 Switches (E7) are set to the OFF position.
- 1) This should open the Bleed Air Isolation Valve (J8).
- (5) Do these steps to get access to the DEU Input Monitoring of Discrete Display:
- (a) Get access to the applicable Input Monitoring Screen on the FMCS CDU:
- 1) Push the INIT REF key two times.
- 2) Push the INDEX Line Select Key (LSK).
- NOTE: This causes the INIT REF INDEX to show.

EFFECTIVITY
SIA ALL

73-24 TASK 804

D633A103-SIA

Page 220
Oct 15/2021

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

- 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the CDS LSK.
NOTE: This causes the CDS BITE INDEX to show.
 - 5) Push the LSK for DEU 1.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS MENU to show.
- (6) Do these steps to examine the pin parameters on the Input Monitoring screen:
- (a) Push the SELECT B LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
 - (b) Record the value that shows in column A, row 2.
 - (c) Record the value that shows in column B, row 8.
 - (d) Record the value that shows in column C, row 6.
 - (e) Record the value that shows in column E, row 7.
 - (f) Record the value that shows in column J, row 8.
 - (g) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
 - (h) Push the INDEX LSK three times.
NOTE: This will cause the CDS BITE INDEX screen to show.
 - (i) Push the LSK for DEU 1.
 - (j) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS MENU to show.
 - (k) Push the SELECT E LSK.
NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
 - (l) Record the value that shows in column A, row 2.
 - (m) Record the value that shows in column C, row 6.
 - (n) Record the value that shows in column E, row 7.
 - (o) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
 - (p) Push the INDEX LSK three times.
NOTE: This will cause the CDS BITE INDEX screen to show.
 - (q) Push the LSK for DEU 2.
 - (r) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS MENU to show.
 - (s) Push the SELECT B LSK.
NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS, INSERT B screen to show.

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

- (t) Record the value that shows in column A, row 2.
- (u) Record the value that shows in column B, row 8.
- (v) Record the value that shows in column C, row 6.
- (w) Record the value that shows in column E, row 7.
- (x) Record the value that shows in column J, row 8.
- (y) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
- (z) Push the INDEX LSK three times.

NOTE: This will cause the CDS BITE INDEX screen to show.
- (aa) Push the LSK for DEU 2.
- (ab) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS MENU to show.
- (ac) Push the SELECT E LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
- (ad) Record the value that shows in column A, row 2.
- (ae) Record the value that shows in column C, row 6.
- (af) Record the value that shows in column E, row 7.
- (ag) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
- (7) Make sure that the airplane is in this configuration:
 - (a) Make sure that the L PACK and R PACK Switches are set to the AUTO position.
 - 1) This should open the Lft and Rt Pack Control/Shutoff Valve (C6) and activate the Lft and Rt Pack Normal Relay (A2).
 - (b) Make sure that the ENG ANTI-ICE Switch 1 and ENG ANTI-ICE Switch 2 (A11) are set to the ON position.
 - (c) Make sure that the WING ANTI-ICE Switch (B8) is set to the ON position.
 - (d) Make sure that the Bleed Air Isolation Switch is set to the AUTO position.
 - (e) Make sure that the BLEED 1 and BLEED 2 Switches (E7) are set to the ON position.
 - 1) This should close the Bleed Air Isolation Valve (J8).
- (8) Do these steps to examine the pin parameters on the Input Monitoring screen:
 - (a) Push the INDEX LSK three times.

NOTE: This will cause the CDS BITE INDEX screen to show.
 - (b) Push the LSK for DEU 1.
 - (c) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS MENU to show.
 - (d) Push the SELECT B LSK.

NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
 - (e) Record the value that shows in column A, row 2.

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

- (f) Record the value that shows in column B, row 8.
- (g) Record the value that shows in column C, row 6.
- (h) Record the value that shows in column E, row 7.
- (i) Record the value that shows in column J, row 8.
- (j) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
- (k) Push the INDEX LSK three times.

NOTE: This will cause the CDS BITE INDEX screen to show.
- (l) Push the LSK for DEU 1.
- (m) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS MENU to show.
- (n) Push the SELECT E LSK.

NOTE: This causes the CDS DEU 1 MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
- (o) Record the value that shows in column A, row 2.
- (p) Record the value that shows in column C, row 6.
- (q) Record the value that shows in column E, row 7.
- (r) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
- (s) Push the INDEX LSK three times.

NOTE: This will cause the CDS BITE INDEX screen to show.
- (t) Push the LSK for DEU 2.
- (u) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS MENU to show.
- (v) Push the SELECT B LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
- (w) Record the value that shows in column A, row 2.
- (x) Record the value that shows in column B, row 8.
- (y) Record the value that shows in column C, row 6.
- (z) Record the value that shows in column E, row 7.
- (aa) Record the value that shows in column J, row 8.
- (ab) Push the NEXT PAGE key and record the value that shows in column A, row 11.
 - 1) Push the PREV PAGE key.
- (ac) Push the INDEX LSK three times.

NOTE: This will cause the CDS BITE INDEX screen to show.
- (ad) Push the LSK for DEU 2.
- (ae) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS MENU to show.

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

- (af) Push the SELECT E LSK.

NOTE: This causes the CDS DEU 2 MAINT/BITE DISCRETE STATUS, INSERT E screen to show.

- (ag) Record the value that shows in column A, row 2.
- (ah) Record the value that shows in column C, row 6.
- (ai) Record the value that shows in column E, row 7.
- (aj) Push the NEXT PAGE key and record the value that shows in column A, row 11.
- 1) Push the PREV PAGE key.
- (9) Make sure that the airplane is in this configuration:
- (a) Make sure that the L PACK and R PACK Switches are set to the OFF position.
- (b) Make sure that the ENG ANTI-ICE Switch 1 and ENG ANTI-ICE Switch 2 (A11) are set to the OFF position.
- (c) Make sure that the WING ANTI-ICE Switch (B8) is set to the OFF position.
- (d) Make sure that the BLEED 1 and BLEED 2 Switches (E7) are set to the OFF position.
- (10) If some (but not all) of the six parameters from the two DEUs disagree, then examine and repair the electrical circuits between the DEUs and the applicable bleed data source that disagree with the expected values in the table below.
- (a) Do the Repair Confirmation at the end of this task.
- (11) If all six of the parameters from the two DEUs disagree or if there were no faults in the electrical circuits from the step above, then replace the DEU that does not agree with the expected value in the table below, as follows:

NOTE: The values below are the same for Engine 1 Data that you got in Insert B and for Engine 2 Data that you got in Insert E. The values for pins A11 and B8 are only found in Insert B.

- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
- Display Electronic Unit Installation, AMM TASK 31-62-21-400-801

Table 208

SWITCH AND POSITION	PIN B8	PIN A2	PIN C6	PIN E7	PIN J8	PIN A11
WING ANTI-ICE SWITCH - OFF	G					
WING ANTI-ICE SWITCH - ON	O					
LEFT OR RIGHT PACK SW - OFF		O	G		O ^{*[1]}	
LEFT OR RIGHT PACK SW -AUTO		G	O			
BLEED 1 SW OR BLEED 2 SW -OFF				G	O ^{*[1]}	
BLEED 1 SW OR BLEED 2 SW -ON				O		
BLEED 1 SW AND BLEED 2 SW - ON					G ^{*[2]}	
ENG ANTI-ICE SWITCH 1 OR SWITCH 2 - OFF						G

EFFECTIVITY
SIA ALL

73-24 TASK 804

D633A103-SIA

Page 224
Oct 15/2021

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

Table 208 (Continued)

SWITCH AND POSITION	PIN B8	PIN A2	PIN C6	PIN E7	PIN J8	PIN A11
ENG ANTI-ICE SWITCH 1 OR SWITCH 2 - ON						O

*[1] To get this value, make sure that the ISOLATION VALVE SW is in the AUTO position.

*[2] To get this value, make sure that the ISOLATION VALVE SW, L PACK SW, and R PACK SW are in the AUTO position.

- (a) Do the Repair Confirmation at the end of this task.
- (b) If the Repair Confirmation is not satisfactory, examine and repair the wires between the terminal block, TB3102, and the DEU that did not show the correct data.
 - 1) Do the Repair Confirmation at the end of this task.

J. Repair Confirmation

- (1) Make sure that the APU is in operation during the Repair Confirmation.
 - (a) Use the APU to provide bleed air to the systems under test.
- (2) Make sure that the airplane is in this configuration:
 - (a) Make sure that the thrust levers are in the idle position.
 - (b) Make sure that the L PACK Switch is set to the OFF position.
 - (c) Make sure that the R PACK Switch is set to the OFF position.
 - (d) Make sure that the WING ANTI-ICE Switch (B8) is set to the OFF position.
 - (e) Make sure that the ENG ANTI-ICE Switch 1 (A11) is set to the OFF position.
 - (f) Make sure that the ENG ANTI-ICE Switch 2 (A11) is set to the OFF position.
 - (g) Make sure that the BLEED 1 Switch (E7) is set to the OFF position.
 - (h) Make sure that the BLEED 2 Switch (E7) is set to the OFF position.
- (3) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then continue.
- (4) Make sure that the airplane is in this configuration:
 - (a) Make sure that the L PACK Switch is set to the AUTO position.
 - (b) Make sure that the R PACK Switch is set to the AUTO position.
 - (c) Make sure that the WING ANTI-ICE Switch (B8) is set to the ON position.
 - (d) Make sure that the ENG ANTI-ICE Switch 1 (A11) is set to the ON position.
 - (e) Make sure that the ENG ANTI-ICE Switch 2 (A11) is set to the ON position.
 - (f) Make sure that the BLEED 1 Switch (E7) is set to the ON position.
 - (g) Make sure that the BLEED 2 Switch (E7) is set to the ON position.
- (5) Do the EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (6) Do this task: APU Usual Shutdown, AMM TASK 49-11-00-860-802.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-24 TASK 804

D633A103-SIA

Page 225
Oct 15/2021

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

807. Air Ground System 1 and Air Ground System 2 Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10661, 73-10662, 73-20661, 73-20662, 73-30661, or 73-30662.
 - (b) The maintenance messages 73-X066Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) Label L352 on DEU 1 and 2 is in a valid range, but Bit 14 (on DEU 1 and 2) shows air/ground and bit 15 (on DEU 1 and 2) shows ground/air. The MACH number is invalid.

B. Possible Causes

- (1) Proximity switch electronics unit (PSEU), M2061
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (3) EEC, M1818
- (4) Wire and connectors between the system components.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
 - (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303, 73-24 TASK SUPPORT Figure 305)
- (3) (SSM 73-23-11)
- (4) (SSM 73-24-12)
- (5) (WDM 73-23-11)
- (6) (WDM 73-24-12)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure

- (1) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - (a) If you find air/ground system messages, then do the fault isolation for those problems first.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do these steps to get access to the DEU input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the FMCS CDU:
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).

NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.

NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the CDS LSK.

NOTE: This causes the CDS BITE INDEX to show.
 - 5) Push the line select key for the one of the DEU's, DEU 1 or DEU 2.
 - 6) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS MENU to show.
- (3) Do these steps to examine the parameters of the AIR/GROUND SYSTEM for the DEU:
 - (a) Push the SELECT A LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen to show.

 - 1) Record the value that shows in column D, row 8.

EFFECTIVITY
SIA ALL

73-24 TASK 807

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

- (b) Push the INDEX LSK.
- (c) Push the SELECT B LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
 - 1) Record the value that shows in column D, row 8.
- (d) Push the INDEX LSK.
- (e) Push the SELECT D LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen to show.
 - 1) Record the value that shows in column D, row 8.
- (f) Push the INDEX LSK.
- (g) Push the SELECT E LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen to show.
 - 1) Record the value that shows in column D, row 8.
- (h) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
- (i) Push the INDEX LSK.
- (j) Push the SELECT A LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen.
 - 1) Record the value that shows in column D, row 8.
- (k) Push the INDEX LSK.
- (l) Push the SELECT B LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen.
 - 1) Record the value that shows in column D, row 8.
- (m) Push the INDEX LSK.
- (n) Push the SELECT D LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen.
 - 1) Record the value that shows in column D, row 8.
- (o) Push the INDEX LSK.
- (p) Push the SELECT E LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen.
 - 1) Record the value that shows in column D, row 8.
- (q) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
- (r) Make sure that the values, that you recorded, agree with this table for you switch position:

Table 209

MODE	INSERT A	INSERT B	INSERT D	INSERT E
GROUND	G	G	G	G
AIR	0	0	0	0

- (s) Push the INDEX LSK until the CDS BITE INDEX shows.

 EFFECTIVITY
SIA ALL

73-24 TASK 807

D633A103-SIA

 Page 228
Oct 15/2021

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

- (t) Do the steps above again to get the same data from input monitoring for the other DEU, DEU 1 or DEU 2.
- (u) If all of the data from the FMCS CDU agrees with the Table, and the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
1) Do the Repair Confirmation at the end of this task.
- (v) If the data on the FMCS CDU does not agree with the table for only INSERT A and B, or for only INSERT D and E, then replace the proximity switch electronics unit (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) Do the Repair Confirmation at the end of this task.
- (w) If other data on the FMCS CDU does not agree with the table, then continue.
- (4) Do a resistance check between these pins to examine the wires between the PSEU and the DEU, which had the incorrect data:
 - (a) Disconnect the applicable connector from the PSEU.
NOTE: The PSEU, M2061, is in the forward electrical equipment bay.
 - (b) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

Table 210

DEU INPUT	DEU CONNECTOR AND PIN	PSEU CONNECTOR AND PIN	RESISTANCE
INSERT A	D3973A (DEU 1) D3975A (DEU 2) PIN D8	D11142, PIN 3	LESS THAN 10 OHMS
INSERT B	D3973B (DEU 1) D3975B (DEU 2) PIN D8	D11138, PIN 26	LESS THAN 10 OHMS
INSERT D	D3973D (DEU 1) D3975D (DEU 2) PIN D8	D11140, PIN 3	LESS THAN 10 OHMS
INSERT E	D3973E (DEU 1) D3975E (DEU 2) PIN D8	D10988, PIN 26	LESS THAN 10 OHMS

- (c) If the resistance is not in the specified range, repair or replace the wires between the card file connector and the applicable DEU connector.
1) Do the Repair Confirmation at the end of this task.
- (d) If the resistance is in the specified range, then replace the DEU.
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.
2) If the Repair Confirmation is not satisfactory, then replace the EEC, M1818.

EFFECTIVITY
SIA ALL

73-24 TASK 807

D633A103-SIA

Page 229
Oct 15/2021

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

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Repair Confirmation

- (1) Prepare for the Procedure:
 - (a) If it is necessary, re-connect the PSEU electrical connector.
 - (b) If it is necessary, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (2) Examine the operation of the air/ground system:
 - (a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 1) Let the engine become stable at idle.
 - (b) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
 - 1) Let the engine operate at idle for a minimum of one minute.
 - (c) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - 1) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - (d) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - 1) Look for the maintenance message in flight leg 0 and 1.
 - (e) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

808. DEU/Air Ground System 1 is not Available - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10671, 73-10672, 73-20671, 73-20672, 73-30671, or 73-30672; 73-10681, 73-10682, 73-20681, 73-20682, 73-30681, or 73-30682; 73-10691, 73-10692, 73-20691, 73-20692, 73-30691, or 73-30692.
 - (b) The maintenance messages 73-X067Y, 73-X068Y, or 73-X069Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) For 73-X067Y, DEU 1 reports that air/ground system 1 data is not available.
- (4) For 73-X068Y, DEU 2 reports that air/ground system 1 data is not available.
- (5) For 73-X069Y, the two DEU's report that air/ground system 1 data is not available.
 - (a) Label L352 on DEU 1 and 2 is in a valid range, but bit 14 (on DEU 1 and 2) shows air/ground and bit 15 (on DEU 1 and 2) shows ground/air. The valid MACH number shows ground/air.
 - 1) Bit 14 and 15 are in valid ranges, but they do not agree.

EFFECTIVITY
SIA ALL

73-24 TASKS 807-808

D633A103-SIA

Page 230
Oct 15/2021

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

B. Possible Causes

- (1) Proximity switch electronics unit (PSEU), M2061
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (3) EEC, M1818
- (4) Wires and connectors between the PSEU and the DEUs.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
 - (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303, 73-24 TASK SUPPORT Figure 305)
- (3) (SSM 73-23-11)
- (4) (SSM 73-24-12)
- (5) (WDM 73-23-11)

EFFECTIVITY
SIA ALL

73-24 TASK 808

D633A103-SIA

Page 231
Oct 15/2021

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

(6) (WDM 73-24-12)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of the task.

F. Fault Isolation Procedure

- (1) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
- (a) If you find air/ground system messages, then do the fault isolation for those problems first.
- 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do these steps to get access to the DEU input monitoring of discrete display:
- (a) Get access to the input monitoring screen on the flight management computer/control display unit (FMCS CDU):
- 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the CDS LSK.
NOTE: This causes the CDS BITE INDEX to show.
 - 5) Push the line select key the applicable DEU, DEU 1 or DEU 2.
NOTE: For maintenance message 73-3069Y, you must examine the output of the two DEU's.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS MENU to show.
- (3) Do these steps to examine the parameters for the air/ground system on the DEU:
- NOTE: For maintenance message 73-3069Y, you must examine the output at SELECT A and SELECT B.
- (a) For maintenance message 73-3067Y, examine SELECT A only;
Push the SELECT A LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen to show.
- 1) Record the value that shows in column D, row 8.
- (b) Push the INDEX LSK.
- (c) For maintenance message 73-3068Y, examine SELECT B only;
Push the SELECT B LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.
- 1) Record the value that shows in column D, row 8.

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

- (d) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
- (e) Push the INDEX LSK.
- (f) Push the SELECT A LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT A screen.
 - 1) Record the value that shows in column D, row 8.
- (g) Push the INDEX LSK.
- (h) Push the SELECT B LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen.
 - 1) Record the value that shows in column D, row 8.
- (i) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
- (j) Make sure that the values, that you recorded, agree with this table for your switch position:

Table 211

MODE	INSERT A	INSERT B
GROUND	G	G
AIR	O	0

- (k) For maintenance message 73-X069Y, push the INDEX LSK until the CDS BITE INDEX shows and do the steps again to examine the other DEU, DEU 1 or DEU 2.
- (l) If the data from the FMCS CDU agrees with the table and the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (m) If you data on the FMCS CDU does not agree with the table, then continue.
- (4) Do a resistance check between these pins to examine the wires between the PSEU and the applicable DEU:
NOTE: For maintenance message 73-X069Y, you must examine the two DEUs.
 - (a) Disconnect the applicable connector from the PSEU.
NOTE: The PSEU is in the forward electrical equipment bay.
 - (b) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

Table 212

DEU INPUT	DEU CONNECTOR AND PIN	PSEU CONNECTOR AND PIN	RESISTANCE
INSERT A	D3973A (DEU 1) D3975A (DEU 2) PIN D8	D11142, PIN 3	LESS THAN 10 OHMS
INSERT B	D3973B (DEU 1) D3975B (DEU 2) PIN D8	D11138, PIN 26	LESS THAN 10 OHMS

- (c) If the resistance is not in the specified range, repair or replace the wires between the card file connector and the applicable DEU connector.

EFFECTIVITY
SIA ALL

73-24 TASK 808

D633A103-SIA

Page 233
Oct 15/2021

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

- 1) Do the Repair Confirmation at the end of this task.
- (d) If the resistance is in the specified range, then replace the PSEU, M2061 (the most likely LRU from the Possible Causes list).

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) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Prepare for the Procedure:
 - (a) If it is necessary, re-connect the connector to the PSEU.
 - (b) If it is necessary, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (2) Examine the operation of the air/ground system:
 - (a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - 1) Let the engine become stable at idle.
 - (b) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
 - 1) Let the engine operate at idle for a minimum of one minute.
 - (c) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - 1) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - (d) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - 1) Look for the maintenance message in flight leg 0 and 1.
 - (e) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

809. DEU/Air Ground System 2 is not Available - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10701, 73-10702, 73-20701, 73-20702, 73-30701, or 73-30702; 73-10711, 73-10712, 73-20711, 73-20712, 73-30711, or 73-30712; 73-10721, 73-10722, 73-20721, 73-20722, 73-30721, or 73-30722.
 - (b) The maintenance messages 73-X070Y, 73-X071Y, or 73-X072Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) For 73-X070Y, DEU 1 reports that air/ground system 2 data is not available.
- (4) For 73-X071Y, DEU 2 reports that air/ground system 2 data is not available.

EFFECTIVITY
SIA ALL

73-24 TASKS 808-809

D633A103-SIA

Page 234
Oct 15/2021

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

- (5) For 73-X072Y, the two DEU's report that air/ground system 2 data is not available.
- (a) Label L352 on DEU 1 and 2 is a valid range, but Bit 15 (on DEU 1 and 2) shows air/ground and bit 14 (on DEU 1 and 2) shows ground/air and the valid MACH number shows ground/air.
- 1) Bit 14 and 15 are in valid ranges, but they do not agree.

B. Possible Causes

- (1) Proximity switch electronics unit (PSEU), M2061
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (3) EEC, M1818
- (4) Wires and connectors between the PSEU and the DEUs.

C. Circuit Breakers

- (1) For Engine 1,
- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
- (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

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

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303, 73-24 TASK SUPPORT Figure 305)
- (3) (SSM 73-23-11)
- (4) (SSM 73-24-12)
- (5) (WDM 73-23-11)
- (6) (WDM 73-24-12)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of the task.

F. Fault Isolation Procedure

- (1) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - (a) If you find air/ground system messages, then do the fault isolation for those problems first.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do these steps to get access to the DEU input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the flight management computer/control display unit (FMCS CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).

NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.

NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the CDS LSK.

NOTE: This causes the CDS BITE INDEX to show.
 - 5) Push the line select key the applicable DEU, DEU 1 or DEU 2.

NOTE: For maintenance message 73-3072Y, you must examine the output of the two DEU's.
 - 6) Push the INPUT MONITORING LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS MENU to show.
- (3) Do these steps to examine the parameters for the air/ground system on the applicable DEU:

NOTE: For maintenance message 73-3072Y, you must examine the output at SELECT D and SELECT E.

 - (a) For maintenance message 73-3071Y,

Push the SELECT D LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen to show.

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

- 1) Record the value that shows in column D, row 8.
- (b) Push the INDEX LSK.
- (c) For maintenance message 73-3071Y,
Push the SELECT E LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen to show.

- 1) Record the value that shows in column D, row 8.
- (d) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
- (e) Push the INDEX LSK.
- (f) Push the SELECT D LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT D screen.
 - 1) Record the value that shows in column D, row 8.
- (g) Push the INDEX LSK.
- (h) Push the SELECT E LSK to get access to the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen.
 - 1) Record the value that shows in column D, row 8.
- (i) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
- (j) Make sure that the values, that you recorded, agree with this table for you switch position:

Table 213

MODE	INSERT D	INSERT E
GROUND	G	G
AIR	O	0

- (k) For maintenance message 73-X072Y, push the INDEX LSK until the CDS BITE INDEX shows and do the steps again to examine the other DEU, DEU 1 or DEU 2.
- (l) If all of the data from the FMCS CDU agrees with the table and the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (m) If you data on the FMCS CDU does not agree with the table, then continue.
- (4) Do a resistance check between these pins to examine the wires between the PSEU and the applicable DEU:
NOTE: For maintenance message 73-X072Y, you must examine the two DEUs.
 - (a) Disconnect the applicable connector from the PSEU.
NOTE: The PSEU is in the forward electrical equipment bay.
 - (b) Do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

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

Table 214

DEU INPUT	DEU CONNECTOR AND PIN	PSEU CONNECTOR AND PIN	RESISTANCE
INSERT D	D3973D (DEU 1) D3975D (DEU 2) PIN D8	D11140, PIN 3	LESS THAN 10 OHMS
INSERT E	D3973E (DEU 1) D3975E (DEU 2) PIN D8	D10988, PIN 26	LESS THAN 10 OHMS

- (c) If the resistance is not in the specified range, repair or replace the wires between the card file connector and the applicable DEU connector.

1) Do the Repair Confirmation at the end of this task.

- (d) If the resistance is in the specified range, then replace the PSEU, M2061 (the most likely LRU from the Possible Causes list).

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) Do the Repair Confirmation at the end of this task.

2) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.

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

G. Repair Confirmation

- (1) Prepare for the Procedure:

(a) If it is necessary, re-connect the connector to the PSEU.

(b) If it is necessary, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

- (2) Examine the operation of the air/ground system:

(a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

1) Let the engine become stable at idle.

(b) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.

1) Stop for a minimum of one minute.

(c) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.

1) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.

(d) Do this task: EEC BITE Procedure, 73-00 TASK 801.

1) Look for the maintenance message in flight leg 0 and 1.

(e) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-24 TASK 809

D633A103-SIA

Page 238
Oct 15/2021

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

810. DEU/Left Flap and Right Flap Position Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11251, 73-11252, 73-21251, 73-21252, 73-31251, or 73-31252; 73-11261, 73-11262, 73-21261, 73-21262, 73-31261, or 73-31262; 73-11741, 73-11742, 73-21741, 73-21742, 73-31741, or 73-31742; 73-11751, 73-11752, 73-21751, 73-21752, 73-31751, or 73-31752.
 - (b) The maintenance messages 73-X125Y (DEU 1) or 73-X126Y (DEU 2), or 73-X174Y (DEU 1) or 73-X175Y (DEU 2); where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The DEU's send data to the EEC's that indicates the flap position. approach flaps. This data is sent from the applicable DEU to the EEC's on the ARINC 429 data bus. The DEU gets the data from FCC. If the DEU does not have valid data from the two channels of the FCC, it will report the data from the FCC that it does have. If the DEU does not have data from FCC, then it will indicate to the EEC that the flaps are in approach position.

B. Possible Causes

- (1) Flap control system
- (2) Flap position transmitter
- (3) FCC, M1875 (FCC A) or M1876 (FCC B)
- (4) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (5) EEC, M1818
- (6) Wires and connectors between the FCC and the DEU's.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

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

- (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303)
- (3) SSM 73-23-11
- (4) SSM 73-24-12
- (5) WDM 73-23-11
- (6) WDM 73-24-12

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of the task.

F. Fault Isolation Procedure

- (1) Do this task: Flap/Slat Electronics Unit (FSEU) BITE Procedure, 27-51 TASK 801.
 - (a) Do the corrective action for the FSEU FAIL, FSEU Sensor, or FSEU Indications maintenance messages that you find.
 - (b) If you do not find any FSEU maintenance messages or the problem continues, then continue.
- (2) For both DEU's, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Look for maintenance messages 31-67330 or 31-67340.
 - 1) Do the corrective action for the maintenance message that shows.
 - (b) If you do not find a CDS maintenance message or the problem continues, then continue.
- (3) Do this task: Trailing Edge Flap System Operational Test, AMM TASK 27-51-00-710-801.
 - (a) Repair the problems that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the trailing edge operational test was satisfactory or the problem continues, then continue.

EFFECTIVITY
SIA ALL

73-24 TASK 810

D633A103-SIA

Page 240
Oct 15/2021

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

- (4) Do this task: Leading Edge Flap and Slat System Operation With Primary Control, AMM TASK 27-81-00-860-801.
 - (a) Repair the problems that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the leading edge operational test was satisfactory or the problem continues, then continue.
- (5) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (6) Replace one of the FCC's, M1875 (FCC A) or M1876 (FCC B).
These are the tasks:
Flight Control Computer Removal, AMM TASK 22-11-33-000-801,
Flight Control Computer Installation, AMM TASK 22-11-33-400-801.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, the replace the other FCC, M1875 (FCC A) or M1876 (FCC B).
These are the tasks:
Flight Control Computer Removal, AMM TASK 22-11-33-000-801,
Flight Control Computer Installation, AMM TASK 22-11-33-400-801.
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (a) Extend the flaps to the first lever detent (1). To extend the flaps, do this task: Extend the Trailing Edge Flaps, AMM TASK 27-51-00-860-803.
 - 1) Stop for a minimum of one minute.
 - (b) Extend the flaps to the second lever detent (2).
 - 1) Stop for a minimum of one minute.
 - (c) Continue to extend the flaps, stop at each lever detent for one minute, until the flaps are fully extended (40).
 - (d) Retract the flaps one lever detent (from position 40 to position 30). To retract the flaps, do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-804.
 - 1) Stop for a minimum of one minute.
 - (e) Continue to retract the flaps, stop at each lever detent for one minute, until the flaps are fully retracted (0).
 - (f) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.

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

- (a) If the maintenance message does not show in Flight Leg 0, then you corrected the fault.

— END OF TASK —

812. DEU 1 or DEU 2 Left and Right MLG Position Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) For DEU 1,
73-11231, 73-11232, 73-21231, 73-21232, 73-31231, or 73-31232
 - (b) For DEU 2,
73-11241, 73-11242, 73-21241, 73-21242, 73-31241, or 73-31242.
 - (c) The maintenance messages 73-X123Y (DEU 1) or 73-X124Y (DEU 2); where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) The dual channel message should show on the two EECs. If you find only one dual channel message, then there is most likely an ARINC data buss problem or an internal EEC problem.
 - (b) This fault is reported when the EEC has electrical power.
- (3) The fault will be set when the Left MLG input is not equal to the Right MLG input.
 - (a) The PSEU send the left MLG data to the stall management/yaw damper computer 1 (SMYDC 1). The SMYDC 1 send the data to DEU 1 and DEU 2 on an ARINC 429 databus. The left MLG discrete is set to TRUE when the left MLG is down and locked.
 - (b) The PSEU send the right MLG data to the stall management/yaw damper computer 2 (SMYDC 2). The SMYDC 2 send the data to DEU 1 and DEU 2 on an ARINC 429 databus. The right MLG discrete is set to TRUE when the right MLG is down and locked.
 - 1) If SMYDC 1 or SMYDC 2 does not have electrical power, then the message can show on the ground because no data implies that the MLG is not down and locked.

B. Possible Causes

- (1) MLG down and locked proximity switches:
 - (a) System 1 left gear down and lock, S71
 - (b) System 2 left gear down and lock, S302
 - (c) System 1 right gear down and lock, S73
 - (d) System 2 right gear down and lock, S301
- (2) Proximity switch electronics unit (PSEU), M2061
- (3) Stall management/yaw damper computer (SMYDC), M1747 (SMYDC 1) or M1748 (SMYDC 2)
- (4) ARINC data bus between SMYDC 1 or SMYDC 2 and the DEUs
- (5) ARINC data bus between DEU 1 or DEU 2 and the EECs
- (6) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (7) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,

EFFECTIVITY
SIA ALL

73-24 TASKS 810-812

D633A103-SIA

Page 242
Oct 15/2021

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

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
D	5	C01359	DISPLAY DEU 1 PRI
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

- (a) 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	5	C01359	DISPLAY DEU 1 PRI
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303)
- (3) (SSM 22-11-12)
- (4) (SSM 22-11-51)
- (5) (SSM 27-32-11)
- (6) (SSM 27-32-12)

EFFECTIVITY
SIA ALL

73-24 TASK 812

D633A103-SIA

Page 243
Oct 15/2021

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

- (7) (SSM 27-32-21)
- (8) (SSM 27-32-22)
- (9) (SSM 32-61-11)
- (10) (SSM 32-61-12)
- (11) (SSM 73-23-11)
- (12) (SSM 73-24-12)
- (13) (WDM 22-11-12)
- (14) (WDM 22-11-51)
- (15) (WDM 27-32-11)
- (16) (WDM 27-32-12)
- (17) (WDM 27-32-21)
- (18) (WDM 27-32-22)
- (19) (WDM 32-64-11)
- (20) (WDM 32-64-12)
- (21) (WDM 73-23-11)
- (22) (WDM 73-24-12)

E. Initial Evaluation

- (1) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If you find a 73-X073Y, 73-X074Y, 73-X143Y, or 73-X144Y message, then do the fault isolation procedure for that message first.
 - (b) If you find only one of the messages, 73-X1231 (DEU 1, Eng 1), 73-X1232 (DEU 1, Eng 2), X3-31241 (DEU 2, Eng 1), or 73-X1242 (DEU 2, Eng 2), then do the Fault Isolation Procedure - One DEU, One EEC.
 - (c) If you find one of these combinations of messages, 73-X1231 and 73-X1241 (Eng 1), or 73-X1232 and 73-X1242 (Eng 2), then do the Fault Isolation Procedure - Two DEUs, One EEC.
 - (d) If you find one of these combinations of messages, 73-X1231 and 73-X1232 (DEU 1), or 73-X1241 and 73-X1242 (DEU 2), then do the Fault Isolation Procedure - One DEU, Two EECs.
 - (e) If you find all of the messages, 73-X1231, 73-X1232, 73-X1241, and 73-X1242, then do the Fault Isolation Procedure - Two DEUs, Two EECs.
 - (f) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the SSM/WDM references to identify intermediate electrical connections in the wire harness and do a visual check.

EFFECTIVITY
SIA ALL

73-24 TASK 812

D633A103-SIA

Page 244
Oct 15/2021

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

- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Dual Channel Fault - One DEU, One EEC

- (1) Do the CDS BITE Procedure on the two DEUs. To do this, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for the no stall management data messages, 31-67730 or 31-67740, that you find.
 - 1) Continue with this procedure.

NOTE: If you found and corrected the messages above, then you found the reason that only one DEU reported the fault. You must continue the procedure to find out why only one EEC report the fault. If you do not find the faults above, then the data bus into the DEU is not part of the problem. There is a problem with one of the EECs. The tests below look for EEC problems.
 - (b) If you do not find a stall management maintenance message, then continue.
- (2) Do the EEC BITE Procedure on the EEC that did not report the fault. To do this, do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for the DEU data messages, 73-11431, 73-11432, 73-21431, 73-21432, 73-31431, 73-31432, 73-11442, 73-21441, 73-21442, 73-31441, or 73-31442, that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a DEU data message, then continue.
- (3) Do the SMYD BITE Procedure on the two SMYDCs. To do this, do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.
 - (a) Do the corrective action for the main landing gear (MLG), PSEU, or internal SMYD messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a MLG message, then continue.
- (4) Do these steps to get access to the DEU input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the FMCS CDU:
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).

NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the GROUND TESTS LSK.

NOTE: This causes the GROUND TESTS INDEX to show.
 - 4) Push the DISCRETE INPUT LSK.

NOTE: This causes the DISCRETE STATUS to show.
- (5) Record the status of the SMYDC 1 - L MLG DOWN AND LOCK discrete and the SMYDC 2 - R MLG DOWN AND LOCK discrete.

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

- (a) If all of the MLG DOWN AND LOCK discretes do not equal G when the airplane is on the ground, then, do this task: Main Landing Gear Down-and-Locked Sensor Operational Test, AMM TASK 32-61-31-710-801.
 - 1) Repair the problems that you find.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 2) If you did not find problems during the MLG down and lock sensor operation test, then continue.
- (6) Replace the EEC that reported the maintenance message.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then replace the DEU that was not reported by the maintenance message.

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.

NOTE: Maintenance message 73-X123Y = DEU 1 and maintenance message 73-X124Y = DEU 2.

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

G. Fault Isolation Procedure - Dual Channel Fault - Two DEUs, One EEC

- (1) Do this task: Main Landing Gear Down-and-Locked Sensor Operational Test, AMM TASK 32-61-31-710-801.
 - (a) Repair the problems that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you did not find problems during the MLG down and lock sensor operation test, then continue.
- (2) Do the EEC BITE Procedure on the EEC that did not report the fault. To do this, do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Do the corrective action for the DEU data messages, 73-11431, 73-11432, 73-21431, 73-21432, 73-31431, 73-31432, 73-11441, 73-11442, 73-21441, 73-21442, 73-31441, or 73-31442, that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a DEU data message, then replace the EEC that did not report the maintenance message.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-24 TASK 812

D633A103-SIA

Page 246
Oct 15/2021

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

H. Fault Isolation Procedure - Dual Channel Fault - One DEU, Two EECs

- (1) Do this task: Main Landing Gear Down-and-Locked Sensor Operational Test, AMM TASK 32-61-31-710-801.
 - (a) Repair the problems that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you did not find problems during the MLG down and lock sensor operation test, then continue.
- (2) Do the CDS BITE Procedure on the two DEUs. To do this, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for the no stall management data messages, 31-67730 or 31-67740, that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a stall management maintenance message, then replace the DEU that was not reported by the maintenance message.
 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.
NOTE: Maintenance message 73-X123Y = DEU 1 and maintenance message 73-X124Y = DEU 2.
 - 1) Do the Repair Confirmation at the end of this task.

I. Fault Isolation Procedure - Dual Channel Fault - Two DEUs, Two EECs

- (1) Examine the airplane log book to make sure that the two stall management/yaw damper computers (SMYDC) were on during the last flight or engine ground run.
 - (a) If one or more of the SMYDCs was off, then no corrective action is necessary.
 - (b) If the SMYDCs was on, then continue.
- (2) Do the CDS BITE Procedure on the two DEUs. To do this, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Do the corrective action for the No Stall Management Data messages, 31-67730 or 31-67740, that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a stall management maintenance message, then continue.
- (3) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - (a) Do the corrective action for the DN LKD FAULT, UP LKD FAULT, L MLG, or R MLG maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a PSEU maintenance message, then continue.
- (4) Do the SMYD BITE Procedure on the two SMYDCs. To do this, do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.

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

- (a) Do the corrective action for the main landing gear (MLG), PSEU, or internal SMYD messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
- (b) If you do not find a MLG message, then continue.

J. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the message does not show, then you corrected the fault.

— END OF TASK —

813. Start Switch Signal and ARINC Bus Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10311, 73-10312, 73-20311, 73-20312, 73-30311, or 73-30312.
 - (b) The maintenance messages 73-X031Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the fault isolation procedure for a single channel fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the fault isolation procedure for a dual channel fault.
- (2) This maintenance message should show as a dual channel fault. If you find a single channel fault, then there is an internal EEC problem.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The state of the ACFT #8 (Start Switch, Analog) on the local channel does not agree with the ARINC digital discrete, L351-18&20 (Eng 1) or L351-15&17 (Eng 2).

B. Possible Causes

- (1) Single Channel Message:
 - (a) EEC, M1818.
- (2) Dual Channel Message:
 - (a) Engine start switch, S266 (Eng 1) or S267 (Eng 2)
 - (b) Wire harness and electrical connectors
 - (c) DEU, M1808 (DEU 1) or M1809 (DEU 2)
 - (d) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
D	5	C01359	DISPLAY DEU 1 PRI

EFFECTIVITY
SIA ALL

73-24 TASKS 812-813

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(2) For Engine 2,

(a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303, 73-24 TASK SUPPORT Figure 306)
- (3) SSM 31-62-11
- (4) SSM 31-62-21
- (5) SSM 73-24-11
- (6) SSM 73-24-21
- (7) SSM 74-31-11
- (8) WDM 31-62-11
- (9) WDM 31-62-21
- (10) WDM 73-22-11
- (11) WDM 73-24-11
- (12) WDM 73-24-21
- (13) WDM 74-31-11

E. Initial Evaluation

- (1) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.
- (2) Set the applicable start switch to OFF.
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) Look for the maintenance messages.

EFFECTIVITY
SIA ALL

73-24 TASK 813

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

- 1) If you find a single channel maintenance message, 73-10311 (Eng 1), 73-10312 (Eng 2), 73-20311 (Eng 1), or 73-20312 (Eng 2), then do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If you find a dual channel message, 73-30311 (Eng 1) or 73-30312 (Eng 2), then do the Fault Isolation Procedure - Dual Channel Fault with the Start Switch in the OFF Position.
 - 3) If a message does not show, then set the applicable start switch to GRD and continue.
- (c) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (d) Look for the maintenance messages.
- 1) If you find a single channel maintenance message, 73-10311 (Eng 1), 73-10312 (Eng 2), 73-20311 (Eng 1), or 73-20312 (Eng 2), then do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If you find a dual channel message, 73-30311 (Eng 1) or 73-30312 (Eng 2), then do the Fault Isolation Procedure - Dual Channel Fault with the Start Switch in the GRD Position.
 - 3) If a message does not show, then set the applicable start switch to CONT and continue.
- (e) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (f) Look for the maintenance messages.
- 1) If you find a single channel maintenance message, 73-10311 (Eng 1), 73-10312 (Eng 2), 73-20311 (Eng 1), or 73-20312 (Eng 2), then do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If you find a dual channel message, 73-30311 (Eng 1) or 73-30312 (Eng 2), then do the Fault Isolation Procedure - Dual Channel Fault with the Start Switch in the CONT Position.
 - 3) If a message does not show, then set the applicable start switch to FLT and continue.
- (g) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (h) Look for the maintenance messages.
- 1) If you find a single channel maintenance message, 73-10311 (Eng 1), 73-10312 (Eng 2), 73-20311 (Eng 1), or 73-20312 (Eng 2), then do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If you find a dual channel message, 73-30311 (Eng 1) or 73-30312 (Eng 2), then do the Fault Isolation Procedure - Dual Channel Fault with the Start Switch in the FLT Position.
- (i) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
- 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, the Fault Isolation Procedures, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:

EFFECTIVITY
SIA ALL

73-24 TASK 813

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

- a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then do the Fault Isolation Procedure - Dual Channel Fault.

G. Fault Isolation Procedure - Dual Channel Fault

NOTE: You must do the Initial Evaluation before you start this procedure.



MAKE SURE THAT THE PNEUMATIC SOURCE IS OFF AND THAT THE PRESSURE IN THE SYSTEM IS RELEASED. IF THE PRESSURE IS NOT RELEASED, IT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Make sure that the engine start switch is in the same position in which it failed the EEC test in the Initial Evaluation.
- (2) Do these steps to get access to the DEU input monitoring of discrete display:
 - (a) Get access to the applicable input monitoring screen on the FMCS CDU:
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX line select key (LSK).
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT LSK.
NOTE: This causes the MAINT BITE INDEX to show.
 - 4) Push the CDS LSK.
NOTE: This causes the CDS BITE INDEX to show.
 - 5) Push the line select key for one of the DEU's, DEU 1 or DEU 2.
 - 6) Push the INPUT MONITORING LSK.
NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS MENU to show.
- (3) Do these steps to examine the parameters for the ENGINE START SW position on the applicable DEU:
 - (a) For Engine 1,

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

Push the INSERT B LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT B screen to show.

- (b) For Engine 2,

Push the INSERT E LSK.

NOTE: This causes the CDS DEU X MAINT/BITE DISCRETE STATUS, INSERT E screen to show.

- 1) Push the NEXT PAGE key.
 - 2) Record the values that shows in column F, row 9.
 - 3) Record the values that shows in column C, row 14.
- (c) Make sure that the values agree with this table for your switch position:

Table 215

ENGINE START SWITCH POSITION	COLUMN F ROW 9	COLUMN C ROW 14
OFF	O	O
GRD	G	O
CONT	G	O
FLT	O	G

- (d) Push the INDEX LSK until the CDS BITE INDEX shows.
- 1) Do the steps again to examine the other DEU, DEU 1 or DEU 2.
- (e) If the values do not agree and you find an O when a G is expected, then look for an open circuit in the switch, or the wire and connector between the engine start switch and the DEU.
- (f) If the values do not agree and you find an G when an O is expected, then look for an short to ground in the switch, or the wire and connector between the engine start switch and the DEU.
- (g) If the values agree, then continue.
- (4) Examine the electrical connector on the MW0303 (J3) wire harness at the EEC:
- (a) For Engine 1,
- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT

EFFECTIVITY
SIA ALL

73-24 TASK 813

D633A103-SIA

Page 252
Oct 15/2022

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (d) See if the DP0303 (MW0303, J3) electrical connector is correctly connected to the EEC, and continue.
- (e) Disconnect the DP0303 (MW0303, J3) electrical connector from the EEC.
- (f) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the MW0303 (J3) wire harness. These are the tasks:
 - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
 - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (g) If you did not find a problem, then continue.
- (5) Do a resistance check between these pins of the DP0303 wire harness connector, to examine the engine start switch and the wires between the EEC and the engine start switch:

Table 216

ENGINE START SWITCH POSITION	PINS W TO r	PIN W TO GROUND	PIN r TO GROUND
OFF	GREATER THAN 10 MEGOHMS	GREATER THAN 10 MEGOHMS	GREATER THAN 10 MEGOHMS
GRD	LESS THAN 10 OHMS	GREATER THAN 10 MEGOHMS	GREATER THAN 10 MEGOHMS
CONT	LESS THAN 10 OHMS	GREATER THAN 10 MEGOHMS	GREATER THAN 10 MEGOHMS

 EFFECTIVITY
SIA ALL

73-24 TASK 813

D633A103-SIA

 Page 253
Oct 15/2022

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

Table 216 (Continued)

ENGINE START SWITCH POSITION	PINS W TO r	PIN W TO GROUND	PIN r TO GROUND
FLT	LESS THAN 10 OHMS	GREATER THAN 10 MEGOHMS	GREATER THAN 10 MEGOHMS

- (a) If you find continuity when the start switch is OFF, then replace the engine start switch.
- (b) If the resistance is not in the specified range, then examine the engine start switch and the wires between the EEC and the engine start switch.
 - 1) If you find a problem with the engine start switch, then replace the engine start switch.
 - 2) If you find a problem with the wires or connectors, then repair it.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
- (d) If the problem continues, then replace the EEC. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) For Engine 1
 - 1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Make sure that the pressure is removed from the pneumatic system. To remove the pneumatic pressure, do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.

EFFECTIVITY
SIA ALL

73-24 TASK 813

D633A103-SIA

Page 254
Oct 15/2021

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

- (2) Set the applicable start switch to OFF.
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) Set the applicable start switch to GRD and continue.
 - (c) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (d) Set the applicable start switch to CONT and continue.
 - (e) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (f) Set the applicable start switch to FLT and continue.
 - (g) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (h) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

— END OF TASK —

814. DEU 1 Data is Missing - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) For DEU 1,
73-11431, 73-11432, 73-21431, 73-21432, 73-31431, and 73-31432.
 - (b) The maintenance message 73-X143Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The EEC senses that the DEU failed the update rate or the parity check.

B. Possible Causes

- (1) Data bus wiring between the DEU 1 and the EECs
- (2) DEU 1, M1808
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

EFFECTIVITY
SIA ALL

73-24 TASKS 813-814

D633A103-SIA

Page 255
Oct 15/2022

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

- (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-24-12)
- (6) (WDM 31-62-11)
- (7) (WDM 31-62-21)
- (8) (WDM 73-22-11)
- (9) (WDM 73-24-12)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If only one of the maintenance messages 73-X1431 (DEU 1, Eng 1), or 73-X1432 (DEU 1, Eng 2) shows, then do the Fault Isolation Procedure - One EEC.
 - (c) If the maintenance messages 73-X1431 (DEU 1, Eng 1) and 73-X1432 (DEU 1, Eng 2) show, then do the Fault Isolation Procedure - Two EEC's.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 256
Oct 15/2021

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - One EEC

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for maintenance messages 73-31601 or 73-31602.
 - (b) If you find a message, then replace the DEU 1 (the most likely LRU from the Possible Causes list).

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.
 - 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
 - (c) If you do not find a message, then continue.
 - (2) Prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,
 - 1) 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

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 257
Oct 15/2021

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Examine the applicable electrical connector on the MW0303 (J3) wire harness at the EEC:
- (a) See if the DP0303 (MW0303, J3) electrical connector is correctly connected to the EEC.
 - (b) Disconnect the DP0303 (MW0303, J3) electrical connector from the EEC.
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the MW0303 (J3) wire harness.
 These are the tasks:
 Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
 Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (4) Get access to the E3-1 shelf in the EE bay and disconnect these connectors:
- (a) D49994P, Eng 1
 - (b) D40732P, Eng 2
 - (c) D45111P, APU ECU
- (5) For the engine that reported the fault, do these steps:

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 258
Oct 15/2021

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

- (a) For Engine 1,
Install a jumper between pins A6 and B5 of the D49994P electrical connector.
- (b) For Engine 2,
Install a jumper between pins A3 and B3 of the D40732P electrical connector.
- (6) Do a resistance check between these pins of the applicable wire harness connector, to examine the wires between the EEC and the terminal block TB3102:

Table 217

CONNECTOR DP0303	RESISTANCE
PINS z TO k	LESS THAN 10 OHMS
PIN z TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then examine these wires between the applicable E3-1 shelf connector and terminal block TB3102:

Table 218

ENGINE	CONNECTOR	TERMINAL BLOCK
ENG 1	D49994J PIN A6	TB3102 ; PIN YB39
ENG 1	D49994J PIN B5	TB3102 ; PIN YA39
ENG 2	D40732J PIN A3	TB3102 ; PIN YB39
ENG 2	D40732J PIN B3	TB3102 ; PIN YA39

- (b) If no wire problem is found, then replace DEU 1 (the most likely LRU from the Possible Causes list).
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.
 - 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If the resistance is not in the specified range, then continue.
- (7) Examine the applicable electrical connector on the MW0303 (J3) wire harness at the strut:
 - (a) See if the DP0324 (J3) electrical connector is correctly connected to the strut.
 - (b) Disconnect the DP0324 (J3) electrical connector from the strut.
 - (c) Visually examine the strut receptacle Engine 1 [D30224] or Engine 2 [D30424] and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 259
Oct 15/2021

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

- 2) If the harness connector is damaged, then replace the applicable MW0303 (J3) wire harness.
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
- 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (8) Examine the resistance at these pins on the strut receptacles; Engine 1 [D30224] or Engine 2 [D30424]:

Table 219

RECEPTACLE	PINS	RESISTANCE
D30224 & D30424	PINS 5 TO 14	LESS THAN 10 OHMS
	PIN 5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the applicable MW0303 (J3) wire harness.
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then examine and repair the wires between the applicable strut receptacle and the terminal block TB3102.
 - 1) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Two EEC's

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for maintenance messages 73-31601 or 73-31602.
 - (b) If you do not find a message, then replace DEU 1 (the most likely LRU from the Possible Causes list).
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.
 - 2) If the Repair Confirmation is not satisfactory, then replace the other DEU.
These are the tasks:
Display Electronic Unit Removal, AMM TASK 31-62-21-000-801,

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 260
Oct 15/2021

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

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 Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - c) Do the Repair Confirmation at the end of this task.
- (c) If you find a message, then continue.
- (2) Prepare for the procedure on each engine:
- (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,
 - 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Get access to the E3-1 shelf in the EE bay and disconnect these connectors:
- (a) D49994P, Eng 1

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 261
Oct 15/2021

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

- (b) D40732P, Eng 2
- (c) D45111P, APU ECU
- (4) Install a jumper in these receptacles:
 - (a) For Engine 1,
Install a jumper between pins A6 and B5 of the D49994J electrical connector.
 - (b) For Engine 2,
Install a jumper between pins A3 and B3 of the D40732J electrical connector.
- (5) Do a continuity check between these pins, to examine the wires between the DEU and the E3-1 Shelf connector:
 - (a) Remove the DEU 1. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

Table 220

CONNECTOR	PINS	RESISTANCE
DEU 1 DP3973A	PIN J3 TO K3	LESS THAN 10 OHMS
	PIN J3 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (b) If the resistance is not in the specified range, then repair or replace the wires between TB3102 and the DEU wire harness connector [DP3973A].
 - 1) Do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then continue.
- (c) If the resistance is in the specified range, then replace DEU 1 (the most likely LRU from the Possible Causes list).
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.
 - a) If the Repair Confirmation was not satisfactory, then continue.
- (d) If the fault continues, then replace the other DEU.
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.
 - a) If the Repair Confirmation was not satisfactory, then continue.
 - 2) If the fault continues, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that you removed the jumper from the electrical connectors on the E3-1 shelf.

 EFFECTIVITY
SIA ALL
73-24 TASK 814

D633A103-SIA

 Page 262
Oct 15/2021

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

- (b) Make sure that the DP0324 electrical connector is connected to the receptacle in the strut.
- (c) Make sure that the D49994P, D40732P, and D45111P electrical connectors are connected to the receptacles on the E3-1 shelf.
- (d) Make sure that the DP0303 electrical connector is connected to the receptacle on the EEC.
- (e) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (f) For Engine 2,
 - 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

73-24 TASK 814

D633A103-SIA

Page 263
Oct 15/2021

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

815. DEU 2 Data is Missing - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) For DEU 2,
73-11441, 73-11442, 73-21441, 73-21442, 73-31441, and 73-31442.
 - (b) The maintenance message 73-X144Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The EEC senses that the DEU failed the update rate or the parity check.

B. Possible Causes

- (1) Data bus wiring between the DEU 2 and the EEC
- (2) DEU 2, M1809
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1;
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2;
 - (a) 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	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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-24 TASK SUPPORT Figure 301)
- (2) Simplified Schematic, (73-24 TASK SUPPORT Figure 302, 73-24 TASK SUPPORT Figure 303)
- (3) (SSM 31-62-11)
- (4) (SSM 31-62-21)
- (5) (SSM 73-24-12)
- (6) (WDM 31-62-11)
- (7) (WDM 31-62-21)
- (8) (WDM 73-22-11)
- (9) (WDM 73-24-12)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If only one of the maintenance messages 73-X1441 (DEU 2, Eng 1), or 73-X1442 (DEU 2, Eng 2) shows, then do the Fault Isolation Procedure - One EEC.
 - (c) If the maintenance messages 73-X1441 (DEU 2, Eng 1) and 73-X1442 (DEU 2, Eng 2) show, then do the Fault Isolation Procedure - Two EEC's.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - One EEC

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for maintenance messages 73-31611 or 73-31612.

EFFECTIVITY
SIA ALL

73-24 TASK 815

D633A103-SIA

Page 265
Oct 15/2021

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

- (b) If you do not find a message, then replace DEU 2 (the most likely LRU from the Possible Causes list).

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.
- 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If you find a message, then continue.
- (2) Prepare for the procedure:
 - (a) For Engine 1;
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2;
- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-24 TASK 815

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

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Examine the applicable electrical connector on the MW0304 (J4) wire harness at the EEC:
 - (a) See if the DP0404 (MW0304, J4) electrical connector is correctly connected to the EEC.
 - (b) Disconnect the DP0404 (MW0304, J4) electrical connector from the EEC.
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the applicable MW0304 (J4) wire harness.
 These are the tasks:
 Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
 Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (4) Get access to the E3-1 shelf in the EE bay and disconnect these connectors:
 - (a) D40448P, Eng 1
 - (b) D40394P, Eng 2
- (5) For the engine that reported the fault, do these steps:
 - (a) For Engine 1,
 Install a jumper between pins A2 and B2 of the D40448P electrical connector.
 - (b) For Engine 2,
 Install a jumper between pins A19 and B19 of the D40394P electrical connector.
- (6) Do a resistance check between these pins of the applicable wire harness connector, to examine the wires between the EEC and the terminal block TB3102:

Table 221

CONNECTOR DP0404	RESISTANCE
PINS z TO k	LESS THAN 10 OHMS

EFFECTIVITY
SIA ALL

73-24 TASK 815

D633A103-SIA

Page 267
Oct 15/2021

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

Table 221 (Continued)

CONNECTOR DP0404	RESISTANCE
PIN z TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then examine these wires between the applicable E3-1 shelf connector and terminal block TB3102:

Table 222

ENGINE	CONNECTOR	TERMINAL BLOCK
ENG 1	D40448J PIN A2	TB3102 ; PIN YB73
	D40448J PIN B2	TB3102 ; PIN YA73
ENG 2	D40394J PIN A19	TB3102 ; PIN YB73
	D40394J PIN B19	TB3102 ; PIN YA73

- (b) If no wire problem is found, then replace DEU 2 (the most likely LRU from the Possible Causes list).
- 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.
 - 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
- (c) If the resistance is not in the specified range, then continue.
- (7) Examine the applicable electrical connector on the MW0304 (J4) wire harness at the strut:
- (a) See if the DP0460 (J4) electrical connector is correctly connected to the strut.
 - (b) Disconnect the DP0460 (J4) electrical connector from the strut.
 - (c) Visually examine the strut receptacle Engine 1 [D30260] or Engine 2 [D30460] and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the applicable MW0304 (J4) wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation was not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-24 TASK 815

D633A103-SIA

Page 268
Oct 15/2021

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

- 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (8) Examine the resistance at these pins on the strut receptacle; Engine 1 [D30260 (J4)] or Engine 2 [D30460 (J4)]:

Table 223

RECEPTACLE	PINS	RESISTANCE
D30260 & D30460	PINS 2 TO 3	LESS THAN 10 OHMS
	PIN 2 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the applicable MW0304 (J4) wire harness.

These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then examine and repair the wires between the applicable strut receptacle and the terminal block TB3102.
 - 1) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Two EEC's

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for maintenance messages 73-31611 or 73-31612.
 - (b) If you do not find a message, then replace DEU 2 (the most likely LRU from the Possible Causes list).

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.
 - 2) If the Repair Confirmation is not satisfactory, then replace the other DEU.

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 Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - c) Do the Repair Confirmation at the end of this task.
 - (c) If you find a message, then continue.
- (2) Prepare for the procedure on each engine:
 - (a) For Engine 1,

EFFECTIVITY
SIA ALL

73-24 TASK 815

D633A103-SIA

Page 269
Oct 15/2021

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

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (b) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Get access to the E3-1 shelf in the EE bay and disconnect these connectors:
- (a) D40448P, Eng 1
- (b) D40394P, Eng 2
- (4) Install a jumper in these receptacles:
- (a) :For Engine 1,
Install a jumper between pins A2 and B2 of the D40448J electrical connector.
- (b) :For Engine 2
Install a jumper between pins A19 and B19 of the D40394J electrical connector.
- (5) Do a continuity check between these pins, to examine the wires between the DEU and the E3-1 shelf connectors:

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

- (a) Remove the DEU 2. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

Table 224

CONNECTOR	PINS	RESISTANCE
DEU 2 DP3975A	PIN J3 TO K3	LESS THAN 10 OHMS
	PIN J3 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (b) If the resistance is not in the specified range, then repair or replace the wires between TB3102 and the DEU wire harness connector.
- 1) Do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation was not satisfactory, then continue.
- (c) If the resistance is in the specified range, then replace the applicable DEU (the most likely LRU from the Possible Causes list).
- 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.
 - a) If the Repair Confirmation was not satisfactory, then continue.
- (d) If the fault continues, then replace the other DEU.
- 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.
 - a) If the Repair Confirmation was not satisfactory, then continue.
 - 2) If the fault continues, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that you removed the jumper electrical connectors on the E3-1 shelf.
 - (b) Make sure that the DP0460 (J4) electrical connector is connected to the receptacle in the strut.
 - (c) Make sure that the D40448P and D40394P electrical connectors are connected to the receptacles on the E3-1 shelf.
 - (d) Make sure that the DP0404 electrical connector is connected to the receptacle on the EEC.
 - (e) For Engine 1,

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

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (f) For Engine 2,

- 1) 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	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 (a) If the maintenance message does not show, then you corrected the fault.
 (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

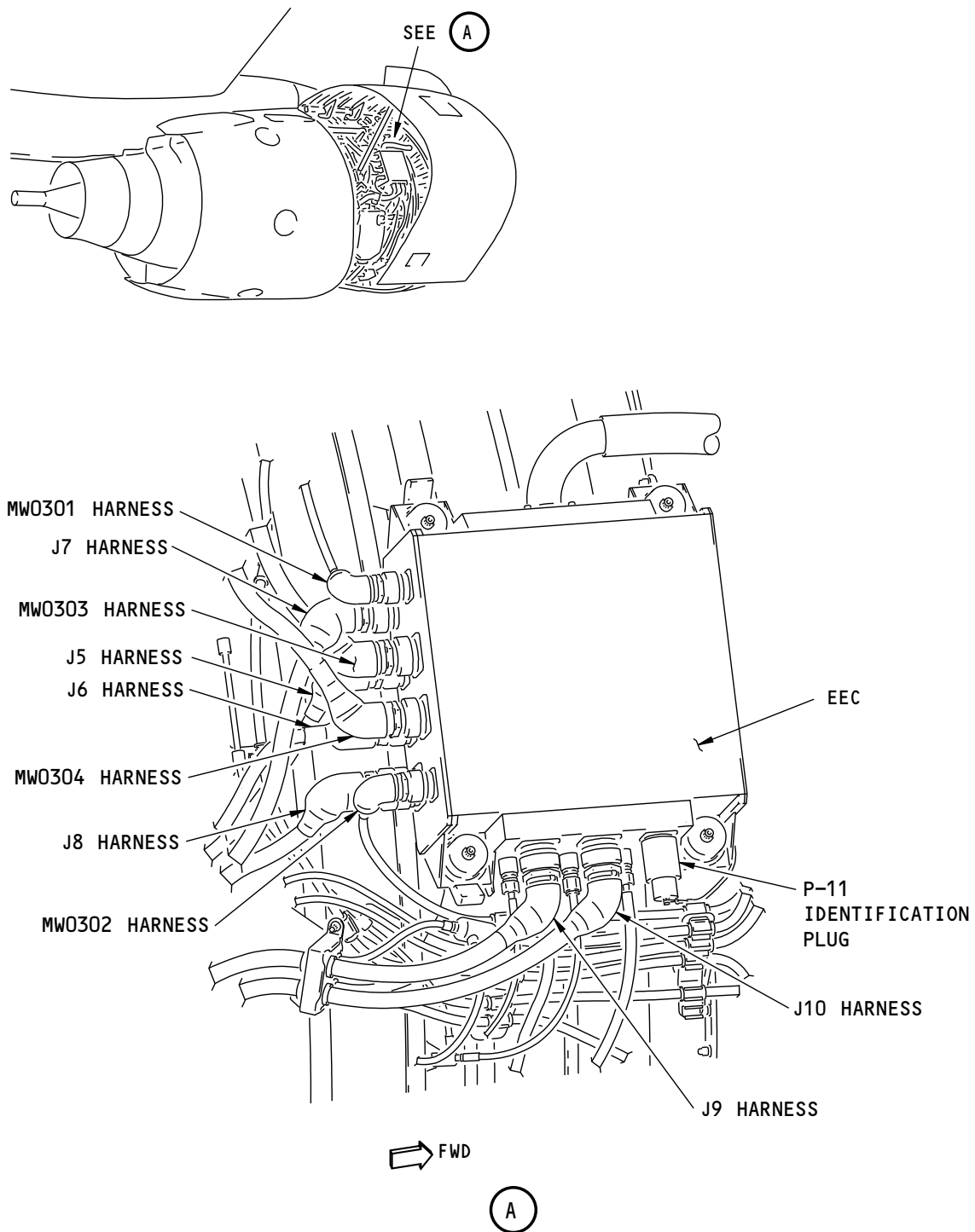
EFFECTIVITY
SIA ALL

73-24 TASK 815

D633A103-SIA

Page 272
Oct 15/2021

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



H35550 S0006745774_V1

Electronic Engine Control
Figure 301/73-24-00-990-801-F00

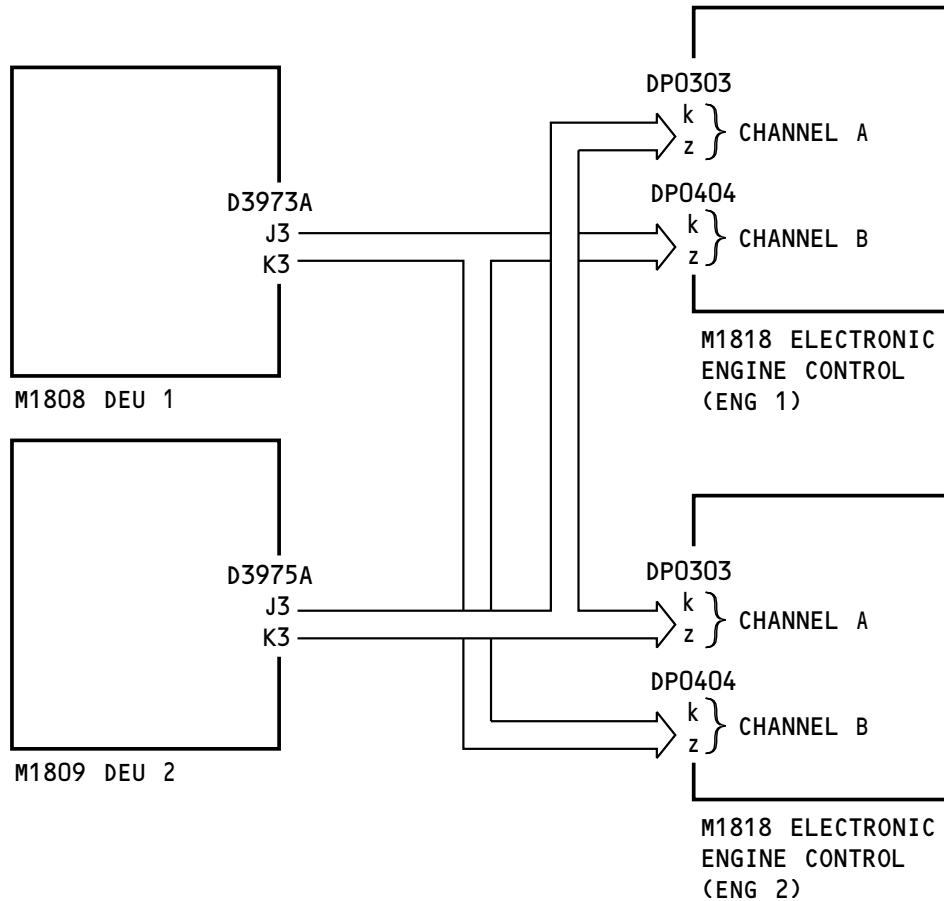
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H30995 S0006745775_V1

DEU to ECC (ARINC 429) Simplified Schematic
Figure 302/73-24-00-990-802-F00

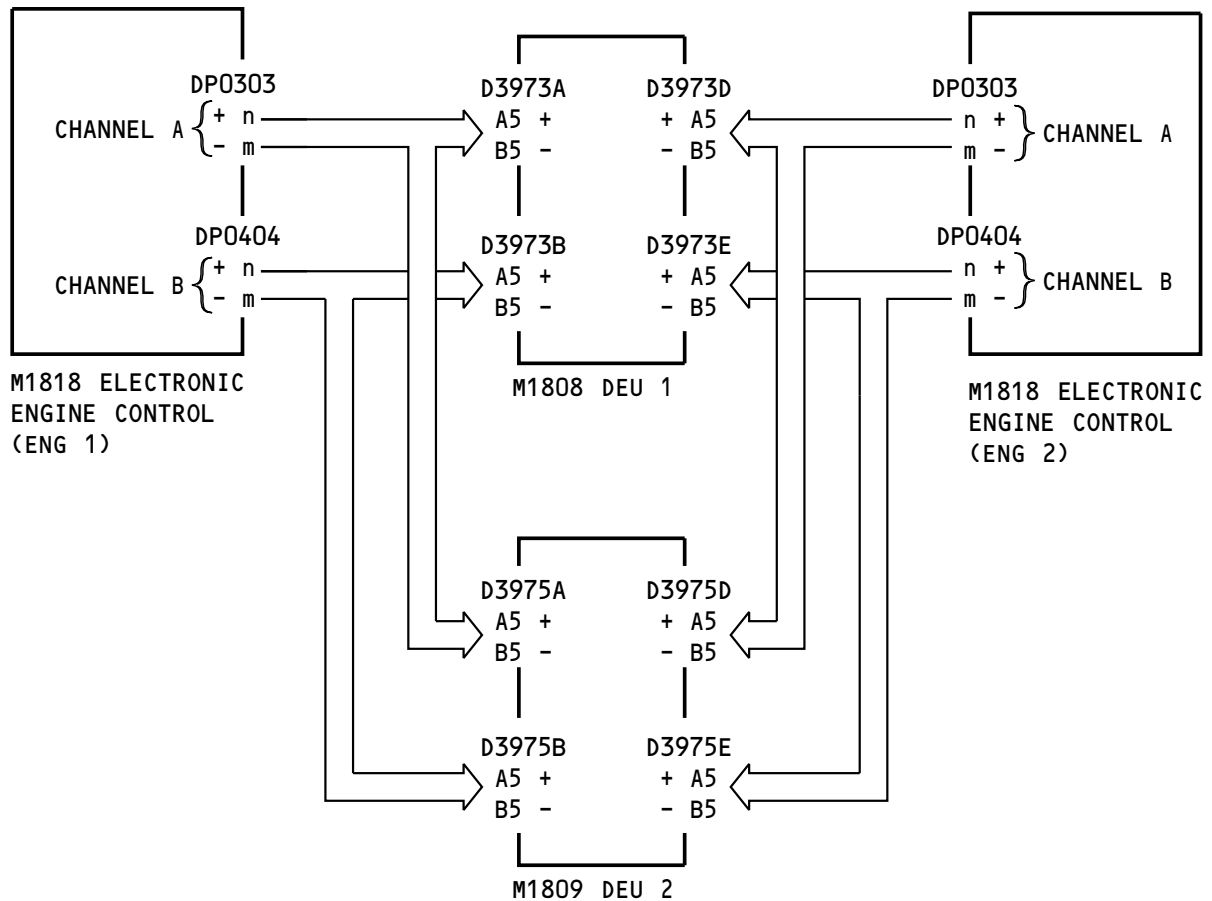
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H31037 S0006745776_V1

EEC to DEU (ARINC 429) Simplified Schematic
Figure 303/73-24-00-990-803-F00

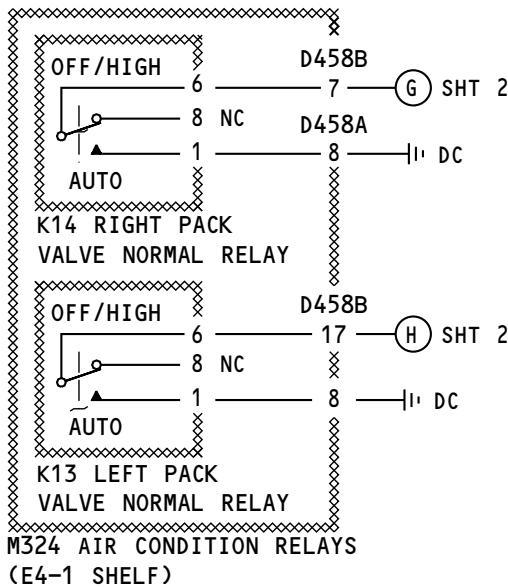
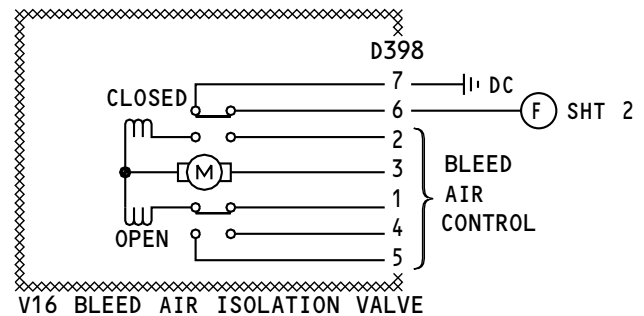
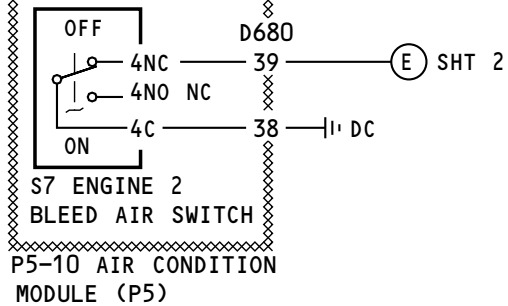
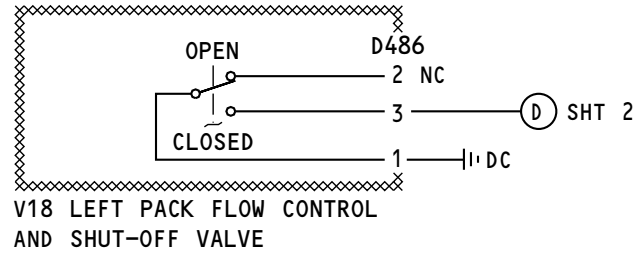
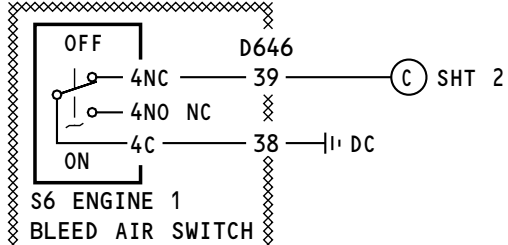
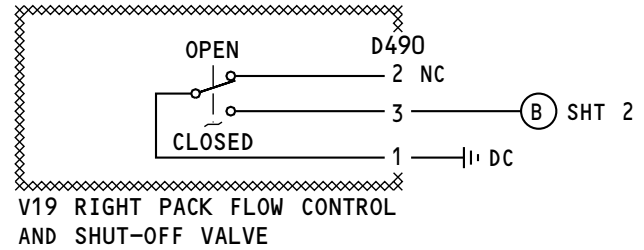
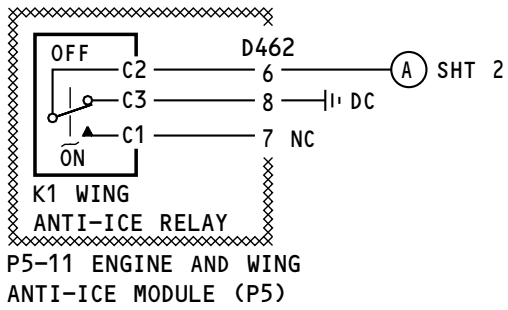
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73-24 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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



H34275 S0006745777_V1

Bleed Data to DEU Simplified Schematic
Figure 304/73-24-00-990-804-F00 (Sheet 1 of 2)

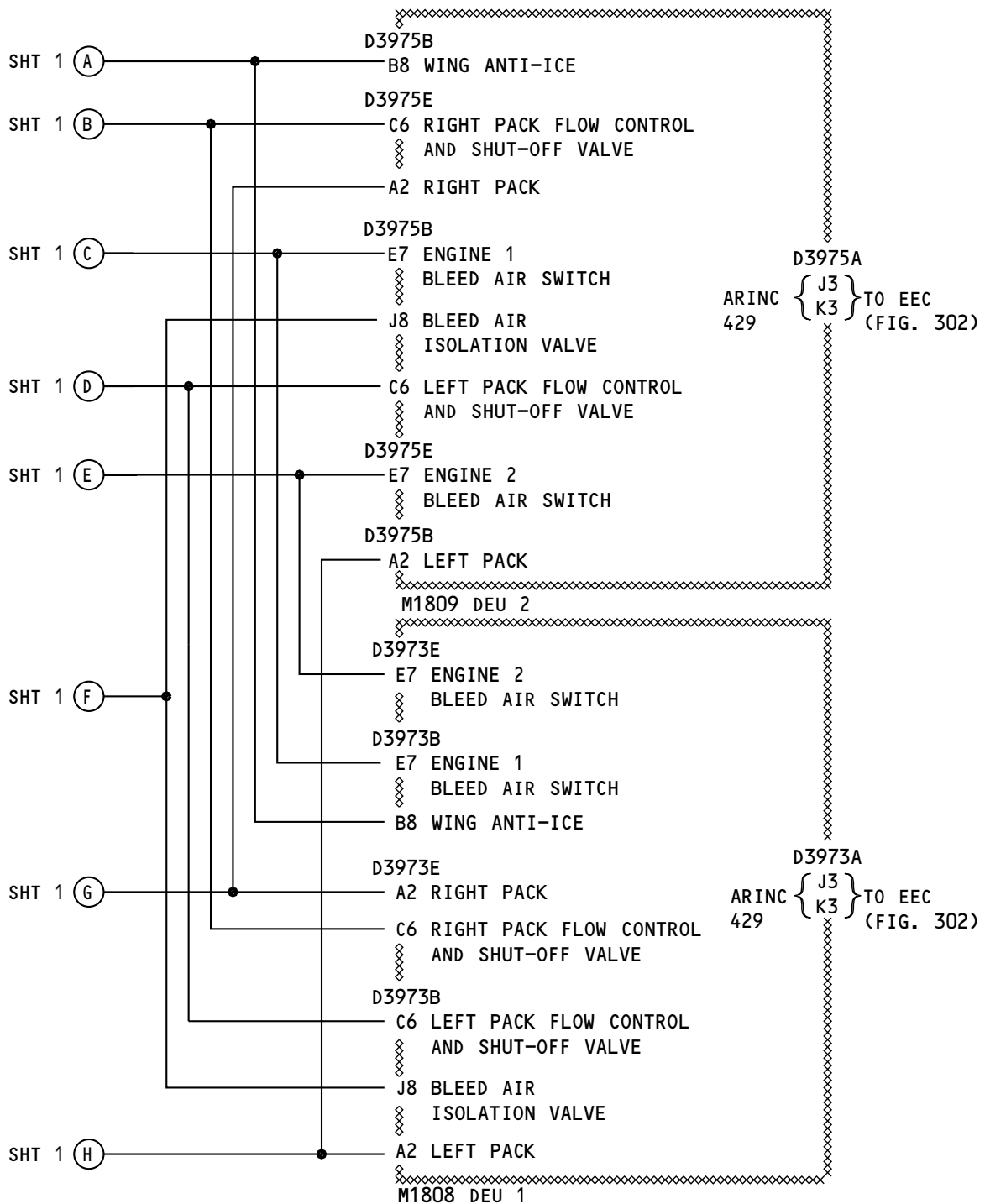
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 304
Oct 15/2021

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



H34279 S0006745778_V1

Bleed Data to DEU Simplified Schematic
Figure 304/73-24-00-990-804-F00 (Sheet 2 of 2)

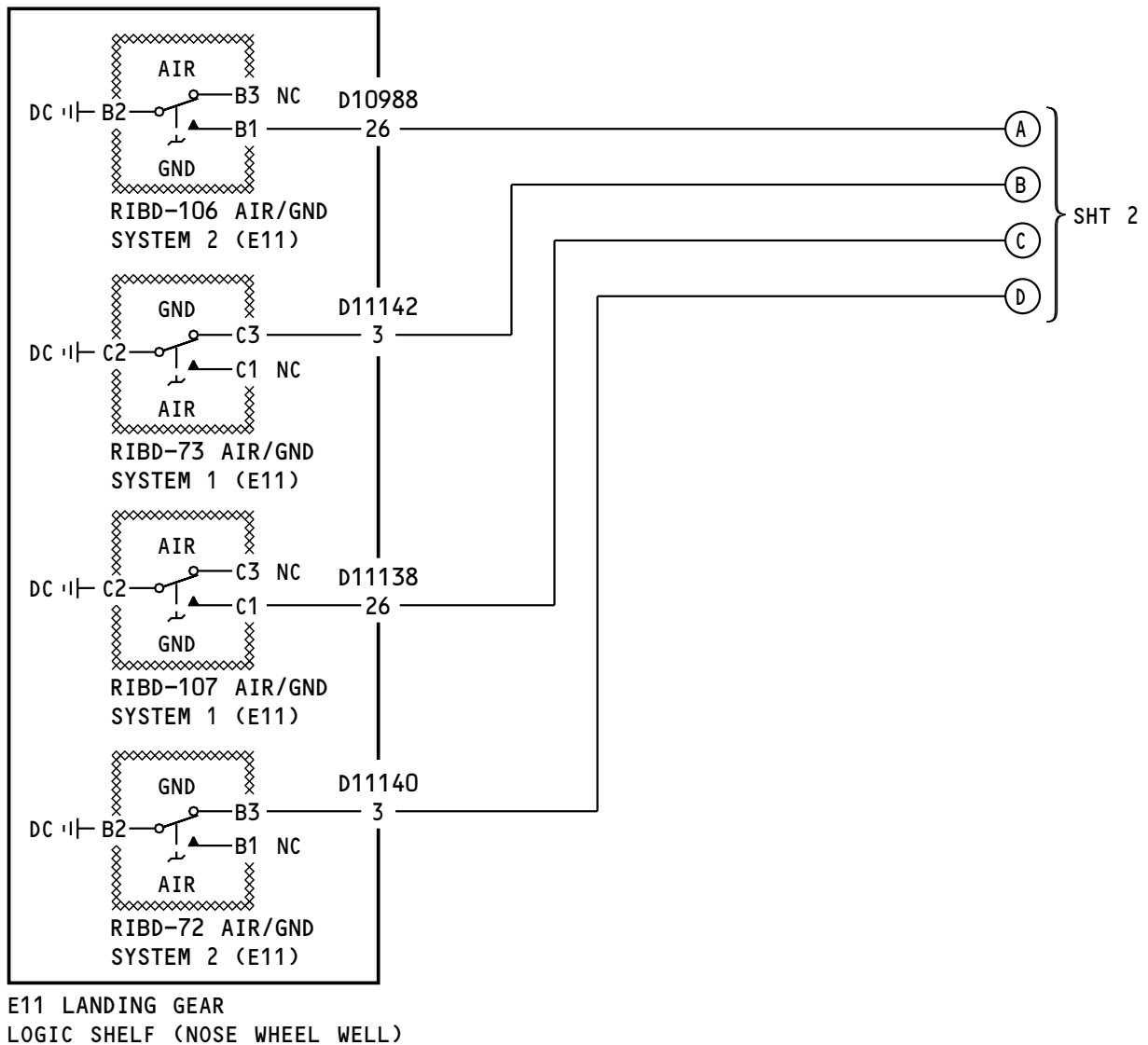
EFFECTIVITY
 SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 305
 Oct 15/2021

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



H35046 S0006745779_V1

Air/Ground Data to DEU Simplified Schematic
Figure 305/73-24-00-990-805-F00 (Sheet 1 of 2)

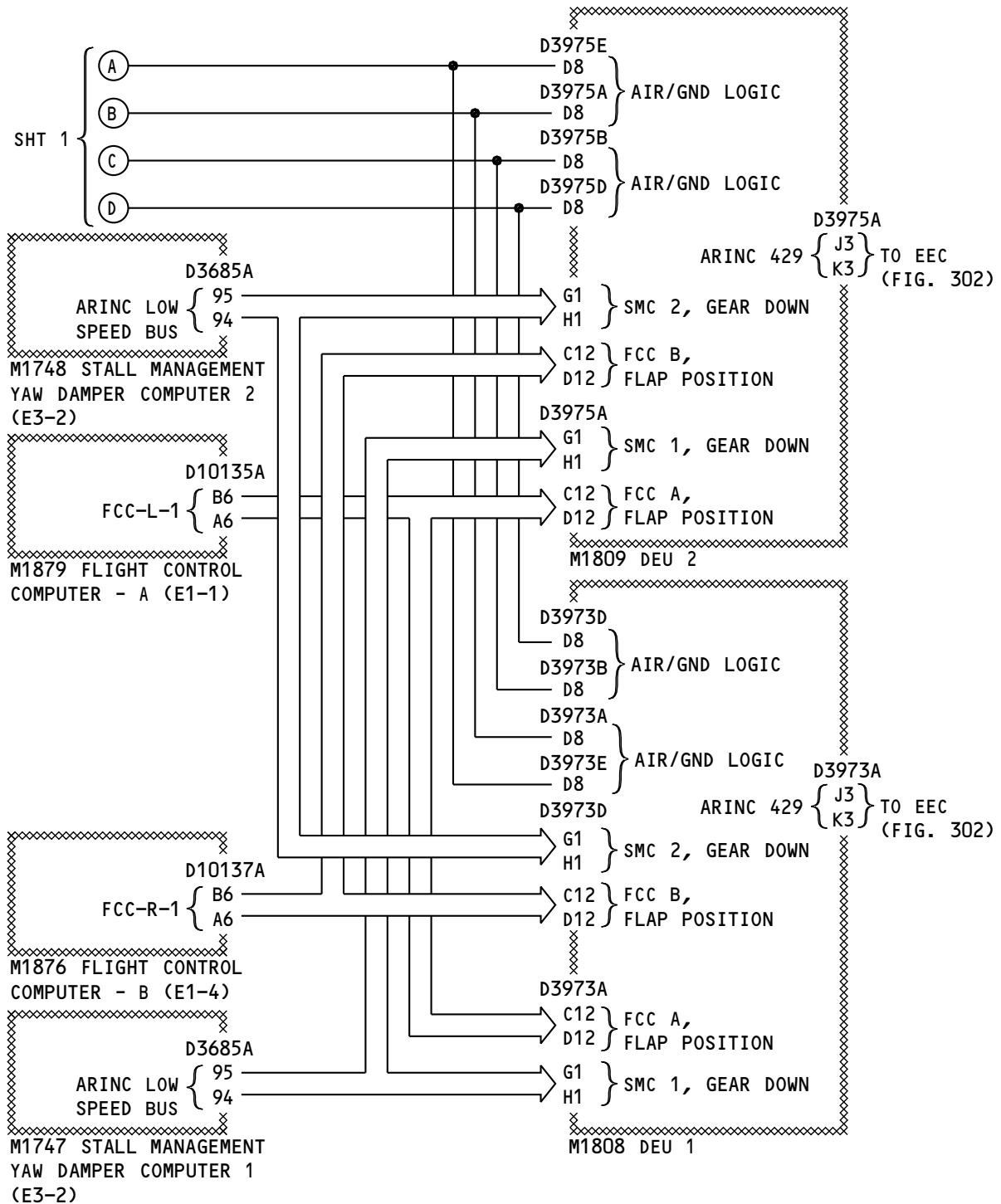
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 306
Oct 15/2021

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



H35048 S0006745780_V1

Air/Ground Data to DEU Simplified Schematic
Figure 305/73-24-00-990-805-F00 (Sheet 2 of 2)

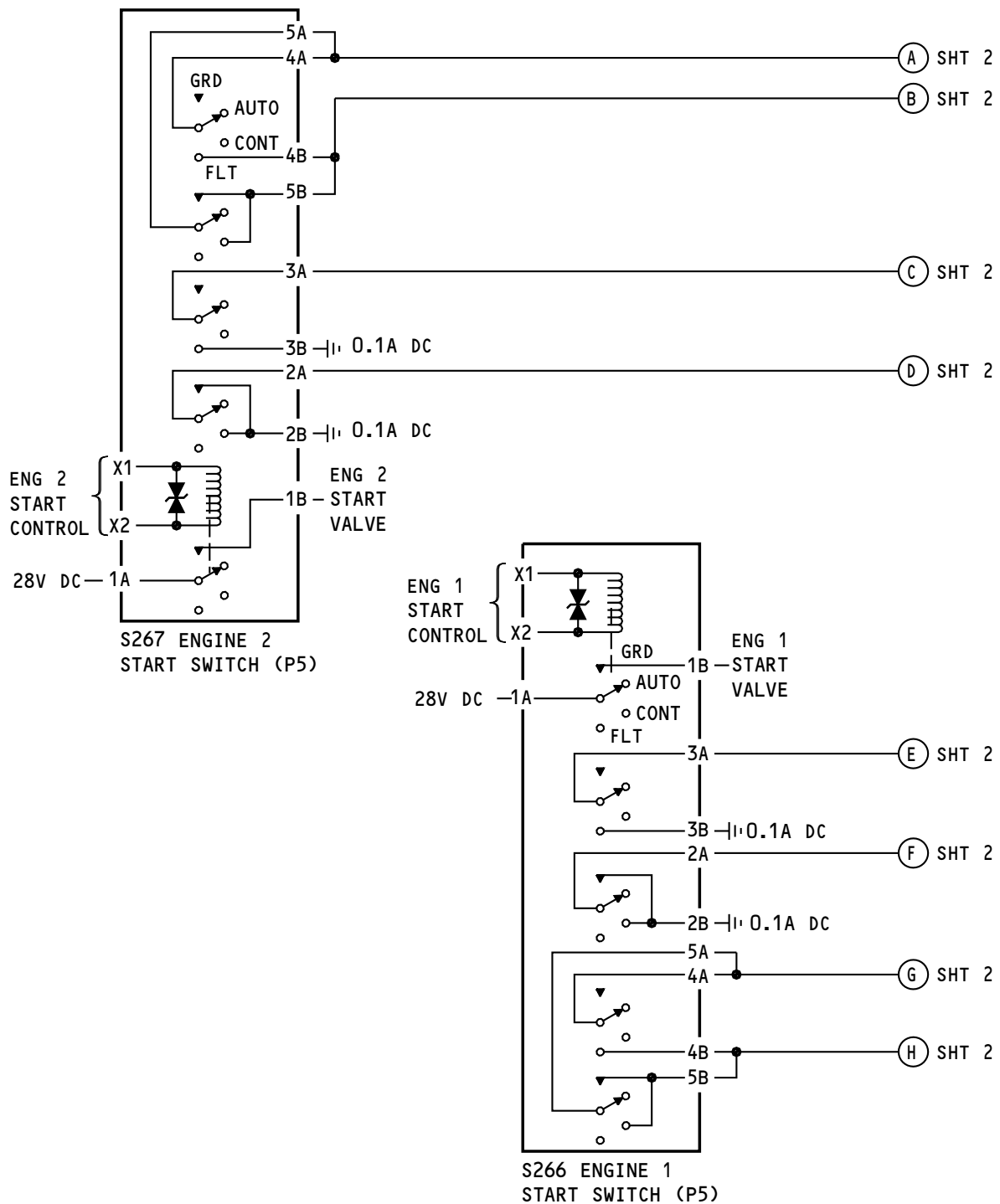
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 307
Oct 15/2021

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



M48587 S0006745785_V1

Start Switch Data to DEU and EEC Simplified Schematic
Figure 306/73-24-00-990-806-F00 (Sheet 1 of 2)

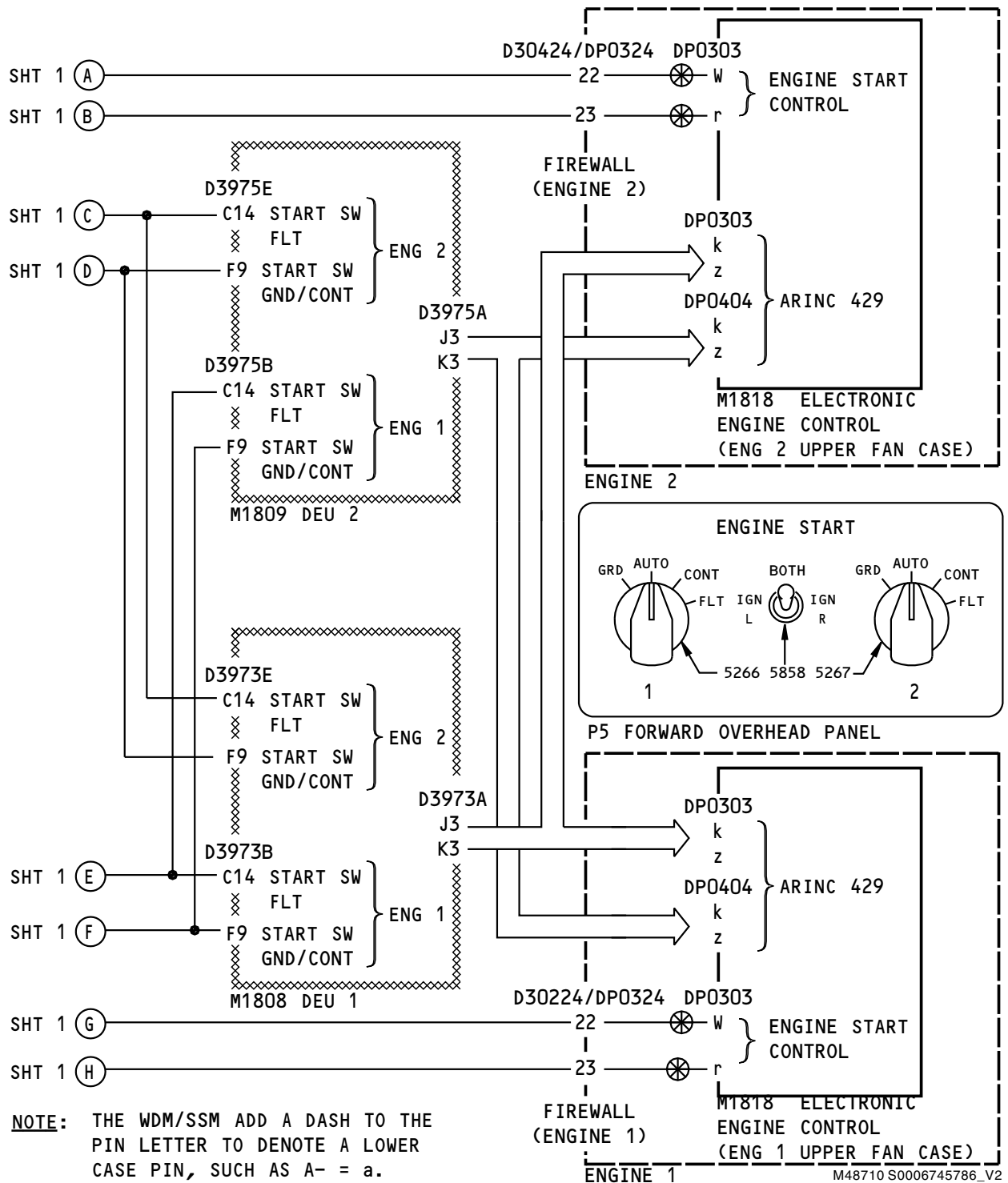
EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 308
Oct 15/2021

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



Start Switch Data to DEU and EEC Simplified Schematic
Figure 306/73-24-00-990-806-F00 (Sheet 2 of 2)

EFFECTIVITY
SIA ALL

73-24 TASK SUPPORT

D633A103-SIA

Page 309
Oct 15/2022

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

801. HMU/FMV Control Current is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10321, 73-10322, 73-20321, 73-20322, 73-30321, and 73-30322
 - (b) The maintenance messages 73-X032Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure for channel A and B.
 - (c) This fault is reported by the Electronic Engine Control (EEC) when the engine is in operation.
- (2) The EEC senses an open or short Hydro-Mechanical Unit (HMU) control circuit for Fuel Metering Valve (FMV) system control.
 - (a) The FMV is the fuel scheduling component in the HMU.

B. Possible Causes

- (1) HMU, M1823 (torque motor)
- (2) EEC, M1818
- (3) J5 (Ch A) or J6 (Ch B) wire harness.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-25 TASK SUPPORT Figure 301, 73-25 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-25 TASK SUPPORT Figure 303)
- (3) (SSM 73-25-11)

EFFECTIVITY
SIA ALL

73-25 TASK 801

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

- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - 1) If one of these maintenance messages, 73-10321 (Ch A, Eng 1), 73-10322 (Ch A, Eng 2), 73-20321 (Ch B, Eng 1), 73-20322 (Ch B, Eng 2) shows, then do the Fault Isolation Procedure below for applicable channel.
 - 2) If one of these maintenance messages, 73-30321 (Ch A and B, Eng 1) or 73-30322 (Ch A and B, Eng 2) shows, then do the Fault Isolation Procedure below for channel A and B.
 - (b) If the maintenance message does not show on the Flight Management Computer System (FMCS) Control Display Unit (CDU), then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) Do these steps to prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

EFFECTIVITY
SIA ALL

73-25 TASK 801

D633A103-SIA

Page 202
Oct 15/2023

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

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (2) Examine the DP0501 (Ch A) or DP0601 (Ch B) electrical connector at the HMU:

- (a) See if the DP0501 (Ch A) or DP0601 (Ch B) electrical connector is correctly connected to the HMU, and continue.
- (b) Disconnect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector from the HMU (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the HMU receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the HMU receptacle is damaged, then replace the HMU, M1823.

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If you did not find a problem, then continue.

- (3) Examine the resistance of these pins of the HMU receptacle, DP0501 (Ch A) or DP0601 (Ch B):

Table 201

RECEPTACLE DP0501 & DP0601

PINS 27 TO 28

PINS 27 TO 12

RESISTANCE

10 TO 21 OHMS

GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 801

D633A103-SIA

Page 203
Oct 15/2023

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

Table 201 (Continued)

RECEPTACLE DP0501 & DP0601	RESISTANCE
PIN 27 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the HMU, M1823.

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (b) If the resistance is in the specified range, then continue.

- (4) Connect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector to the HMU.

- (5) Examine the DP0505 (Ch A) or DP0606 (Ch B) electrical connector at the EEC:

NOTE: The DP0505 (Ch A) electrical connector is on the J5 wire harness. The DP0606 (Ch B) electrical connector is on the J6 wire harness.

- (a) See if the DP0505 (Ch A) or DP0606 (Ch B) electrical connector is correctly connected to the EEC, and continue.

- (b) Disconnect the DP0505 (Ch A) or DP0606 (Ch B) electrical connector from the EEC (WDM 73-25-11, WDM 73-25-21).

- (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If you did not find a problem, then continue.

EFFECTIVITY
SIA ALL

73-25 TASK 801

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

- (6) Measure the resistance between these pins to examine the wires between the applicable EEC connector, DP0505 (Ch A) or DP0606 (Ch B) on the wire harness through the HMU:

Table 202

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS J TO a	10 TO 21 OHMS
PIN J TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

- (b) If the resistance is not in the specified range, then replace the J5 (Ch A) or J6 (Ch B) wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

G. Repair Confirmation

- (1) Do these steps to prepare for the procedure:

- (a) Make sure the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors are correctly connected to the HMU.

- (b) Make sure the J5, DP0505 (Ch A) and J6, DP0606 (Ch B) electrical connectors are correctly connected to the EEC.

- (c) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-25 TASK 801

D633A103-SIA

Page 205
Oct 15/2023

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

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

802. FMV Demand and Position Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10331, 73-10332, 73-20331, 73-20332, 73-30331, and 73-30332
 - (b) The maintenance messages 73-X033Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, do the Fault Isolation Procedure - Single Channel Fault for the Ch A components.
 - 2) If X=2, do the Fault Isolation Procedure - Single Channel Fault for the Ch B components.
 - 3) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) This fault is reported on the active channel of the EEC while the engine is in operation.
- (2) The EEC senses a difference between the FMV demanded position and valid feedback from the two FMV resolver channels.
 - (a) The FMV is the fuel scheduling component in the HMU.
 - (b) The FMV resolver provides feedback of the FMV position.

B. Possible Causes

- (1) HMU, M1823
- (2) EEC, M1818
- (3) J5 (Ch A) or J6 (Ch B) wire harness

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

EFFECTIVITY
SIA ALL

73-25 TASKS 801-802

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-25 TASK SUPPORT Figure 301, 73-25 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-25 TASK SUPPORT Figure 303)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of the task.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Do these steps to prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the DP0501 (Ch A) or DP0601 (Ch B) electrical connectors at the HMU:
 - (a) See if the DP0501 (Ch A) or DP0601 (Ch B) electrical connector is correctly connected to the HMU.

EFFECTIVITY
SIA ALL

73-25 TASK 802

D633A103-SIA

Page 207
Oct 15/2023

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

- (b) Disconnect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector from the HMU (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the HMU receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the HMU receptacle is damaged, then replace the HMU, M1823.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (3) Examine the resistance of these pins of the HMU receptacle, DP0501 (Ch A) or DP0601 (Ch B):

Table 203

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 27 TO 28	10 TO 21 OHMS
PINS 27 TO 12	GREATER THAN 10 MEGOHMS
PIN 27 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the HMU, M1823.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (b) If the resistance is in the specified range, then continue.
- (4) Re-connect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector to the HMU.

EFFECTIVITY
SIA ALL

73-25 TASK 802

D633A103-SIA

Page 208
Oct 15/2023

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

- (5) Examine the DP0505 (Ch A) or DP0606 (Ch B) electrical connector at the EEC:

NOTE: The DP0505 (Ch A) electrical connector is on the J5 wire harness. The DP0606 (Ch B) electrical connector is on the J6 wire harness.

- (a) See if the DP0505 (Ch A) or DP0606 (Ch B) electrical connector is correctly connected to the EEC, and continue.
- (b) Disconnect the DP0505 (Ch A) or DP0606 (Ch B) electrical connector from the EEC (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If you did not find a problem, then continue.

- (6) Measure the resistance between these pins of the applicable EEC connector, DP0505 (Ch A) or DP0606 (Ch B) on the wire harness through the HMU:

Table 204

CONNECTOR DP0505 DP0606	RESISTANCE
PINS J TO a	10 TO 21 OHMS
PIN J TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-25 TASK 802

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

- 2) If the Repair Confirmation is not satisfactory, then replace the HMU, M1823 (the most likely Line Replaceable Unit (LRU) from the Possible Causes).

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

- (b) If the resistance is not in the specified range, then replace the wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Replace the HMU, M1823 (the most likely LRU from the Possible Causes).

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

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

- (b) If the problem continues, then replace the subsequent LRU from the Possible Causes list.

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

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:

- (a) Make sure the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors are correctly connected to the HMU.

- (b) Make sure the J5, DP0505 (Ch A) and J6, DP0606 (Ch B) electrical connectors are correctly connected to the EEC.

- (c) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-25 TASK 802

D633A103-SIA

Page 210
Oct 15/2023

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

- (e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Examine the operation of the HMU/FMV:
 - (a) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - 1) Look for the maintenance message in Flight Leg 0.
 - (b) If the maintenance message does not show, then you corrected the fault.

— END OF TASK —

803. FMV Position Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10341, 73-10342, 73-20341, 73-20342, 73-30341, and 73-30342.
 - (b) The maintenance messages 73-X034Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, do the Fault Isolation Procedure for the channel A.
 - 2) If X=2, do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure for channel A and B.
 - (c) This fault is reported when the EEC has electrical power.
- (2) The EEC senses that the FMV resolver position signal is out of range.
 - (a) The FMV resolver generates two position signals that are transmitted to the EEC by the HMU.
- (3) Full Authority Digital Engine Control (FADEC) 2; Channel A and Channel B;
 - (a) Also, because the Channel A excitation circuit for the FMV position Linear Variable Differential Transducer (LVDT), High Pressure Turbine Active Clearance Control (HPTACC) position LVDT and the Thrust Reverser Right (TRR) position LVDT are from a common source in the EEC, a short in one of the three excitation circuits can set Channel A fault messages for all three systems.
 - (b) Also, because the Channel B excitation circuit for the FMV position LVDT, HPTACC position LVDT and the Thrust Reverser Left (TRL) position LVDT are from a common source in the EEC, a short in one of the three excitation circuits can set Channel B fault messages for all three systems.
- (4) FADEC 3; Channel A and Channel B;

Also, because the Channel A and Channel B excitation circuit for the Variable Stator Vane (VSV) position LVDT, the Variable Bleed Valve (VBV) position LVDT and the FMV position LVDT are from a common source in the EEC, a short in one of the three excitation circuits can set Channel A or Channel B fault messages for all three systems.

B. Possible Causes

- (1) HMU, M1823
- (2) EEC, M1818
- (3) J5 (Ch A) or J6 (Ch B) wire harness.

EFFECTIVITY
SIA ALL

73-25 TASKS 802-803

D633A103-SIA

Page 211
Oct 15/2023

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

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-25 TASK SUPPORT Figure 301, 73-25 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-25 TASK SUPPORT Figure 303)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) To find the FADEC version, do this task FADEC 2 or FADEC 3 Identification, AMM TASK 73-21-00-700-810-F00.
- (2) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) FADEC 2:

If two or more of the maintenance messages in the groups of maintenance messages listed below also show, then do the applicable Fault Isolation Procedure.

NOTE: These messages can be caused by a short in the excitation circuit for the LVDT for the HPTACC, the FMV, the TRL and the TRR. For more information see the Description section.

- 1) 73-10341, 73-10361, 75-10491 and 78-11491 (Engine 1, Ch A).
 - a) Do this task: FADEC2 (Ch A) Excitation Group 2: FMV, HPTC and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 807.
- 2) 73-10342, 73-10362, 75-10492 and 78-11492 (Engine 2, Ch A).
 - a) Do this task: FADEC2 (Ch A) Excitation Group 2: FMV, HPTC and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 807.

EFFECTIVITY
SIA ALL

73-25 TASK 803

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

- 3) 73-20341, 75-20391 and 78-21481 (Engine 1, Ch B).
 - a) Do this task: FADEC2 (Ch B) Excitation Group 4: HPTC, TBV and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 808.

- 4) 73-20342, 75-20392 and 78-21482 (Engine 2, Ch B).

- a) Do this task: FADEC2 (Ch B) Excitation Group 4: HPTC, TBV and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 808.

- (b) FADEC 3;

If two or more of the maintenance messages in the groups of maintenance messages listed below also show, then do the applicable Fault Isolation Procedure.

NOTE: These messages can be caused by a short in the excitation circuit for the LVDT for the VSV, the FMV and the Transient Bleed Valve (TBV). For more information see the Description section.

- 1) 75-10391, 75-10441 and 73-10341 (Engine 1, Ch A)

- a) Do this task: FADEC3 (Ch A) Excitation Group 2: VSV, VBV and FMV (Channel A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 817.

- 2) 75-10392, 75-10442 and 73-10342 (Engine 2, Ch A).

- a) Do this task: FADEC3 (Ch A) Excitation Group 2: VSV, VBV and FMV (Channel A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 817.

- 3) 75-20391, 75-20441 and 73-20341 (Engine 1, Ch B)

- a) Do this task: FADEC3 (Ch B) Excitation Group 2: VSV, VBV and FMV (Channel B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 819.

- 4) 75-20392, 75-20442 and 73-20342 (Engine 2, Ch B).

- a) Do this task: FADEC3 (Ch B) Excitation Group 2: VSV, VBV and FMV (Channel B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 819.

- (3) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.

- (a) If message number 73-10341, 73-10342, 73-20341, 73-20342, 73-30341 or 73-30342 shows, then do the Fault Isolation Procedure below.

- (b) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.

- 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.

- 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.

- 3) If you will try to correct the fault, it is recommended that you do these steps:

- a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

- b) Use the Wiring Diagram Manual (WDM) references to identify intermediate electrical connections in the wire harness and do a visual check.

- c) If you find no problems, then replace components as listed in the Possible Causes list above.

- 4) Monitor the airplane on the subsequent flight.

EFFECTIVITY
SIA ALL

73-25 TASK 803

D633A103-SIA

Page 213
Oct 15/2023

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

F. Fault Isolation Procedure

- (1) Do the Initial Evaluation to see if there is a fault in the excitation circuit.

NOTE: Refer to the Description section for more information.

- (2) Do these steps to prepare for the procedure:

- (a) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (3) Examine the DP0501 (Ch A) or DP0601 (Ch B) electrical connectors at the HMU:

- (a) See if the DP0501 (Ch A) or DP0601 (Ch B) electrical connector is correctly connected to the HMU, and continue.
- (b) Disconnect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector from the HMU (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the HMU receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the HMU receptacle is damaged, then replace the HMU, M1823. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the Circuit Breakers above and continue.
 - 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:
 - Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-25 TASK 803

D633A103-SIA

Page 214
Oct 15/2023

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

- (d) If you did not find a problem, then continue.
- (4) Examine the resistance of these pins of the HMU receptacle, DP0501 (Ch A) or DP0601 (Ch B):

SIA ALL PRE SB 737-CFM56-7B-73-0172

Table 205

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 16 TO 34	36 TO 91 OHMS
PINS 35 TO 36	25 TO 84 OHMS
PINS 18 TO 37	25 TO 84 OHMS
PINS 16 TO 17	GREATER THAN 10 MEGOHMS
PINS 16 TO 18	GREATER THAN 10 MEGOHMS
PINS 16 TO 35	GREATER THAN 10 MEGOHMS
PINS 35 TO 17	GREATER THAN 10 MEGOHMS
PINS 18 TO 17	GREATER THAN 10 MEGOHMS
PIN 16 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 18 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 35 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL POST SB 737-CFM56-7B-73-0172

Table 206

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 16 TO 34	44 TO 90 OHMS
PINS 35 TO 36	130 TO 230 OHMS
PINS 18 TO 37	130 TO 230 OHMS
PINS 16 TO 17	GREATER THAN 10 MEGOHMS
PINS 16 TO 18	GREATER THAN 10 MEGOHMS
PINS 16 TO 35	GREATER THAN 10 MEGOHMS
PINS 35 TO 17	GREATER THAN 10 MEGOHMS
PINS 18 TO 17	GREATER THAN 10 MEGOHMS
PIN 16 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 18 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 35 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL

- (a) If the resistance is not in the specified range, then replace the HMU, M1823. These are the tasks:
- HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00

EFFECTIVITY
SIA ALL

73-25 TASK 803

D633A103-SIA

Page 215
Oct 15/2023

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

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the Circuit Breakers above and continue.
 - (b) If the resistance is in the specified range, then continue.
 - (c) Re-connect the DP0501 (Ch A) or DP0601 (Ch B) electrical connector to the HMU.
- (5) Examine the DP0505 (Ch A) or DP0606 (Ch B) electrical connector at the EEC:

NOTE: The DP0505 (Ch A) electrical connector is on the J5 wire harness. The DP0606 (Ch B) electrical connector is on the J6 wire harness.

 - (a) See if the DP0505 (Ch A) or DP0606 (Ch B) electrical connector is correctly connected to the EEC, and continue.
 - (b) Disconnect the DP0505 (Ch A) or DP0606 (Ch B) electrical connector from the EEC (WDM 73-25-11, WDM 73-25-21).
 - (c) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:
 - Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If the connector was not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.
 - (d) If you did not find a problem, then continue.
 - (6) Measure the resistance at these pins of the applicable EEC connector, DP0505 (Ch A) or DP0606 (Ch B), on the wire harness through the HMU:

SIA ALL PRE SB 737-CFM56-7B-73-0172

Table 207

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS T TO U	36 TO 91 OHMS
PINS C TO V	25 TO 84 OHMS
PINS A TO B	25 TO 84 OHMS
PINS T TO A	GREATER THAN 10 MEGOHMS
PINS T TO C	GREATER THAN 10 MEGOHMS
PIN T TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN A TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN C TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 803

D633A103-SIA

Page 216
Oct 15/2023

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

SIA ALL POST SB 737-CFM56-7B-73-0172

Table 208

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS T TO U	44 TO 90 OHMS
PINS C TO V	130 TO 230 OHMS
PINS A TO B	130 TO 230 OHMS
PINS T TO A	GREATER THAN 10 MEGOHMS
PINS T TO C	GREATER THAN 10 MEGOHMS
PIN T TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN A TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN C TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then do one of these steps:

NOTE: Because an excitation circuit fault in a different system can set this fault, the replacement of the EEC will not necessarily correct this fault.

- 1) Replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.

- 2) FADEC 2;

Do the applicable LVDT Excitation Circuit fault isolation for the applicable channel

- a) For Channel A;

Do this task: FADEC2 (Ch A) Excitation Group 2: FMV, HPTC and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 807.

- b) For Channel B;

Do this task: FADEC2 (Ch B) Excitation Group 4: HPTC, TBV and T/R R Sleeve LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 808.

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

- 3) FADEC 3;

Do the applicable LVDT Excitation Circuit fault isolation for the applicable channel

- a) For Channel A;

Do this task: FADEC3 (Ch A) Excitation Group 2: VSV, VBV and FMV (Channel A) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 817.

- b) For Channel B;

Do this task: FADEC3 (Ch B) Excitation Group 2: VSV, VBV and FMV (Channel B) LVDT Excitation Circuit Fault - Fault Isolation, 75-34 TASK 819.

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

- (b) If the resistance is not in the specified range, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:

EFFECTIVITY
SIA ALL

73-25 TASK 803

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

- Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
- 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors are correctly connected to the HMU.
 - (b) Make sure the J5, DP0505 (Ch A) and J6, DP0606 (Ch B) electrical connectors are correctly connected to the EEC.
 - (c) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
 - (b) If the maintenance message still shows, open the circuit breakers above and continue the Fault Isolation Procedure at the subsequent step.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

804. FMV Position Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10351, 73-10352, 73-20351, 73-20352, 73-30351, and 73-30352.
 - (b) The maintenance messages 73-X035Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure - Single Channel Fault for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure - Single Channel Fault for channel B.

EFFECTIVITY
SIA ALL

73-25 TASKS 803-804

D633A103-SIA

Page 218
Oct 15/2021

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

- 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
- (c) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, then there is an internal EEC problem.
- (d) This fault is reported when the EEC has electrical power.
- (2) The EEC senses that the FMV resolver position signals from channel A and channel B disagree by more than 2%.
 - (a) The FMV resolver position signals from channel A and channel B are in a valid range.
 - (b) The FMV Resolver generates two position signals that are transmitted to the EEC by the HMU.

B. Possible Causes

- (1) For a Single Channel Fault,
 - (a) Internal EEC failure, M1818
 - (b) HMU, M1823.
- (2) For a Dual Channel Fault,
 - (a) HMU, M1823
 - (b) EEC, M1818
 - (c) J5 (Ch A) or J6 (Ch B) wire harness.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-25 TASK SUPPORT Figure 301, 73-25 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-25 TASK SUPPORT Figure 303)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)

EFFECTIVITY
SIA ALL

73-25 TASK 804

D633A103-SIA

Page 219
Oct 15/2021

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

- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
 - (a) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (b) If message number 73-10351 (Ch A, Eng 1), 73-10352 (Ch A, Eng 2), 73-20351 (Ch B, Eng 1), or 73-20352 (Ch B, Eng 2) shows, then do the Fault Isolation Procedure - Single Channel Fault.
 - (c) If message number 73-30351 (Ch A and B, Eng 1) or 73-30352 (Ch A and B, Eng 2) shows, then do the Fault Isolation Procedure - Dual Channel Fault.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) Look for INTERNAL EEC FAULTs.
 - (b) Do the Fault Isolation Procedures for the INTERNAL EEC FAULT messages first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (c) If you did not find an INTERNAL EEC FAULT message, then do the Fault Isolation Procedure - Dual Channel Fault for the applicable channel.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do these steps to prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-25 TASK 804

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

- (b) For Engine 2,
1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Examine the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors at the HMU:
- (a) See if the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors are correctly connected to the HMU, and continue.
- (b) Disconnect the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors from the HMU (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the HMU receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
- 1) If a HMU receptacle is damaged, then replace the HMU, M1823. These are the tasks:
- HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
- a) Do the Repair Confirmation at the end of this task.
- 2) If a harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:
- Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
- a) Do the Repair Confirmation at the end of this task.
- 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
- (d) If you did not find a problem, then continue.
- (3) Examine the resistance of these pins of the HMU receptacle, DP0501 (Ch A) and DP0601 (Ch B):

SIA ALL PRE SB 737-CFM56-7B-73-0172

Table 209

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 16 TO 34	36 TO 91 OHMS
PINS 35 TO 36	25 TO 84 OHMS
PINS 18 TO 37	25 TO 84 OHMS
PINS 16 TO 17	GREATER THAN 10 MEGOHMS
PINS 16 TO 18	GREATER THAN 10 MEGOHMS
PINS 16 TO 35	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 804

D633A103-SIA

Page 221
Oct 15/2023

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

SIA ALL PRE SB 737-CFM56-7B-73-0172 (Continued)

Table 209 (Continued)

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 35 TO 17	GREATER THAN 10 MEGOHMS
PINS 18 TO 17	GREATER THAN 10 MEGOHMS
PINS 27 TO 28	10 TO 21 OHMS
PIN 16 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 18 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 35 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL POST SB 737-CFM56-7B-73-0172

Table 210

RECEPTACLE DP0501 & DP0601	RESISTANCE
PINS 16 TO 34	44 TO 90 OHMS
PINS 35 TO 36	130 TO 230 OHMS
PINS 18 TO 37	130 TO 230 OHMS
PINS 16 TO 17	GREATER THAN 10 MEGOHMS
PINS 16 TO 18	GREATER THAN 10 MEGOHMS
PINS 16 TO 35	GREATER THAN 10 MEGOHMS
PINS 35 TO 17	GREATER THAN 10 MEGOHMS
PINS 18 TO 17	GREATER THAN 10 MEGOHMS
PIN 16 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 18 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 35 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL

- (a) If the resistance is not in the specified range, then replace the HMU, M1823. These are the tasks:
 - HMU Removal, AMM TASK 73-21-10-000-801-F00
 - HMU Installation, AMM TASK 73-21-10-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is in the specified range, then continue.
- (c) Connect the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors to the HMU.
- (4) Examine the DP0505 (Ch A) and DP0606 (Ch B) electrical connectors at the EEC:

NOTE: The DP0505 (Ch A) electrical connector is on the J5 wire harness. The DP0606 (Ch B) electrical connector is on the J6 wire harness.

 - (a) See if the DP0505 (Ch A) and DP0606 (Ch B) electrical connectors are correctly connected to the EEC, and continue.

 EFFECTIVITY
SIA ALL
73-25 TASK 804

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

- (b) Disconnect the DP0505 (Ch A) and DP0606 (Ch B) electrical connectors from the EEC (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the EEC receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
- 1) If a EEC receptacle is damaged, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If a harness connector is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:
 - Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
 - a) Do the Repair Confirmation at the end of the task.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
- (d) If you did not find a problem, then continue.
- (5) Measure the resistance at these pins of the applicable EEC connector, DP0505 (Ch A) or DP0606 (Ch B), on the wire harness through the HMU:

SIA ALL PRE SB 737-CFM56-7B-73-0172

Table 211

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS T TO U	36 TO 91 OHMS
PINS C TO V	25 TO 84 OHMS
PINS A TO B	25 TO 84 OHMS
PINS T TO A	GREATER THAN 10 MEGOHMS
PINS T TO C	GREATER THAN 10 MEGOHMS
PIN T TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN A TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN C TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL POST SB 737-CFM56-7B-73-0172

Table 212

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS T TO U	44 TO 90 OHMS
PINS C TO V	130 TO 230 OHMS
PINS A TO B	130 TO 230 OHMS
PINS T TO A	GREATER THAN 10 MEGOHMS
PINS T TO C	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 804

D633A103-SIA

Page 223
Oct 15/2023

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

SIA ALL POST SB 737-CFM56-7B-73-0172 (Continued)

Table 212 (Continued)

CONNECTOR DP0505 & DP0606	RESISTANCE
PIN T TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN A TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN C TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then replace the wire harness, J5 (Ch A) or J6 (Ch B). These are the tasks:
 - Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00
 - Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure the DP0501 (Ch A) and DP0601 (Ch B) electrical connectors are correctly connected to the HMU.
 - (b) Make sure the J5, DP0505 (Ch A) and J6, DP0606 (Ch B) electrical connectors are correctly connected to the EEC.
 - (c) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.

EFFECTIVITY
SIA ALL

73-25 TASK 804

D633A103-SIA

Page 224
Oct 15/2021

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

- (a) If the maintenance message does not show, then you corrected the fault.
- (b) If the maintenance message still shows, open the circuit breakers above and continue the Fault Isolation Procedure at the subsequent step.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

805. Mechanical Overspeed Protection Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11161, 73-11162, 73-21161, 73-21162, 73-31161 and 73-31162
 - (b) The maintenance messages 73-X116Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure - Single Channel Fault for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure - Single Channel Fault for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, then there is an internal EEC problem.
 - (d) This fault is detected during start and reported when the EEC has electrical power.
- (2) The EEC senses that the mechanical overspeed governor in the HMU does not turn. This is a single signal, on Channel A, that goes to two channels internally in the EEC.
 - (a) There is an internal HMU switch that is closed when N2 is at low speeds and zero, then opens when the engine reaches idle.

B. Possible Causes

- (1) For the single channel maintenance messages:
 - (a) EEC, M1818
- (2) For the dual channel maintenance messages:
 - (a) HMU, M1823
 - (b) EEC, M1818
 - (c) J5 harness

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,

EFFECTIVITY
SIA ALL

73-25 TASKS 804-805

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

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-25 TASK SUPPORT Figure 301, 73-25 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-25 TASK SUPPORT Figure 303)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended. If you want to find if the fault is active, you must open and close the circuit breakers that supply power to the EEC before the engine run.

NOTE: An engine run is necessary for the Repair Confirmation at the end of the task.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do these steps to prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

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

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (2) Visually examine the DP0501 connection at the HMU, M1823:

- (a) See if the DP0501 (J5) electrical connector is correctly installed on the HMU, and continue.
- (b) Disconnect the DP0501 electrical connector from the HMU (WDM 73-25-11, WDM 73-25-21).
- (c) Visually examine the HMU receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the HMU receptacle is damaged, then replace the HMU, M1823.

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If the J5 wire harness connector is damaged, then replace the wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If no problem is found, then continue.

- (3) Do a resistance check of the HMU at these pins on the HMU receptacle, DP0501:

Table 213

RECEPTACLE DP0501	RESISTANCE
PINS 21 TO 41	LESS THAN 5 OHMS
PIN 21 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 41 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 805

D633A103-SIA

Page 227
Oct 15/2023

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

- (a) If the resistance is not in the specified range, then replace the HMU, M1823.

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

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

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (b) If the resistance is in the specified range, then continue.

- (4) Do not re-install the DP0501 connector to the HMU at this time.

- (5) Visually examine the DP0505 connection at the EEC, M1818:

- (a) See if the DP0505 (J5) electrical connector is correctly connected on the EEC, and continue.

- (b) Disconnect the DP0505 electrical connector from the EEC (WDM 73-25-11, WDM 73-25-21).

- (c) Visually examine the EEC receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If the J5 wire harness connector is damaged, then replace the wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (d) If no problem is found, then continue.

- (6) Measure the resistance at these pins on the EEC electrical connector, DP0505 on the wire harness through the HMU:

Table 214

CONNECTOR DP0505	RESISTANCE
PINS N TO c	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-25 TASK 805

D633A103-SIA

Page 228
Oct 15/2023

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

Table 214 (Continued)

CONNECTOR DP0505	RESISTANCE
PIN N TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN c TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the J5 wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- (b) If the resistance is in the specified range, then continue.

- (7) Install the DP0501 connector on the HMU.

- (8) Measure the resistance at these pins on the EEC electrical connector, DP0505 on the wire harness through the HMU:

Table 215

CONNECTOR DP0505	RESISTANCE
PINS N TO c	LESS THAN 5 OHMS
PIN N TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN c TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the J5 wire harness.

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- (b) If the resistance is in the specified range, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00

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

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:

- (a) Make sure that the DP0501 electrical connector is correctly connected at the HMU.

- (b) Make sure that the DP0505 electrical connector is correctly connected at the EEC.

- (c) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT

EFFECTIVITY
SIA ALL

73-25 TASK 805

D633A103-SIA

Page 229
Oct 15/2023

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(d) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

(2) Examine the operation of the mechanical overspeed system:

- (a) If not already done, open and close the circuit breakers to the EEC that were listed above.
- (b) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
- (c) If the maintenance message does not show in Flight Leg 0, then you corrected the fault.

————— **END OF TASK** —————

806. FMV Slow Response Detected - Fault Isolation**A. Description**

- (1) This task is for these maintenance message numbers:

NOTE: This fault code indicator is designed to track the activation of specific fuel control logic within the EEC and is designed for awareness only.

- (a) 73-11721, 73-11722, 73-21721, 73-21722, 73-31721, and 73-31722
- (b) The maintenance messages 73-X172Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure for channel A and B.

- (c) This fault is reported by the EEC when the engine is in operation.

B. Possible Causes and Action

- (1) This fault code indicator is designed for awareness only, and it is not necessary for maintenance personnel to take maintenance action. Airlines are encouraged to collect this fault information and give fault occurrence rate data to CFM and Boeing.
- (2) All other fault codes that occur must be addressed with their correct fault isolation procedures.

————— **END OF TASK** —————

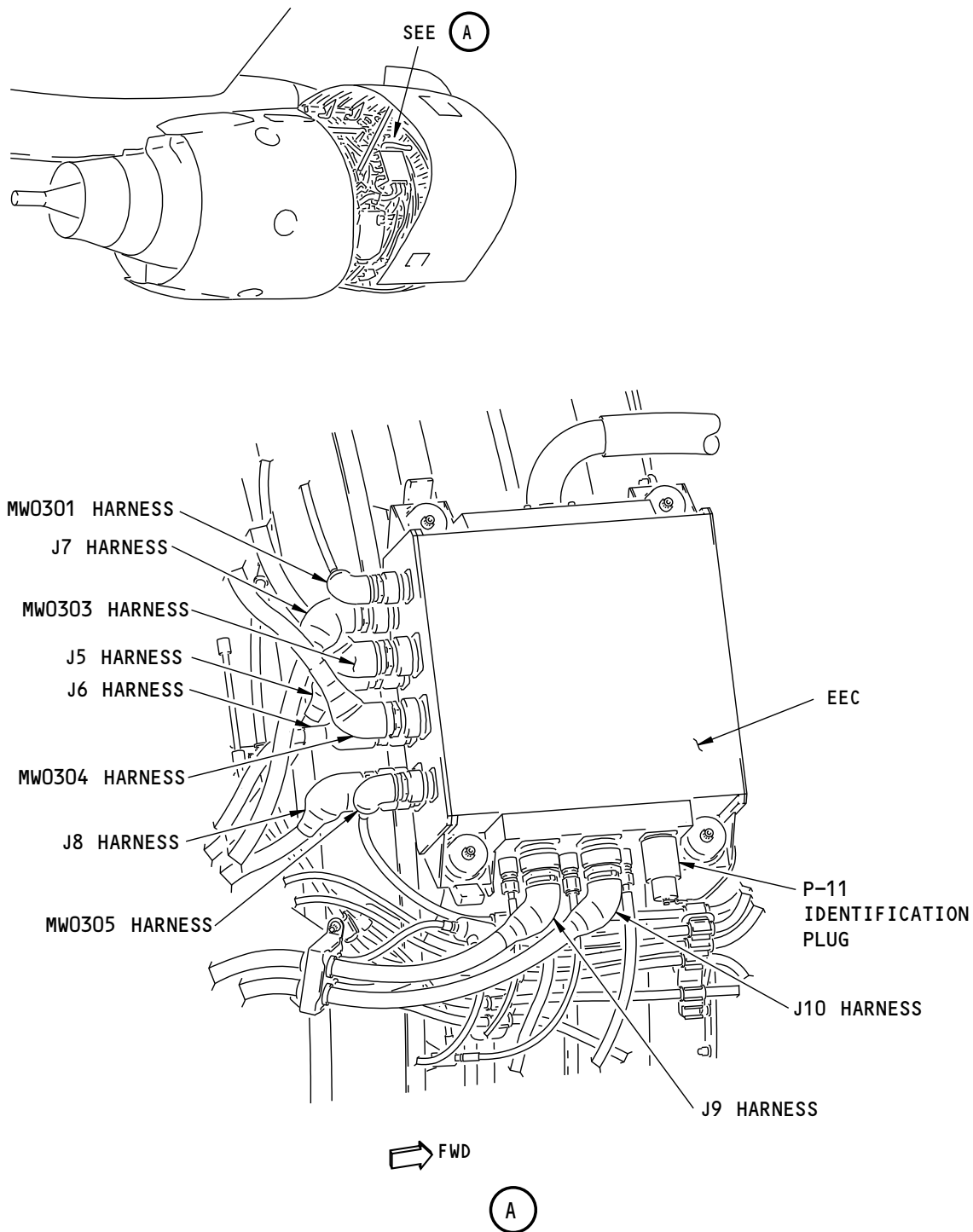
EFFECTIVITY
SIA ALL

73-25 TASKS 805-806

D633A103-SIA

Page 230
Oct 15/2023

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



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Electronic Engine Controller
Figure 301/73-25-00-990-801-F00

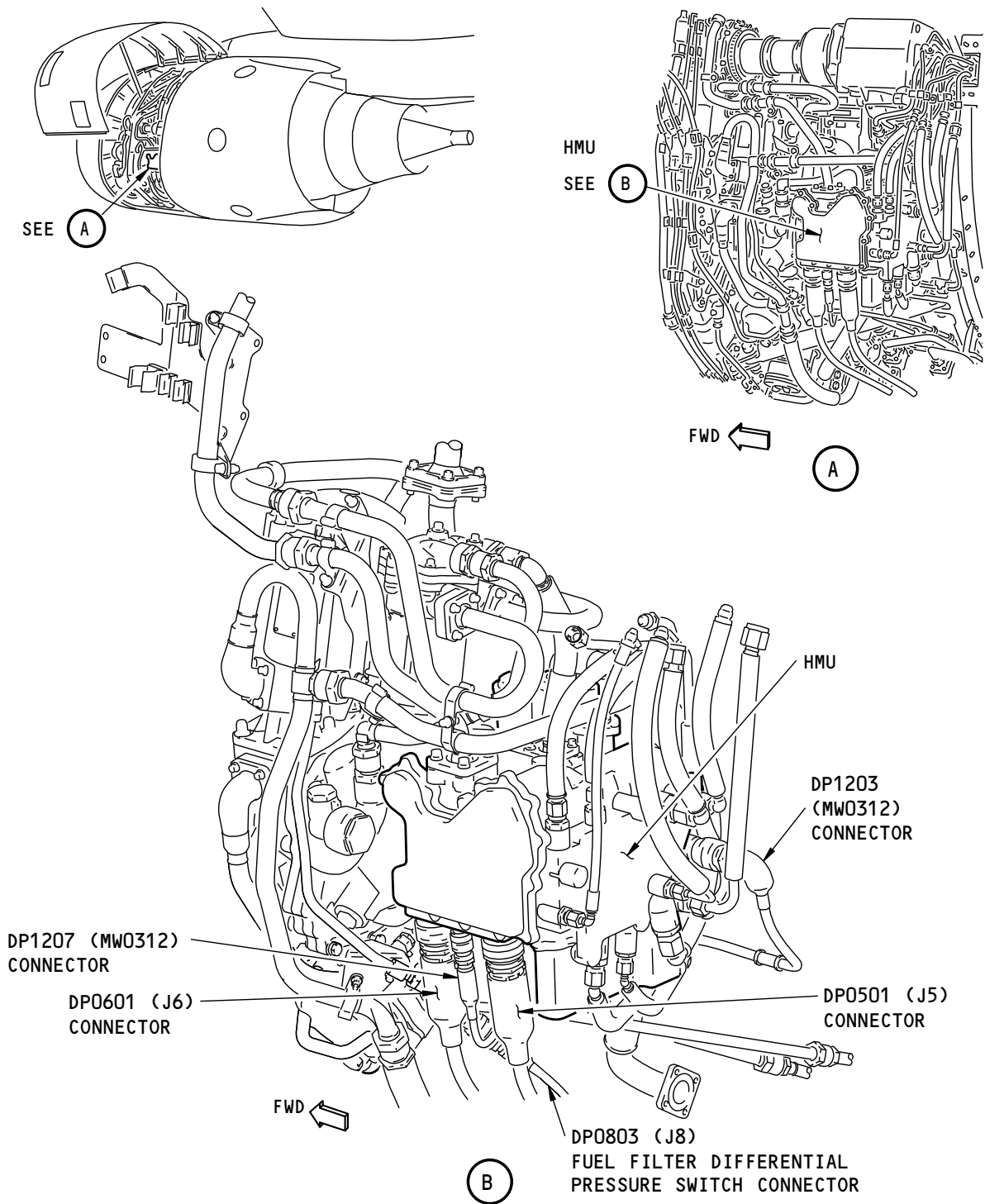
EFFECTIVITY
SIA ALL

73-25 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H33838 S0006745808_V1

Hydromechanical Unit (HMU)
Figure 302/73-25-00-990-802-F00

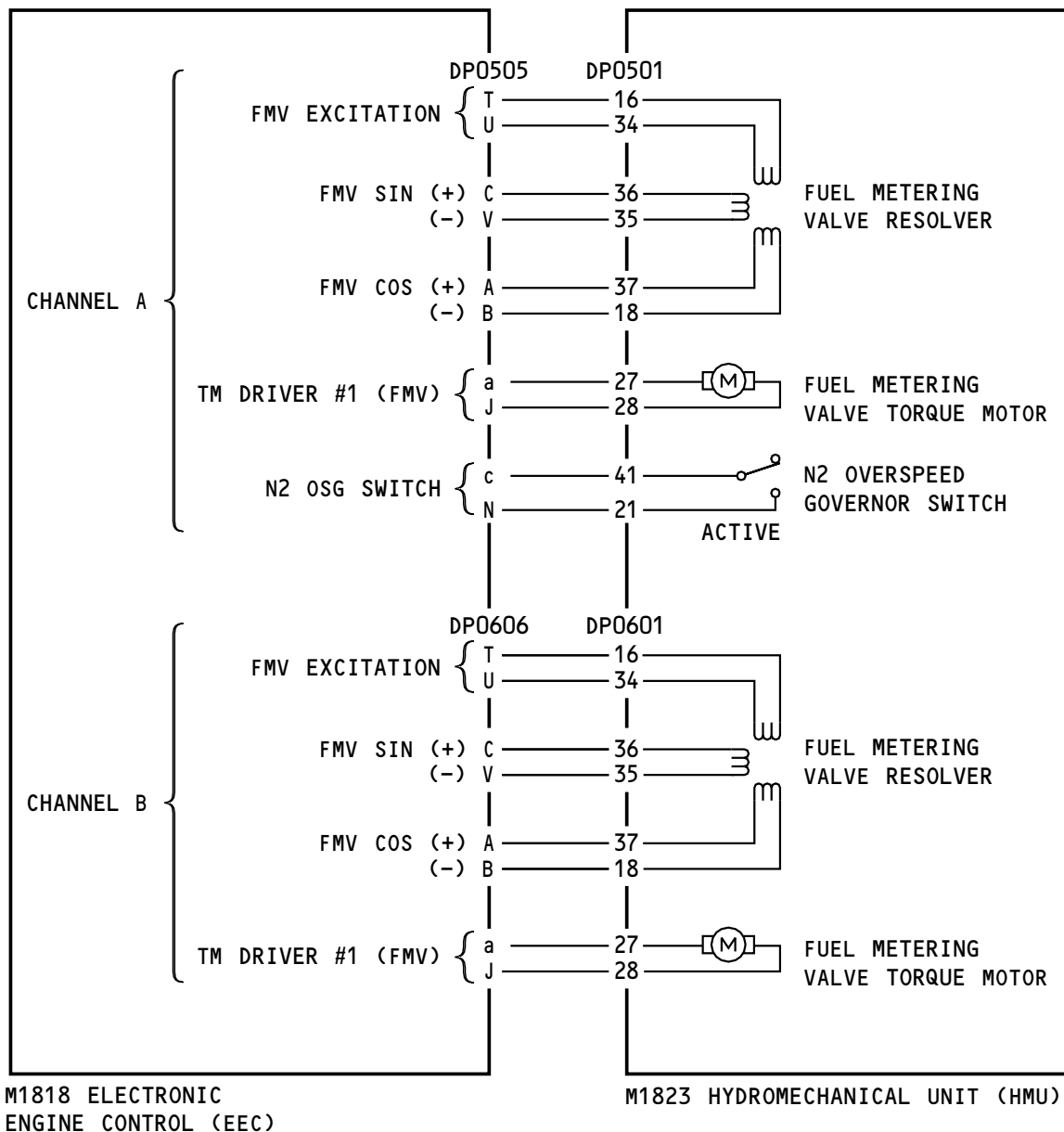
EFFECTIVITY
SIA ALL

73-25 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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



1 THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H31113 S0006745809_V1

EEC/HMU Simplified Schematic
Figure 303/73-25-00-990-803-F00

EFFECTIVITY
SIA ALL

73-25 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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

803. PS3 Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10771, 73-10772, 73-20771, 73-20772, 73-30771 and 73-30772
 - (b) The maintenance messages 73-X077Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
- (2) The Electronic Engine Control (EEC) senses the PS3 pressure signal is not in the valid range.
NOTE: This message can be a valid fault but only shows when the engine is in operation. It is necessary to operate the engine for the Repair Confirmation.
 - (a) This fault is reported on the active channel when the EEC has electrical power.
 - (b) You must do the Initial Evaluation to find out if it is a dual channel message.

B. Possible Causes

- (1) For a single channel maintenance message:
 - (a) EEC, M1818
- (2) For a dual channel maintenance message:
 - (a) PS3 Pressure Line (leaking or blocked line)
 - (b) EEC, M1818

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-26 TASK SUPPORT Figure 301)

E. Initial Evaluation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If maintenance message 73-10771, 73-10772, 73-20771 or 73-20772 shows, then do the Fault Isolation Procedure - Single Channel Fault below.

EFFECTIVITY
SIA ALL

73-26 TASK 803

D633A103-SIA

Page 201
Oct 15/2023

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

- (b) If maintenance message 73-30771 or 73-30772 shows, then do the Fault Isolation Procedure - Dual Channel Fault below.
- (c) If the maintenance message does not show, then do the Fault Isolation Procedure Dual Channel Fault or the Optional Procedure.
NOTE: This message can be a valid fault but only show when the engine is in operation. An engine operation is necessary for the Optional Procedure and the Repair Confirmation at the end of this task.
- (d) Optional Procedure:
 - 1) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - 2) Look for the maintenance message in Flight Leg 0.
 - 3) If maintenance message 73-10771, 73-10772, 73-20771 or 73-20772 show, then do the Fault Isolation Procedure - Single Channel Fault below.
 - 4) If maintenance message 73-30771 or 73-30772 show, then do the Fault Isolation Procedure - Dual Channel Fault below.
- (e) If the maintenance message does not show on the Flight Management Computer System (FMCS) Control Display Unit (CDU), then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the problem.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the Wiring Diagram Manual (WDM) references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do these steps to examine the PS3 Pressure Line:
 - (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) Examine the PS3 Pressure Line and look for these problems:
 - 1) Loose connections
 - 2) Tube damage
 - 3) Blockages

EFFECTIVITY
SIA ALL

73-26 TASK 803

D633A103-SIA

Page 202
Oct 15/2023

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

- a) Look for debris, ice, or water.
- 4) Wet or blocked weep hole.

NOTE: The 0.020 in. (0.508 mm) weep hole is found on the lowest point of the PS3 Pressure Line near the 6 o'clock strut.

- (c) If you find a problem with the PS3 Pressure Line, then clean, repair, or replace it (AMM TASK 72-00-00-100-803-F00 or AMM TASK 72-00-00-100-804-F00).
 - 1) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem and the fault was found by the Initial Evaluation, then replace the EEC, M1818. These are the tasks:
 - EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then continue the Repair Confirmation procedure.
- (2) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (3) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (a) If the maintenance message does not show, then you corrected the problem.

————— **END OF TASK** —————

804. T12 Signal is Out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10811, 73-10812, 73-20811, 73-20812, 73-30811 and 73-30812
 - (b) The maintenance messages 73-X081Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, do the Fault Isolation Procedure - Single Channel Fault for channel A.
 - 2) If X=2, do the Fault Isolation Procedure - Single Channel Fault for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
- (2) The T12 signal to the EEC is out of the valid range.
 - (a) The fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) T12 sensor, T509
- (2) EEC, M1818
- (3) J7 (Ch A) or J8 (Ch B) wire harness.

C. Circuit Breakers

- (1) For Engine 1,

EFFECTIVITY
SIA ALL

73-26 TASKS 803-804

D633A103-SIA

Page 203
Oct 15/2023

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

- (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-26 TASK SUPPORT Figure 301, 73-26 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-26 TASK SUPPORT Figure 302)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If message number 73-10811 (Ch A, Eng 1), 73-10812 (Ch A, Eng 2), 73-20811 (Ch B, Eng 1), or 73-20812 (Ch B, Eng 2) shows, then do the Fault Isolation Procedure - Single Channel Fault below for the applicable channel.
 - (c) If message number 73-30811 (Ch A and B, Eng 1) or 73-30812 (Ch A and B, Eng 2) shows, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

EFFECTIVITY
SIA ALL

73-26 TASK 804

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the aircraft on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Do this task: T12 Sensor Inspection/Check, AMM TASK 73-21-05-200-801-F00.
 - (a) If you find a problem, then repair it.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (b) If you do not find a problem, then continue.
- (2) Examine the T12 electrical connector:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Open the applicable T12 Access Door.

NOTE: The T12 Access door is found on the right side of the inlet cowl, at the 2:00 O'clock position.
- (d) See if that the electrical connectors of the T12 sensor are connected to the wire harness receptacles, DJ0704 (Ch A) or DJ0804 (Ch B), and continue.
- (e) Disconnect the T12 electrical connectors from the receptacles DJ0704 (Ch A) or DJ0804 (Ch B).
- (f) Visually examine the T12 connectors and wire harness receptacles (AMM TASK 70-70-01-200-801-F00).
 - 1) If a T12 connector is damaged, then replace the T12 sensor, T509.

These are the tasks:

T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,

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

T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If a wire harness receptacle is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

(g) If you do not find a problem, then continue.

(3) **OPTION 1 (Alternate);**

Measure the resistance between these pins on the T12 sensor connectors:

NOTE: You must measure the resistance at these two T12 electrical connectors, DP0704 (Ch A) and DP0804 (Ch B).

Table 201

T12 RESISTANCE	PINS	RESISTANCE
CONNECTOR DP0704 CH A DP0804 CH B	PIN 1 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN 2 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PINS 1 TO 2	156 TO 237 OHMS

- (a) If the resistance is not in the specified range, then replace the T12 Sensor, T509.

These are the tasks:

T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,

T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (b) If the resistance is in the specified range, then continue with Option 2 (Preferred).

(4) **Option 2 (Preferred);**

Do these steps to isolate the T12 sensor as the cause of the fault:

- (a) Connect the DP0804 (Ch B) connector on the DJ0704 (Ch A) receptacle.
- (b) Connect the DP0704 (Ch A) connector on the DJ0804 (Ch B) receptacle.
- (c) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

EFFECTIVITY
SIA ALL

73-26 TASK 804

D633A103-SIA

Page 206
Oct 15/2023

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

- (d) If the maintenance message does not show, then do these steps:
 - 1) Re-connect the DP0704 (Ch A) electrical connector on the DJ0704 (Ch A) receptacle.
 - 2) RE-connect the DP0804 (Ch B) electrical connector on the DJ0804 (Ch B) receptacle.
 - 3) Do the Repair Confirmation at the end of this task.
- (e) If fault shows on the other channel, then replace the T12 Sensor, T509.
These are the tasks:
T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,
T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (f) If the maintenance message shows on the same channel, then do these steps and continue:
 - 1) Connect the DP0704 (Ch A) electrical connector on the DJ0704 (Ch A) receptacle.
 - 2) Connect the DP0804 (Ch B) electrical connector on the DJ0804 (Ch B) receptacle.
- (5) Examine the applicable electrical connector, DP0707 (Ch A) or DP0808 (Ch B) at the EEC:
NOTE: The DP0707 (Ch A) electrical connector is on J7 wire harness. The DP0808 (Ch B) electrical connector is on J8 wire harness.
 - (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) See if the electrical connector, DP0707 (Ch A) or DP0808 (Ch B) is correctly connected to the EEC, and continue.
 - (c) Disconnect the electrical connect, DP0707 (Ch A) or DP0808 (Ch B) from the EEC.
 - (d) Visually examine the EEC receptacle and wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.

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

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (e) If you do not find a problem, then continue.
- (6) Measure the resistance between these pins to examine the wires between the applicable EEC connector, DP0707 (Ch A) or DP0808 (Ch B), on the wire harness and the T12 sensor:
- NOTE:** The DP0707 (Ch A) electrical connector is on J7 wire harness. The DP0808 (Ch B) electrical connector is on J8 wire harness.

Table 202

T12 RESISTANCE	PINS	RESISTANCE
CONNECTOR DP0707 DP0808	PIN D TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN E TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PINS D TO E	156 TO 237 OHMS

- (a) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.
- These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.
- (b) If the resistance is not in the specified range, then replace the wire harness, J7 (Ch A) or J8 (Ch B).
- These are the tasks:
- Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do this task: T12 Sensor Inspection/Check, AMM TASK 73-21-05-200-801-F00.
- (a) If you find a problem, then repair it.
- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then continue.
- (b) If you do not find a problem, then continue.
- (2) Examine the T12 electrical connectors:
- (a) For Engine 1,
- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

EFFECTIVITY
SIA ALL

73-26 TASK 804

D633A103-SIA

Page 208
Oct 15/2023

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

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Open the applicable T12 Access Door.

NOTE: The T12 Access door is found on the right side of the inlet cowl, at the 2:00 O'clock position.

- (d) See if the T12 electrical connectors are correctly connected to the receptacles, DJ0704 (Ch A) and DJ0804 (Ch B).
- (e) Disconnect the T12 electrical connectors from the receptacles DJ0704 (Ch A) and DJ0804 (Ch B).
- (f) Visually examine the T12 and wire harness electrical connectors (AMM TASK 70-70-01-200-801-F00).

- 1) If a T12 connector is damaged, then replace the T12 sensor, T509.

These are the tasks:

T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,

T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 2) If a harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- 3) If a connector was not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (g) If you do not find a problem, then continue.

- (3) Measure the resistance between these pins on the T12 sensor connectors:

NOTE: You must measure the resistance at these two T12 electrical connectors, DP0704 (Ch A) and DP0804 (Ch B).

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

Table 203

T12 RESISTANCE	PINS	RESISTANCE
CONNECTOR DP0704 CH A DP0804 CH B	PIN 1 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN 2 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PINS 1 TO 2	156 TO 237 OHMS

- (a) If the resistance is not in the specified range, then replace the T12 sensor, T509.

These are the tasks:

T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,

T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.



MAKE SURE THAT YOU CONNECT THE CHANNEL A ELECTRICAL CONNECTOR TO THE CH A RECEPTACLE OF THE T12 SENSOR AND THE CHANNEL B ELECTRICAL CONNECTOR TO THE CH B RECEPTACLE OF THE T12 SENSOR. THE ELECTRICAL CONNECTORS ARE INTERCHANGEABLE. IF THE CONNECTORS ARE NOT CORRECTLY CONNECTED, THEN THE T12 FAULTS AND OUTPUT DATA WILL SHOW ON THE WRONG CHANNELS.

- (b) If the resistance is in the specified range, reconnect the T12 sensor to the DJ0704 (Ch A) and DJ0804 (Ch B) electrical receptacles and continue.
- (4) Examine the DP0707 (J7) and DP0808 (J8) electrical connectors at the EEC:
- (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) See if the electrical connectors, DP0707 (Ch A) and DP0808 (Ch B) are correctly connected to the EEC, and continue.
 - (c) Disconnect the electrical connectors, DP0707 (Ch A) and DP0808 (Ch B), from the EEC.
 - (d) Visually examine the EEC receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If a EEC receptacle is damaged, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

EFFECTIVITY
SIA ALL

73-26 TASK 804

D633A103-SIA

Page 210
Oct 15/2023

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

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (e) If you do not find a problem, then continue.
- (5) Do these steps to examine the wires between the T12 sensor and the EEC:
 - (a) Measure the resistance between these pins on the J7 harness connectors, DP0707 (Ch A) and J8, DP0808 (Ch B):

Table 204

T12 RESISTANCE	PINS	RESISTANCE
CONNECTORS DP0707 DP0808	PIN D TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN E TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PINS D TO E	156 TO 237 OHMS

- (b) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

- (c) If the resistance is not in the specified range, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

H. Repair Confirmation

- (1) Prepare for the procedure:

**CAUTION**

MAKE SURE THAT YOU CONNECT THE CHANNEL A ELECTRICAL CONNECTOR TO THE CH A RECEPTACLE OF THE T12 SENSOR AND THE CHANNEL B ELECTRICAL CONNECTOR TO THE CH B RECEPTACLE OF THE T12 SENSOR. THE ELECTRICAL CONNECTORS ARE INTERCHANGEABLE. IF THE CONNECTORS ARE NOT CORRECTLY CONNECTED, THEN THE T12 FAULTS AND OUTPUT DATA WILL SHOW ON THE WRONG CHANNELS.

- (a) Make sure that the T12 sensor electrical connectors are connected at the DJ0704 (CH A) and DJ0804 (CH B) harness connectors.
- (b) Make sure that the J7, DP0707 (CH A) and J8, DP0808 (CH B) electrical connectors are connected at the EEC.

EFFECTIVITY
SIA ALL

73-26 TASK 804

D633A103-SIA

Page 211
Oct 15/2023

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

- (c) Close the T12 Access Door.
- (d) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (e) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (f) For Engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

— END OF TASK —

805. T12 Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10901, 73-10902, 73-20901, 73-20902, 73-30901 and 73-30902
 - (b) The maintenance messages 73-X090Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
- (2) The absolute value of the difference between the temperature sensed by channel A and channel B is greater than or equal to 12 degrees C.
 - (a) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, there is an internal EEC problem.
 - (b) This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) T12 sensor, T509
- (2) EEC, M1818
- (3) J7 (Ch A) or J8 (Ch B) wire harness.

EFFECTIVITY
SIA ALL

73-26 TASKS 804-805

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

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-26 TASK SUPPORT Figure 301, 73-26 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-26 TASK SUPPORT Figure 302)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

E. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - 1) Record the INTERNAL EEC FAULTS that show on the CSD.
 - (b) If message number 73-10901, 73-10902, 73-20901 or 73-20902 shows, then do the Fault Isolation Procedure - Single Channel Fault below.
 - (c) If message number 73-30901 or 73-30902 shows, then do the Fault Isolation Procedure - Dual Channel Fault below.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:

EFFECTIVITY
SIA ALL

73-26 TASK 805

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

- a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the aircraft on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

- (1) If not already done, do this task: EEC BITE Procedure, 73-00 TASK 801 and look for internal EEC faults.
 - (a) If you find an internal EEC fault, do the Fault Isolation Procedure for the INTERNAL EEC FAULT that you found.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue with the Fault Isolation Procedure - Dual Channel Fault below.
 - (b) If you did not find an INTERNAL EEC FAULT, then do the Fault Isolation Procedure - Dual Channel Fault below.

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Examine the T12 electrical connector:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Open the applicable T12 access Door.
NOTE: The T12 access door is found on the right side of the inlet cowl, at the 2:00 O'clock position.
- (d) See if the T12 sensor electrical connectors are correctly connected to the harness connector, DJ0704 (Ch A) and DJ0804 (Ch B), and continue.
- (e) Disconnect the T12 electrical connectors from the receptacles, DJ0704 (Ch A) and DJ0804 (Ch B).

EFFECTIVITY
SIA ALL

73-26 TASK 805

D633A103-SIA

Page 214
Oct 15/2023

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

- (f) Visually examine the T12 and wire harness electrical connectors (AMM TASK 70-70-01-200-801-F00).
- 1) If a T12 connector is damaged, then replace the T12 sensor, T509.
These are the tasks:
T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,
T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (g) If you do not find a problem, then continue.
- (2) Replace the T12 sensor.
These are the tasks:
T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,
T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then examine and repair the wires between the T12 Sensor and the EEC.
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that the T12 sensor electrical connectors are connected to DJ0704 (Ch A) and DJ0804 (Ch B).
 - (b) Close the T12 Access Door.
 - (c) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

EFFECTIVITY
SIA ALL

73-26 TASK 805

D633A103-SIA

Page 215
Oct 15/2023

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(d) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

806. PS3 Signals Disagree - Fault Isolation**A. Description**

- (1) This task is for these maintenance message numbers:
 - (a) 73-10791, 73-10792, 73-20791, 73-20792, 73-30791 and 73-30792
 - (b) The maintenance messages 73-X079Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, then there is a Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, then there is a Dual Channel Fault.
- (2) The EEC senses that the PS3 pressure signal for the two channels disagrees.
 - (a) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, there is an internal EEC problem.

B. Possible Causes

- (1) EEC, M1818
- (2) PS3 sensor (located inside the EEC)
 - (a) Moisture in the PS3 sensor
- (3) PS3 Pressure Line (leaking or blocked line)

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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

EFFECTIVITY
SIA ALL

73-26 TASKS 805-806

D633A103-SIA

Page 216
Oct 15/2023

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-26 TASK SUPPORT Figure 301, 73-26 TASK SUPPORT Figure 302)

E. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
- (a) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - 1) Record the INTERNAL EEC FAULTS that show on the FMCS CDU.

NOTE: This message should show as a dual channel fault. If a single channel fault is found, then there is also an internal EEC problem.
 - (b) If message number 73-10791, 73-10792, 73-20791, 73-20792, 73-30791 or 73-30792 shows, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the problem.
 - 3) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) If you found one of the maintenance messages during the Initial Evaluation, then replace the EEC. These are the tasks:
- EEC Removal, AMM TASK 73-21-60-000-801-F00
 - EEC Installation, AMM TASK 73-21-60-400-801-F00
- (a) Do the Repair Confirmation at the end of this task.
- (2) Do these steps to examine the PS3 Pressure Line:
- (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) Examine the PS3 Pressure Line and look for these problems:
 - 1) Loose connections
 - 2) Tube damage
 - 3) Blockages

EFFECTIVITY
SIA ALL

73-26 TASK 806

D633A103-SIA

Page 217
Oct 15/2023

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

- a) Look for debris, ice, or water.
- 4) Wet or blocked weep hole.

NOTE: The 0.020 in. (0.508 mm) weep hole is found on the lowest point of the PS3 Pressure Line near the 6 o'clock strut.

- (c) If you find a problem with the PS3 Pressure Line, then clean, repair, or replace it (AMM TASK 72-00-00-100-803-F00 or AMM TASK 72-00-00-100-804-F00).
- (d) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (e) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you have corrected the problem.
 - (b) If the maintenance message shows, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

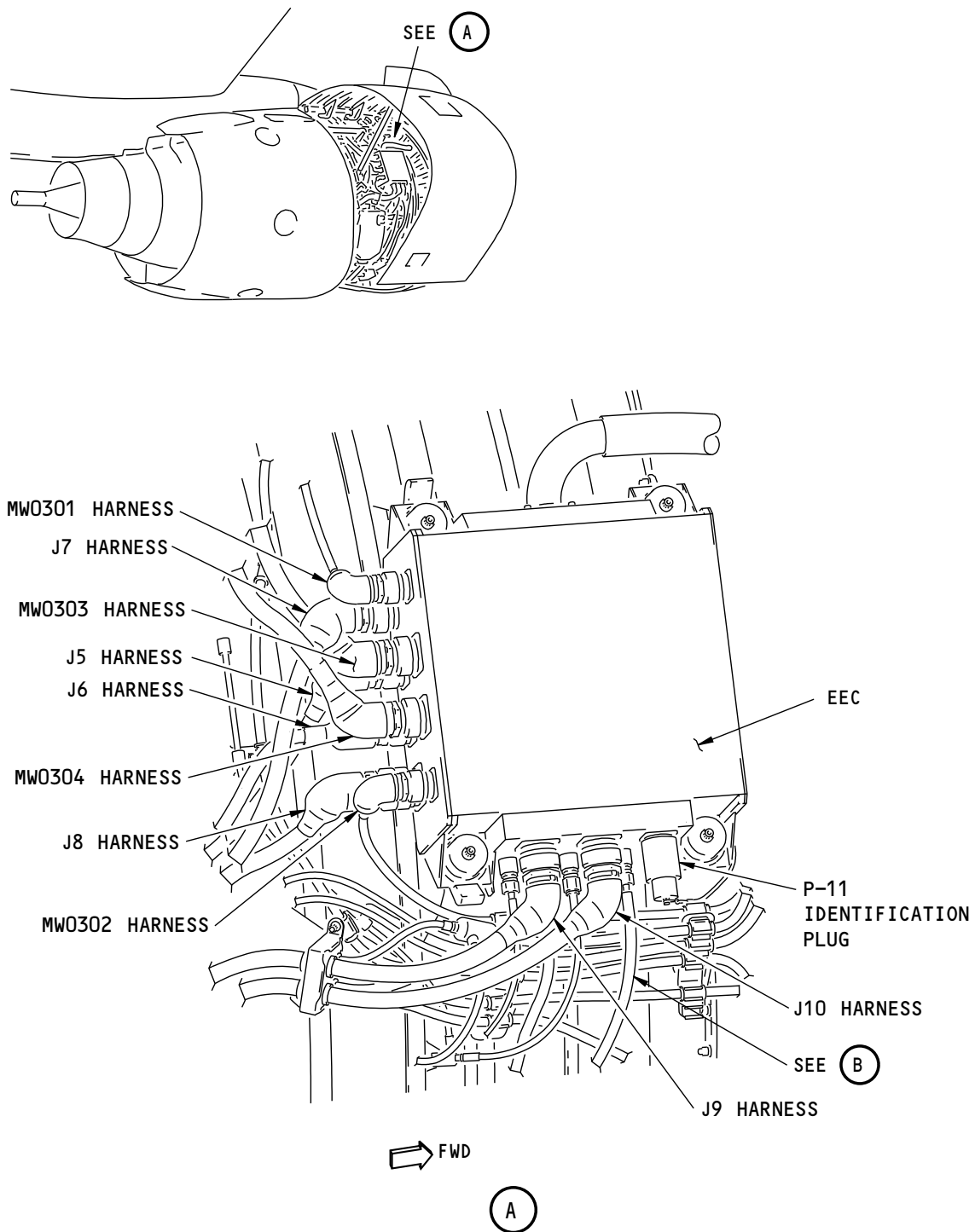
73-26 TASK 806

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 218
Oct 15/2023

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



H31252 S0006745824_V1

Electronic Engine Controller (EEC)
Figure 301/73-26-00-990-801-F00 (Sheet 1 of 2)

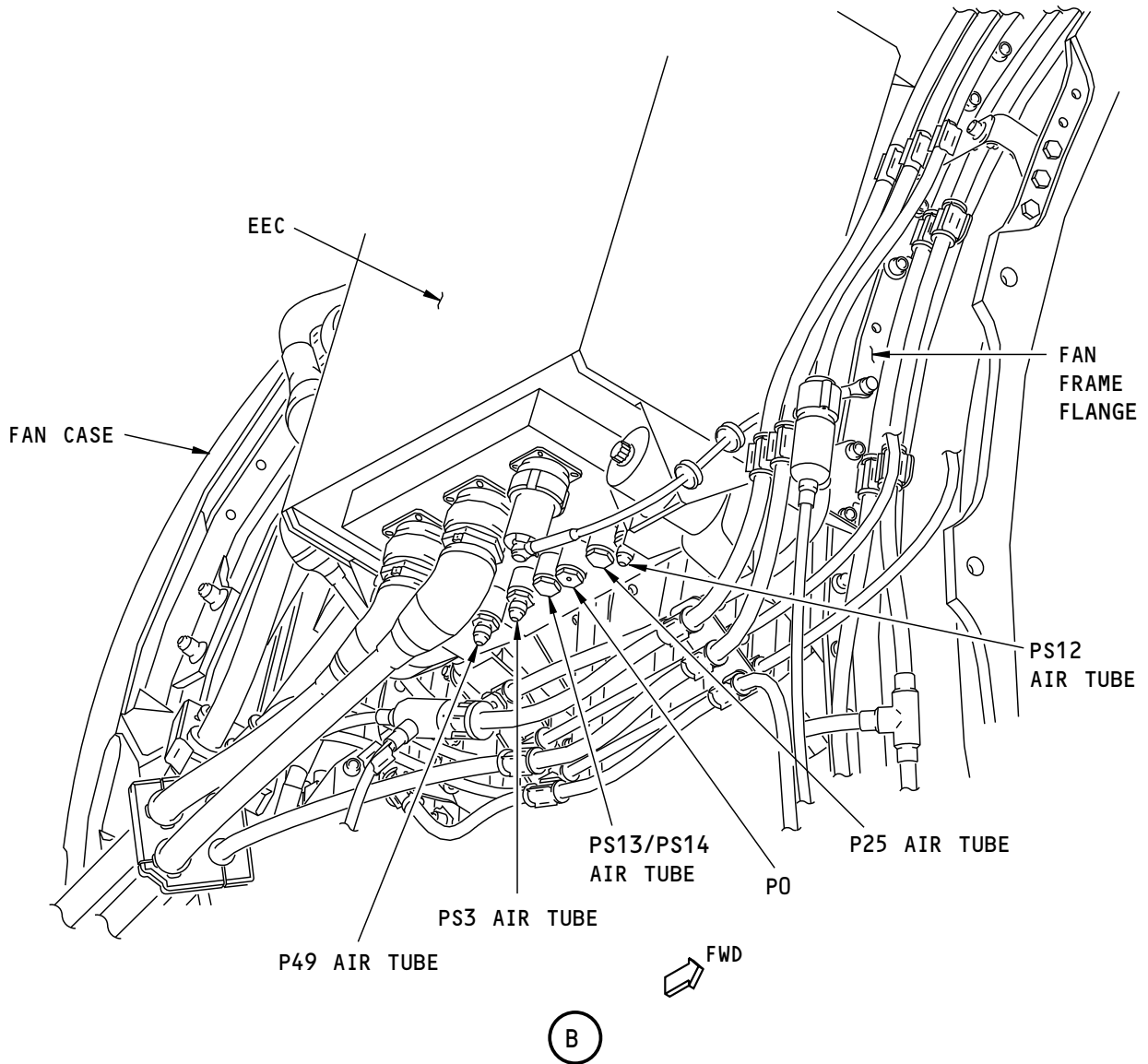
EFFECTIVITY
SIA ALL

73-26 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H31746 S0006745825_V1

Electronic Engine Controller (EEC)
Figure 301/73-26-00-990-801-F00 (Sheet 2 of 2)

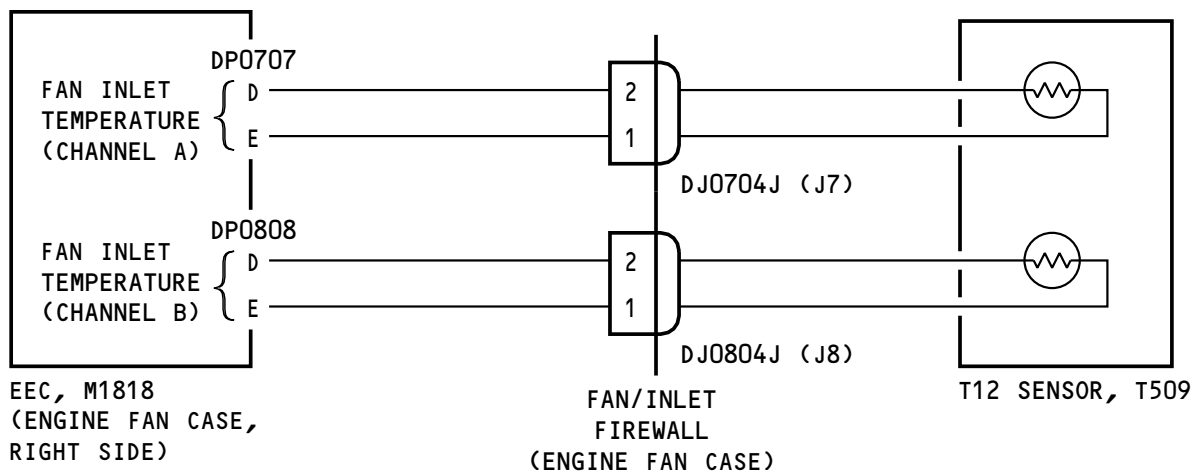
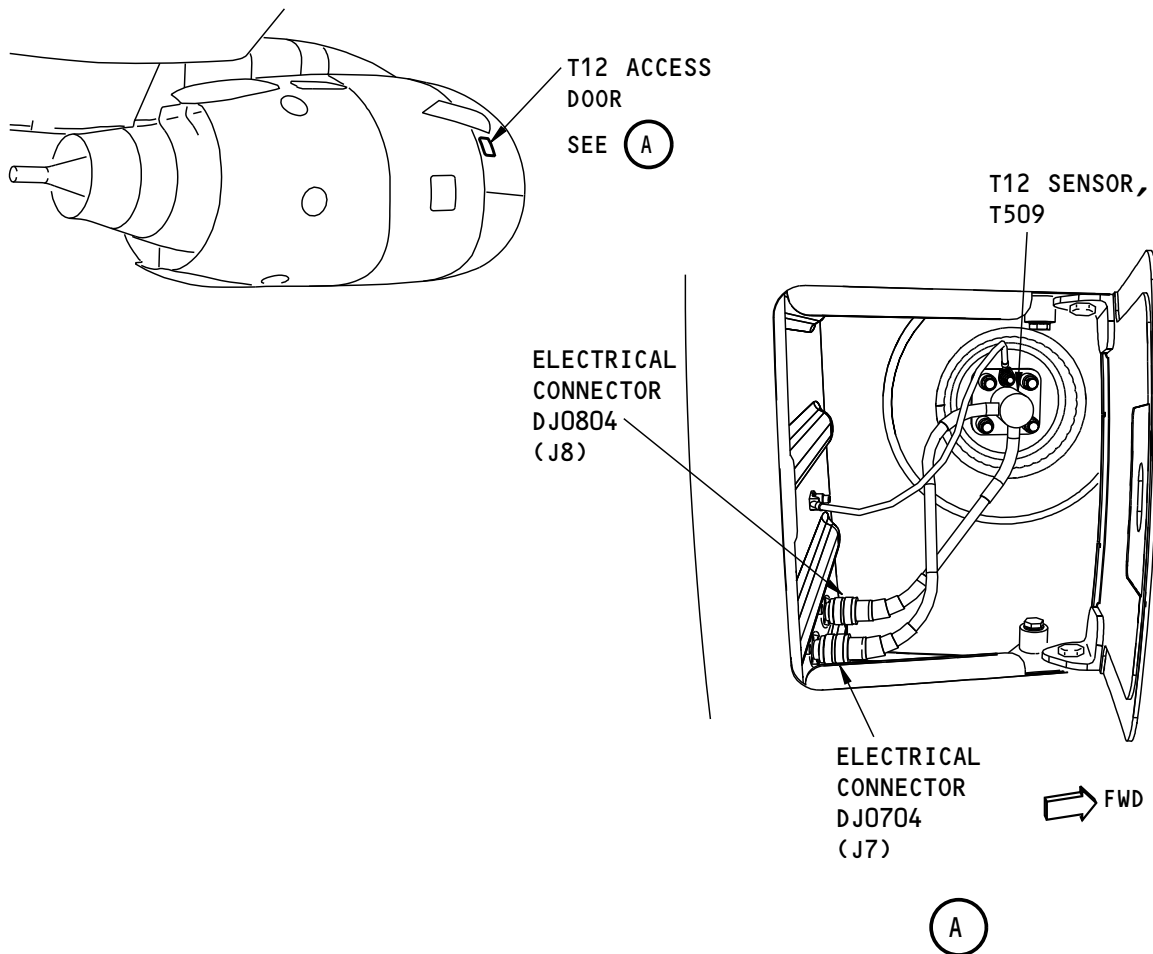
EFFECTIVITY
 SIA ALL

73-26 TASK SUPPORT

D633A103-SIA

Page 302
 Oct 15/2021

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



H31256 S0006745826_V2

T12 Sensor and Simplified Schematic
Figure 302/73-26-00-990-802-F00

EFFECTIVITY
SIA ALL

73-26 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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

801. HMU/BSV Control Current is Out of Range - Fault Isolation

A. General

- (1) This maintenance message can still occur with one of these conditions:
 - (a) The BSV is deactivated
 - (b) The BSV is removed
 - (c) The HMU is configured without a BSV solenoid.
- (2) If the message occurs, the fault must be corrected within the applicable limits for time limited dispatch.

NOTE: The limits for time limited dispatch can be found in the General statement of the EEC BITE Test, (73-00 TASK 801).

B. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10621, 73-10622, 73-20621, 73-20622, 73-30621 and 73-30622
 - (b) The maintenance messages 73-X062Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure for channel A and B.
 - (c) This fault is reported by the EEC when the engine is in operation.
- (2) The EEC detected that the return current from the BSV solenoid is not in the specified range; or, the difference between the calculated EEC output current and the sensed return current is greater than a specified value.

C. Possible Causes

- (1) HMU, M1823
- (2) EEC, M1818
- (3) J5 (Ch A) or J6 (Ch B) wire harness.

D. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-27 TASK 801

D633A103-SIA

Page 201
Oct 15/2021

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

E. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 302, 73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-25-11)
- (6) (WDM 73-25-21)

F. Initial Evaluation

- (1) Do these steps to find out if the fault is still active:
 - (a) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (b) If maintenance message 73-10621 (Eng 1, Ch A), 73-10622 (Eng 2, Ch A), 73-20621 (Eng 1, Ch B), or 73-20622 (Eng 2, Ch B) shows, then do the Fault Isolation Procedure below for the applicable channel.
 - (c) If maintenance messages 73-30621 or 73-30622 shows, then do the Fault Isolation Procedure below for the two channels.
 - (d) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

G. Fault Isolation Procedure

- (1) Prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

EFFECTIVITY
SIA ALL

73-27 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (2) Visually examine the DP0501 (CH A) or DP0601 (CH B) electrical connector at the HMU:
- See if that the DP0501 (CH A) or DP0601 (CH B) electrical connector is correctly installed on the HMU, and continue.
 - Disconnect the applicable connector from the HMU.
 - Look for damage on the wire harness connector and the HMU receptacle (AMM TASK 70-70-01-200-801-F00).
 - If the connector on the J5 (CH A) or J6 (CH B) wire harness is damaged, then replace the harness.
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If the HMU receptacle is damaged, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If you do not find a problem, then continue.
- (3) Do an electrical check of these pins on the HMU receptacle, DP0501 (CH A) or DP0601 (CH B):

Table 201

**CONNECTOR DP0501
DP0601**

PINS

RESISTANCE

PINS 6 TO 7

21 TO 39 OHMS

PIN 6 TO THE CONNECTOR SHELL

GREATER THAN 20 MEGOHMS

EFFECTIVITY
SIA ALL

73-27 TASK 801

D633A103-SIA

Page 203
Oct 15/2021

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

Table 201 (Continued)

**CONNECTOR DP0501
DP0601**

PINS

RESISTANCE

PIN 7 TO THE CONNECTOR SHELL

GREATER THAN 20 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (b) If you do not find a problem, then continue.
- (4) Connect the DP0501 (CH A) or DP0601 (CH B) electrical connector to the HMU.
- (5) Visually examine the electrical connector, DP0505 (CH A) or DP0606 (CH B) at the EEC:
- (a) See if that the electrical connector, DP0505 (CH A) or DP0606 (CH B) is correctly installed on the EEC, and continue.
 - (b) Disconnect the applicable electrical connector from the EEC.
 - (c) Look for damage of the wire harness connector and the EEC receptacle (AMM TASK 70-70-01-200-801-F00).
 - 1) If the connector on the J5 (CH A) or J6 (CH B) wire harness is damaged, then replace the harness.
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the EEC receptacle is damaged, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you do not find a problem, then continue.
- (6) Do an electrical check of the wire harness, J5 (CH A), or J6 (CH B) between the EEC and the HMU:

EFFECTIVITY
SIA ALL

73-27 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

- (a) Measure the resistance at these pins in the electrical connector, DP0505 (CH A) or DP0606 (CH B) on the wire harness, J5 (CH A) or J6 (CH B) through the HMU:

Table 202

CONNECTOR DP0505 DP0606	PINS	RESISTANCE
	PINS G TO H	21 TO 39 OHMS
	PIN G TO THE CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN H TO THE CONNECTOR SHELL	GREATER THAN 20 MEGOHMS

- (b) If the resistance is not in the specified range, then replace the wire harness, J5 (CH A) or J6 (CH B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- (c) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

H. Repair Confirmation

- (1) Prepare for the procedure:

- (a) Make sure that the DP0501 (CH A) and DP0601 (CH B) electrical connectors are connected at the HMU.
- (b) Make sure that the DP0505 (CH A) and DP0606 (CH B) electrical connectors are connected at the EEC.
- (c) For Engine 1,
- 1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

EFFECTIVITY
SIA ALL

73-27 TASK 801

D633A103-SIA

Page 205
Oct 15/2021

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

END OF TASK
802. The BSV is Always Closed - Fault Isolation**A. General**

- (1) This maintenance message can still occur with one of these conditions:
 - (a) The BSV is deactivated
 - (b) The BSV is removed
 - (c) The HMU is configured without a BSV solenoid.
- (2) If the message occurs, the fault must be corrected within the applicable limits for time limited dispatch.

NOTE: The limits for time limited dispatch can be found in the General statement of the EEC BITE Test, (73-00 TASK 801).

B. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10631, 73-10632, 73-20631, 73-20632, 73-30631, and 73-30632.
 - (b) The maintenance messages 73-X063Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure - Single Channel Fault for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure - Single Channel Fault for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) This fault is reported on the active channel of the EEC when the engine is running.
 - (d) You must do the Initial Evaluation to see if it is a dual channel fault.
- (2) The EEC senses, through valid feedback, that the Burner Staging Valve (BSV) is closed when the demand is to open.

C. Possible Causes

- (1) For a single channel maintenance message:
 - (a) HMU, M1823
 - (b) EEC, M1818
 - (c) J5 (Ch A) or J6 (Ch B) wire harness.
- (2) For a dual channel maintenance message:
 - (a) BSV, M1820
 - (b) HMU, M1823

 EFFECTIVITY
SIA ALL

73-27 TASKS 801-802

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

- (c) EEC, M1818.

SIA ALL POST SB CFM56-7B 73-044

- (3) ID Plug
(4) EEC, M1818.

SIA ALL

D. Circuit Breakers

- (1) For Engine 1,
(a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
(a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

E. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 302, 73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

F. Initial Evaluation

- (1) Do these steps to find out if the fault is still active and if it is a dual channel fault:
 - (a) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (b) If the maintenance message 73-10631 (Ch A), 73-10632 (Ch A), 73-20631 (Ch B), or 73-20632 (Ch B) shows, then do the Fault Isolation Procedure - Single Channel Fault for the applicable channel.
 - (c) If the maintenance message 73-30631 (Eng 1) or 73-30632 (Eng 2), shows, then do the Fault Isolation Procedure - Dual Channel Fault.

SIA ALL POST SB CFM56-7B 73-044

- (d) If the maintenance message 73-10631 (Ch A), 73-10632 (Ch A), 73-20631 (Ch B), 73-20632 (Ch B), 73-30631 (Eng 1) or 73-30632 (Eng 2) shows and the BSV is removed, then, do this task: BSV Position Signals Disagree - Fault Isolation, 73-27 TASK 803.

SIA ALL

EFFECTIVITY
SIA ALL

73-27 TASK 802

D633A103-SIA

Page 207
Jun 15/2023

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

- (e) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
- 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

G. Fault Isolation Procedure - Single Channel Fault

SIA ALL POST SB CFM56-7B 73-044

- (1) Do this task: BSV Position Signals Disagree - Fault Isolation, 73-27 TASK 803

SIA ALL

- (2) Do the Initial Evaluation to see if this fault is a dual channel fault.
NOTE: During engine operation, the EEC reports the fault on the active channel.
- (3) Prepare for the procedure:
- (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (4) Visually examine the J5 electrical connector DP0501 (Ch A) or J6 electrical connector DP0601 (Ch B):

EFFECTIVITY
SIA ALL

73-27 TASK 802

D633A103-SIA

Page 208
Jun 15/2023

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

- (a) See if the electrical connector, DP0501 (Ch A) or electrical connector DP0601 (Ch B) is correctly connected to the HMU, and continue.
- (b) Disconnect the applicable connector from the HMU.
- (c) Visually examine the plug on the wire harness and the receptacle on the HMU (AMM TASK 70-70-01-200-801-F00).
 - 1) If the plug is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the receptacle is damaged, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem was found, then continue.
- (5) Measure the resistance between these pins on the applicable HMU receptacle:

Table 203

CONNECTOR DP0501 & DP0601	RESISTANCE
PINS 6 TO 7	21 TO 39 OHMS
PIN 6 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 7 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (b) If the resistance is in the specified range, then continue.
- (6) Connect the DP0501 or DP0601 electrical connector to the HMU.

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

- (7) Visually examine the J5 electrical connector DP0505 (Ch A) or J6 electrical connector DP0606 (Ch B) at the EEC:
- See if the electrical connector, DP0505 (Ch A) or DP0606 (Ch B), is correctly connected to the EEC.
 - Disconnect the applicable connector, DP0505 (Ch A) or DP0606 (Ch B), from the EEC.
 - Visually examine the plug on the wire harness and the receptacle on the EEC (AMM TASK 70-70-01-200-801-F00).
 - If the plug is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If the receptacle is damaged, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - Do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - If no problem is found, then continue.
- (8) Do an electrical check of the wire harness, J5 (CH A) or J6 (CH B), between the EEC and the HMU:
- Measure the resistance at these pins in the electrical connector, DP0505 (Ch A) or DP0606 (Ch B), on the wire harness through the EEC:

Table 204

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS G TO H	21 TO 39 OHMS
PIN G TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN H TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- If the resistance is not in the specified range, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-27 TASK 802

D633A103-SIA

Page 210
Oct 15/2021

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

- (c) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

H. Fault Isolation Procedure - Dual Channel Fault

SIA ALL POST SB CFM56-7B 73-044

- (1) Do this task: BSV Position Signals Disagree - Fault Isolation, 73-27 TASK 803

SIA ALL

- (2) Replace the BSV, M1820 (the most likely LRU from the dual channel Possible Causes list).

These are the tasks:

Burner Staging Valve Removal, AMM TASK 73-11-08-000-801-F00,

Burner Staging Valve Installation, AMM TASK 73-11-08-400-801-F00.

- (a) Do the Repair Confirmation at the end of this task.
 (b) If the problem continues, then replace a subsequent LRU from the Possible Causes list.
 1) Do the Repair Confirmation at the end of this task.

I. Repair Confirmation

- (1) Prepare for the procedure:
- (a) Make sure that the electrical connectors, DP0501 (CH A) and DP0601 (CH B), are connected at the HMU.
- (b) Make sure that the electrical connectors, DP0505 (CH A) and DP0606 (CH B), are connected at the EEC.
- (c) For Engine 1,
- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,
- 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.

EFFECTIVITY
SIA ALL

73-27 TASK 802

D633A103-SIA

Page 211
Jun 15/2023

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

- (a) If the maintenance message does not show, then you corrected the fault
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

— END OF TASK —

803. BSV Position Signals Disagree - Fault Isolation

A. General

- (1) This maintenance message can still occur with one of these conditions:
 - (a) The BSV is deactivated
 - (b) The BSV is removed
 - (c) The HMU is configured without a BSV solenoid.
- (2) If the message occurs, the fault must be corrected within the applicable limits for time limited dispatch.

NOTE: The limits for time limited dispatch can be found in the General statement of the EEC BITE Test, (73-00 TASK 801).

B. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10651, 73-10652, 73-20651, 73-20652, 73-30651 and 73-30652
 - (b) The maintenance messages 73-X065Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) The maintenance message should show on the two channels of the EEC. If it shows on only one channel, then there is an internal EEC problem.
 - (d) This fault is reported when the EEC has electrical power.
- (2) For a Single Channel Fault,
The EEC receives one signal from switch 1 and one signal from switch 2 of the BSV position sensor. Channel A of the EEC reports the switch 1 signal to the Channel B processor in the EEC and Channel B of the EEC reports the switch 2 signal to the Channel A processor in the EEC. Each channel independently calculates BSV position comparison. If only one channel of the EEC reports the disagree problem, then there is most likely an internal EEC fault.
- (3) For a Dual Channel Fault,
The EEC senses that the BSV switch 1 signal agrees between Channel A and Channel B, and that the BSV switch 2 signal agrees between Channel A and Channel B, and the BSV switch 1 signal disagrees with the switch 2 signal.
 - (a) The EEC senses that the BSV switch 1 and switch 2 signals agree between EEC CH A and CH B.

C. Possible Causes

- (1) For the single channel messages:
 - (a) EEC (internal failure), M1818
 - (b) BSV, M1820.
- (2) For the dual channel maintenance messages:

EFFECTIVITY
SIA ALL

73-27 TASKS 802-803

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

- (a) BSV, M1820
- (b) EEC, M1818
- (c) J9 (Ch A) or J10 (Ch B) wire harness.

D. Circuit Breakers

- (1) For Engine 1,

- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

E. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 302, 73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

F. Initial Evaluation

- (1) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (a) If the maintenance message 73-10651 (Ch A, Eng 1), 73-10652 (Ch A, Eng 2), 73-20651 (Ch B, Eng 1), or 73-20652 (Ch B, Eng 2) shows, then do the Fault Isolation Procedure - Single Channel Fault.
 - (b) If the maintenance message 73-30651 (Eng 1) or 73-30652 (Eng 2) shows, then do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:

EFFECTIVITY
SIA ALL

73-27 TASK 803

D633A103-SIA

Page 213
Oct 15/2021

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

- a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

G. Fault Isolation Procedure - Single Channel Fault

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) Look for INTERNAL EEC FAULTs on the CDU.
 - (b) Do the Fault Isolation Procedures for the INTERNAL EEC FAULT that you found first.
 - 1) Do the Repair Confirmation at the end of this task.
 - (c) If the problem continues or an INTERNAL EEC FAULT did not show during the EEC test, then do the Fault Isolation Procedure - Dual Channel Fault.

H. Fault Isolation Procedure - Dual Channel Fault

- (1) Prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSERS (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Do this task: Open the Thrust Reverser (Selection), AMM TASK 78-31-00-010-801-F00.

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

SIA ALL PRE SB CFM56-7B 73-044

- (2) Examine the electrical connectors, DP0906 (Ch A) and DP1006 (Ch B), at the BSV:
- (a) See if the electrical connectors, DP0906 (Ch A) and DP1006 (Ch B), are correctly connected to the BSV.
 - (b) Disconnect the electrical connectors, DP0906 (Ch A) and DP1006 (Ch B), from the BSV.
 - (c) Visually examine the BSV receptacles, CH A and CH B, and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If a BSV receptacle is damaged, then replace the BSV, M1820.
These are the tasks:
Burner Staging Valve Removal, AMM TASK 73-11-08-000-801-F00,
Burner Staging Valve Installation, AMM TASK 73-11-08-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the wire harness, J9 (Ch A) or J10 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If you did not find a problem, then continue.
- (3) Measure the resistance between these pins on the BSV receptacles, CH A and CH B:

Table 205

RECEPTACLE CH A CH B	RESISTANCE
PINS 1 TO 2	GREATER THAN 10 MEGOHMS
PIN 1 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 2 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the BSV, M1820.
These are the tasks:
Burner Staging Valve Removal, AMM TASK 73-11-08-000-801-F00,
Burner Staging Valve Installation, AMM TASK 73-11-08-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

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

SIA ALL PRE SB CFM56-7B 73-044 (Continued)

- (b) If the resistance is in the specified range, then continue.

SIA ALL

- (4) ENGINES WITH OR WITHOUT THE BSV INSTALLED (PRE-CFMI- SB 73-044 or 73-054 AND POST-CFMI- SB 73-044 or 73-054);

Examine the electrical connectors, DP0909 (Ch A) and DP1010 (Ch B), at the EEC:

NOTE: The electrical connector, DP0909 (Ch A), is on the J9 wire harness. The electrical connector, DP1010 (Ch B), is on the J10 wire harness.

- (a) See if the electrical connectors, DP0909 (Ch A) and DP1010 (Ch B) are correctly connected to the EEC, and continue.
- (b) Disconnect the electrical connectors, DP0909 (Ch A) and DP1010 (Ch B), from the EEC.
- (c) Visually examine the EEC receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If an EEC receptacle is damaged, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the wire harness, J9 (Ch A) or J10 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If you did not find a problem, then continue.
- (5) Make sure that the electrical connectors DP0906 (Ch A) and DP1006 (Ch B) are disconnected from the BSV or the parking bracket.
- (6) Measure the resistance between these pins at the EEC electrical connectors, DP0909 (Ch A) and DP1010 (Ch B), and the BSV electrical connectors, DP0906 (Ch A) and DP1006 (Ch B) on the wire harnesses, J9 and J10:

Table 206

CONNECTORS AND PINS	RESISTANCE
DP0909, PIN FF TO DP0909, PIN x	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-27 TASK 803

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

Table 206 (Continued)

CONNECTORS AND PINS	RESISTANCE
DP1010, PIN CC TO DP1010, PIN s	GREATER THAN 10 MEGOHMS
DP0909, PIN FF TO DP0906, PIN 1	LESS THAN 10 OHMS
DP0909, PIN x TO DP0906, PIN 2	LESS THAN 10 OHMS
DP0909, PIN FF TO AIRPLANE GROUND	GREATER THAN 10 MEGOHMS
DP0909, PIN x TO AIRPLANE GROUND	GREATER THAN 10 MEGOHMS
DP1010, PIN CC TO DP1006, PIN 1	LESS THAN 10 OHMS
DP1010, PIN s TO DP1006, PIN 2	LESS THAN 10 OHMS
DP1010, PIN CC TO AIRPLANE GROUND	GREATER THAN 10 MEGOHMS
DP1010, PIN s TO AIRPLANE GROUND	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the wire harness, J9 (Ch A) or J10 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

- (b) If the resistance is in the specified range, then continue.

- (7) Do one of these two steps:

SIA ALL PRE SB CFM56-7B 73-044

- (a) Do the step as follow.

- 1) For engines with BSV.

- a) Replace the BSV, M1820 (the most likely LRU from the dual channel Possible Causes list).

These are the tasks:

Burner Staging Valve Removal, AMM TASK 73-11-08-000-801-F00,

Burner Staging Valve Installation, AMM TASK 73-11-08-400-801-F00.

<1> Do the Repair Confirmation at the end of this task.

<2> If the problem continues, then replace a subsequent LRU from the Possible Causes list.

<a> Do the Repair Confirmation at the end of this task.

SIA ALL POST SB CFM56-7B 73-044

- (b) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

EFFECTIVITY
SIA ALL

73-27 TASK 803

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

SIA ALL POST SB CFM56-7B 73-044 (Continued)

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

SIA ALL

I. Repair Confirmation

- (1) Prepare for the procedure:

- (a) Make sure the electrical connector, DP0906 (Ch A) and DP1006 (Ch B), are correctly connected to the BSV or the parking bracket.
- (b) Make sure the electrical connectors, DP0909 (J9, Ch A) and DP1010 (J10, Ch B), are correctly connected to the EEC.

- (c) For Engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.

- (a) If the maintenance message does not show, then you corrected the fault.



OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (3) Do this task: Close the Thrust Reverser (Selection), AMM TASK 78-31-00-010-804-F00.

————— **END OF TASK** —————

804. Alternator Voltage Input to the EEC is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11271, 73-11272, 73-21271, 73-21272, 73-31271 and 73-31272
 - (b) The maintenance messages 73-X127Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure - Single Channel Fault for channel A.

EFFECTIVITY
SIA ALL

73-27 TASKS 803-804

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

- 2) If X=2, then do the Fault Isolation Procedure - Single Channel Fault for channel B.
- 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.

(c) This fault is detected while the engine is in operation.

(2) The EEC senses that the electrical power from the EEC Alternator is not correct.

B. Possible Causes

- (1) EEC alternator, M1826
- (2) EEC, M1818
- (3) J7 (Ch A) or J8 (Ch B) wire harness
- (4) AGB Alternator Pad.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 305)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 305)
- (3) (WDM 73-22-11)

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is also necessary for the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Do these steps to prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

EFFECTIVITY
SIA ALL

73-27 TASK 804

D633A103-SIA

Page 219
Oct 15/2021

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

(Continued)

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

(b) For Engine 2,

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (2) Visually examine the electrical connector, DP0702 (Ch A) or DP0802 (Ch B) at the EEC Alternator, M1826:

- (a) See if the electrical connector, DP0702 (Ch A) or DP0802 (Ch B), is correctly installed on the EEC Alternator, and continue.
- (b) Disconnect the applicable electrical connector, DP0702 (Ch A) or DP0802 (Ch B), from the EEC Alternator.
- (c) Visually examine the EEC Alternator receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC Alternator receptacle is damaged, then replace the EEC Alternator, M1826.

These are the tasks:

EEC Alternator and Alternator Rotor Removal, AMM TASK 73-21-08-000-801-F00,
EEC Alternator and Alternator Rotor Installation, AMM TASK 73-21-08-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the wire harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

EFFECTIVITY
SIA ALL

73-27 TASK 804

D633A103-SIA

Page 220
Oct 15/2021

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

- (d) If no problem is found, then continue.
- (3) Do a resistance check between these pins at the applicable EEC Alternator receptacle, CH A or CH B:

SIA ALL POST SB CFM56-7B-73-0134

Table 207

RECEPTACLE CH A CH B	RESISTANCE
PINS 2 TO 5	210 MILLI-OHMS MAX.
PINS 2 TO 3	300 TO 380 MILLI-OHMS
PINS 2 TO 4	300 TO 380 MILLI-OHMS
PINS 3 TO 4	300 TO 380 MILLI-OHMS
PINS 5 TO 6	50 MILLI-OHMS MAX.
PIN 2 TO THE CONNECTOR SHELL	GREATER THAN 100 MEGOHMS
PIN 3 TO THE CONNECTOR SHELL	GREATER THAN 100 MEGOHMS
PIN 4 TO THE CONNECTOR SHELL	GREATER THAN 100 MEGOHMS
PIN 5 TO THE CONNECTOR SHELL	GREATER THAN 100 MEGOHMS
PIN 6 TO THE CONNECTOR SHELL	GREATER THAN 100 MEGOHMS

SIA ALL PRE SB CFM56-7B-73-0134

Table 208

RECEPTACLE CH A CH B	RESISTANCE
PINS 5 TO 2	120 TO 145 MILLI-OHMS
PINS 5 TO 3	120 TO 145 MILLI-OHMS
PINS 5 TO 4	120 TO 145 MILLI-OHMS
PINS 6 TO 2	120 TO 145 MILLI-OHMS
PINS 6 TO 3	120 TO 145 MILLI-OHMS
PINS 6 TO 4	120 TO 145 MILLI-OHMS
PIN 2 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 3 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 4 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 5 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 6 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

SIA ALL

- (a) If the resistance is not in the specified range, then replace the EEC Alternator, M1826.
- These are the tasks:
- EEC Alternator and Alternator Rotor Removal, AMM TASK 73-21-08-000-801-F00,
EEC Alternator and Alternator Rotor Installation, AMM TASK 73-21-08-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-27 TASK 804

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

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and open the circuit breakers above and continue.
 - b) If the resistance is in the specified range, then continue.
- (4) Connect the electrical connector, DP0702 (Ch A) or DP0802 (Ch B), to the EEC Alternator.
- (5) Visually examine the electrical connector, DP0707 (Ch A) or DP0808 (Ch B), at the EEC, M1818:
NOTE: The electrical connector, DP0707 (Ch A), is on the J7 wire harness. The electrical connector, DP0808 (Ch B), is on the J8 wire harness.
 - (a) See if the electrical connector, DP0707 (Ch A) or DP0808 (Ch B), is correctly installed on the EEC, and continue.
 - (b) Disconnect the electrical connector, DP0707 (Ch A) or DP0808 (Ch B), from the EEC.
 - (c) Visually examine the EEC receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
 These are the tasks:
 EEC Removal, AMM TASK 73-21-60-000-801-F00,
 EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a wire harness connector is damaged, then replace the wire harness, J7 (Ch A) or J8 (Ch B).
 These are the tasks:
 Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
 Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem is found, then continue.
 - (6) Do an electrical check of the J7 (CH A), or J8 (CH B) wire harness between the EEC and the EEC Alternator:
 - (a) Measure the resistance at these pins in the electrical connector, DP0707 (Ch A) or DP0808 (Ch B), on the applicable wire harness through the EEC alternator:

Table 209

CONNECTOR DP0707 & DP0808	RESISTANCE
PINS JJ TO y	LESS THAN ONE OHM
PINS JJ TO z	LESS THAN ONE OHM

EFFECTIVITY
SIA ALL

73-27 TASK 804

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

Table 209 (Continued)

CONNECTOR DP0707 & DP0808	RESISTANCE
PINS JJ TO AA	LESS THAN ONE OHM
PINS LL TO y	LESS THAN ONE OHM
PINS LL TO z	LESS THAN ONE OHM
PINS LL TO AA	LESS THAN ONE OHM
PIN y TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN z TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN AA TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN JJ TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN LL TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (b) If the resistance is not in the specified range, then replace the applicable wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- (c) If the resistance is in the specified range, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) To see if the alternator or AGB pad is damaged, do a check of the TGB/AGB chip detector screen for aluminum pieces AMM TASK 79-00-00-200-804-F00
- (a) If you find aluminum pieces, do the corrective action AMM TASK 79-00-00-200-804-F00.
- 1) Do the Repair Confirmation at the end of this task.
- (b) If aluminum pieces are not found, then continue.
- (2) Replace the EEC Alternator, M1826 (the most likely LRU from the Possible Causes list).

These are the tasks:

EEC Alternator and Alternator Rotor Removal, AMM TASK 73-21-08-000-801-F00,

EEC Alternator and Alternator Rotor Installation, AMM TASK 73-21-08-400-801-F00.

- (a) When you remove the alternator, look for signs of damage to the alternator and AGB pad.
- 1) If the AGB alternator pad is damaged, replace the engine.
- (b) Do the Repair Confirmation at the end of this task.
- (c) If the problem continues, then replace a subsequent LRU from the Possible Causes list.
- 1) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
SIA ALL

73-27 TASK 804

D633A103-SIA

Page 223
Oct 15/2021

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

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure that the DP0702 and DP0802 electrical connectors are correctly connected to the EEC Alternator.
 - (b) Make sure that the DP0707 (J7) and DP0808 (J8) electrical connectors are correctly connected to the EEC.
 - (c) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For Engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Examine the operation of the EEC Alternator system:
 - (a) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (b) If the maintenance message does not show in Flight Leg 0, then you corrected the fault.

————— **END OF TASK** —————

805. An EEC Channel is not Energized with the Alternator Voltage - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11281, 73-11282, 73-21281, 73-21282, 73-31281, and 73-31282.
 - (b) The maintenance messages 73-X128Y; where X = EEC Channel (1=Channel A, 2=Channel B), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - (c) If X=1, channel A has reported the fault. Do the Fault Isolation Procedure for channel B.
 - (d) If X=2, channel B has reported the fault. Do the Fault Isolation Procedure for channel A.
 - (e) If X=1 and 2 (two messages), or X=3. Do the Fault Isolation Procedure for channel A and B.
- (2) This message is set if there is a failure of power supply inside of the EEC; or, if there is a failure of the airplane alternate power source (73-X135Y) and the engine alternator power source (73-X127Y) at the same time.

EFFECTIVITY
SIA ALL

73-27 TASKS 804-805

D633A103-SIA

Page 224
Oct 15/2021

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

- (a) This maintenance message should show as a single channel fault. If you find a dual channel fault, then there is an additional internal EEC problem.
- (3) An EEC channel senses that the other EEC channel is not energized (while the engine turns at more than 45% N2).
 - (a) One channel of the EEC reports that the fault was detected on the other channel.
 - 1) For example, in Maintenance Message 73-11281; Channel A reports that Channel B does not have electrical power. Therefore, you must do the corrective action for channel B components.
- (4) This fault is detected while the engine turns and the EEC electrical power should be supplied by the EEC Alternator.

B. Possible Causes

- (1) EEC, M1818
- (2) Airplane alternate power system to the EEC
- (3) EEC alternator, M1826
- (4) J7 (Ch A) or J8 (Ch B) wire harness.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 305)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 305)
- (3) (WDM 73-22-11)

E. Initial Evaluation

- (1) It is necessary to operate the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure

- (1) These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,

EFFECTIVITY
SIA ALL

73-27 TASK 805

D633A103-SIA

Page 225
Oct 15/2021

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

EEC Installation, AMM TASK 73-21-60-400-801-F00.

NOTE: The most like cause of the message is the EECs internal electrical power supply.

- (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 channel, do this task: Alternator Voltage Input to the EEC is out of Range - Fault Isolation, 73-27 TASK 804.
 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) For the applicable channel, do this task: Airplane Voltage Input to the EEC is Out of Range - Fault Isolation, 73-22 TASK 808.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (a) Look for these maintenance messages in flight leg 0:
 - 1) 73-11281, 73-11282, 73-21281, 73-21282, 73-31281, 73-31282, or 73-11271, 73-11272, 73-21271, 73-21272, 73-31271, 73-31272, or 73-11351, 73-11352, 73-21351, 73-21352, 73-31351, 73-31352
 - 2) If a 73-X128Y message does not show, then you corrected the fault.
 - 3) If a 73-X127Y or 73-X135Y message shows, then there is still a problem in the electrical power supply to the EEC.
 - a) Do the Fault Isolation Procedure for the message that shows.

————— **END OF TASK** —————

813. The BSV is Always Open - Fault Isolation

A. General

- (1) This maintenance message can still occur with one of these conditions:
 - (a) The BSV is removed
 - (b) The HMU is configured without a BSV solenoid.
- (2) If the message occurs, the fault must be corrected within the applicable limits for time limited dispatch.

NOTE: The limits for time limited dispatch can be found in the General statement of the EEC BITE Test, (73-00 TASK 801).

B. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-10641, 73-10642, 73-20641, 73-20642, 73-30641, and 73-30642.
 - (b) The maintenance messages 73-X064Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1, then do the Fault Isolation Procedure - Single Channel Fault for channel A.
 - 2) If X=2, then do the Fault Isolation Procedure - Single Channel Fault for channel B.
 - 3) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
 - (c) This fault is reported on the active channel of the EEC when the engine is running.

EFFECTIVITY
SIA ALL

73-27 TASKS 805-813

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

- (d) You must do the Initial Evaluation to see if it is a dual channel fault.
- (2) The EEC senses, through valid feedback, that the Burner Staging Valve (BSV) (if installed) is open when the demand is to close.

C. Possible Causes

SIA ALL PRE SB CFM56-7B 73-044

- (1) For a single channel maintenance message:
- (a) HMU, M1823
 - (b) EEC, M1818
 - (c) J5 (Ch A) or J6 (Ch B) wire harness.
- (2) For a dual channel maintenance message:
- (a) BSV, M1820
 - (b) HMU, M1823
 - (c) EEC, M1818.

SIA ALL POST SB CFM56-7B 73-044

- (3) ID Plug;

SIA ALL

D. Circuit Breakers

- (1) For Engine 1,
- (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For Engine 2,
- (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

E. Related Data

- (1) Component Location (73-27 TASK SUPPORT Figure 301, 73-27 TASK SUPPORT Figure 302, 73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (2) Simplified Schematic (73-27 TASK SUPPORT Figure 303, 73-27 TASK SUPPORT Figure 304)
- (3) (SSM 73-25-11)
- (4) (SSM 73-25-21)
- (5) (WDM 73-22-11)
- (6) (WDM 73-25-11)
- (7) (WDM 73-25-21)

EFFECTIVITY
SIA ALL

73-27 TASK 813

D633A103-SIA

Page 227
Jun 15/2023

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

F. Initial Evaluation

- (1) Do these steps to find out if the fault is still active and if it is a dual channel fault:
 - (a) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (b) If the maintenance message 73-10641 (Ch A), 73-10642 (Ch A), 73-20641 (Ch B), or 73-2064 (Ch B) shows, then do this:
 ENGINES WITH THE BSV ACTIVE (PRE-CFMI-SB 72-239); Fault Isolation Procedure - Single Channel Fault for the applicable channel.
 - (c) If the maintenance message 73-30641 (Eng 1) or 73-30642 (Eng 2) shows, then do this:
 ENGINES WITH THE BSV ACTIVE (PRE-CFMI-SB 72-239); Fault Isolation Procedure - Dual Channel Fault.
 - (d) If the maintenance message 73-10641 (Ch A), 73-10642 (Ch A), 73-20641 (Ch B), 73-20642 (Ch B), 73-30641 (Eng 1) or 73-30642 (Eng 2) shows and the BSV is removed, then do this:
 ENGINES WITHOUT THE BSV; Fault Isolation Procedure.
 - (e) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

G. ENGINES WITH THE BSV ACTIVE (PRE-CFMI-SB 72-239); Fault Isolation Procedure - Single Channel Fault

- (1) Do the Initial Evaluation to see if this fault is a dual channel fault.
NOTE: During engine operation, the EEC reports the fault on the active channel.
- (2) Prepare for the procedure:
 - (a) For Engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For Engine 2,

EFFECTIVITY
SIA ALL

73-27 TASK 813

D633A103-SIA

Page 228
Oct 15/2021

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

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (3) Visually examine the J5 electrical connector DP0501 (Ch A) or J6 electrical connector DP0601 (Ch B):
 - (a) See if the electrical connector, DP0501 (Ch A) or electrical connector DP0601 (Ch B) is correctly connected to the HMU, and continue.
 - (b) Disconnect the applicable connector from the HMU.
 - (c) Visually examine the plug on the wire harness and the receptacle on the HMU (AMM TASK 70-70-01-200-801-F00).
 - 1) If the plug is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the receptacle is damaged, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem was found, then continue.
 - (4) Measure the resistance between these pins on the applicable HMU receptacle:

Table 210

CONNECTOR DP0501 & DP0601	RESISTANCE
PINS 6 TO 7	21 TO 39 OHMS
PIN 6 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 7 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

EFFECTIVITY
SIA ALL

73-27 TASK 813

D633A103-SIA

Page 229
Oct 15/2021

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

- (a) If the resistance is not in the specified range, then replace the HMU.
These are the tasks:
HMU Removal, AMM TASK 73-21-10-000-801-F00,
HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (b) If the resistance is in the specified range, then continue.
- (5) Connect the DO0501 or DP0601 electrical connector to the HMU.
- (6) Visually examine the J5 electrical connector DP0505 (Ch A) or J6 electrical connector DP0606 (Ch B) at the EEC:
 - (a) See if the electrical connector, DP0505 (Ch A) or DP0606 (Ch B), is correctly connected to the EEC.
 - (b) Disconnect the applicable connector, DP0505 (Ch A) or DP0606 (Ch B), from the EEC.
 - (c) Visually examine the plug on the wire harness and the receptacle on the EEC (AMM TASK 70-70-01-200-801-F00).
 - 1) If the plug is damaged, then replace the wire harness, J5 (Ch A) or J6 (Ch B).
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the receptacle is damaged, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem is found, then continue.
- (7) Do an electrical check of the wire harness, J5 (CH A) or J6 (CH B), between the EEC and the HMU:
 - (a) Measure the resistance at these pins in the electrical connector, DP0505 (Ch A) or DP0606 (Ch B), on the wire harness through the HMU:

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

Table 211

CONNECTOR DP0505 & DP0606	RESISTANCE
PINS G TO H	21 TO 39 OHMS
PIN G TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN H TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (b) If the resistance is not in the specified range, then replace the wire harness, J5 (Ch A) or J6 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

- (c) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

H. ENGINES WITH THE PRE-CFMI-SB 72-239; Fault Isolation Procedure - Dual Channel Fault

- (1) For the engine with BSV, do the steps that follow.

- (a) Replace the BSV, M1820 (the most likely LRU from the dual channel Possible Causes list).

These are the tasks:

Burner Staging Valve Removal, AMM TASK 73-11-08-000-801-F00,

Burner Staging Valve Installation, AMM TASK 73-11-08-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the problem continues, then replace a subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

I. ENGINES WITHOUT THE PRE-CFMI-SB 72-239; Fault Isolation Procedure

- (1) Replace the ID Plug with an ID Plug that is compatible with a removed BSV.

These are the tasks:

Identification Plug Removal, AMM TASK 73-21-61-000-801-F00,

Identification Plug Installation, AMM TASK 73-21-61-400-801-F00.

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

J. Repair Confirmation

- (1) Prepare for the procedure:

- (a) Make sure that the electrical connectors, DP0501 (CH A) and DP0601 (CH B), are connected at the HMU.
- (b) Make sure that the electrical connectors, DP0505 (CH A) and DP0606 (CH B), are connected at the EEC.

EFFECTIVITY
SIA ALL

73-27 TASK 813

D633A103-SIA

Page 231
Oct 15/2021

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

- (c) Make sure that the electrical connectors, DP0909 (CH A) and DP1010 (CH B), are connected at the EEC.
- (d) For Engine 1,
- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (e) For Engine 2,
- 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: Test 12 - Actuators Test, AMM TASK 71-00-00-700-807-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.
- (3) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

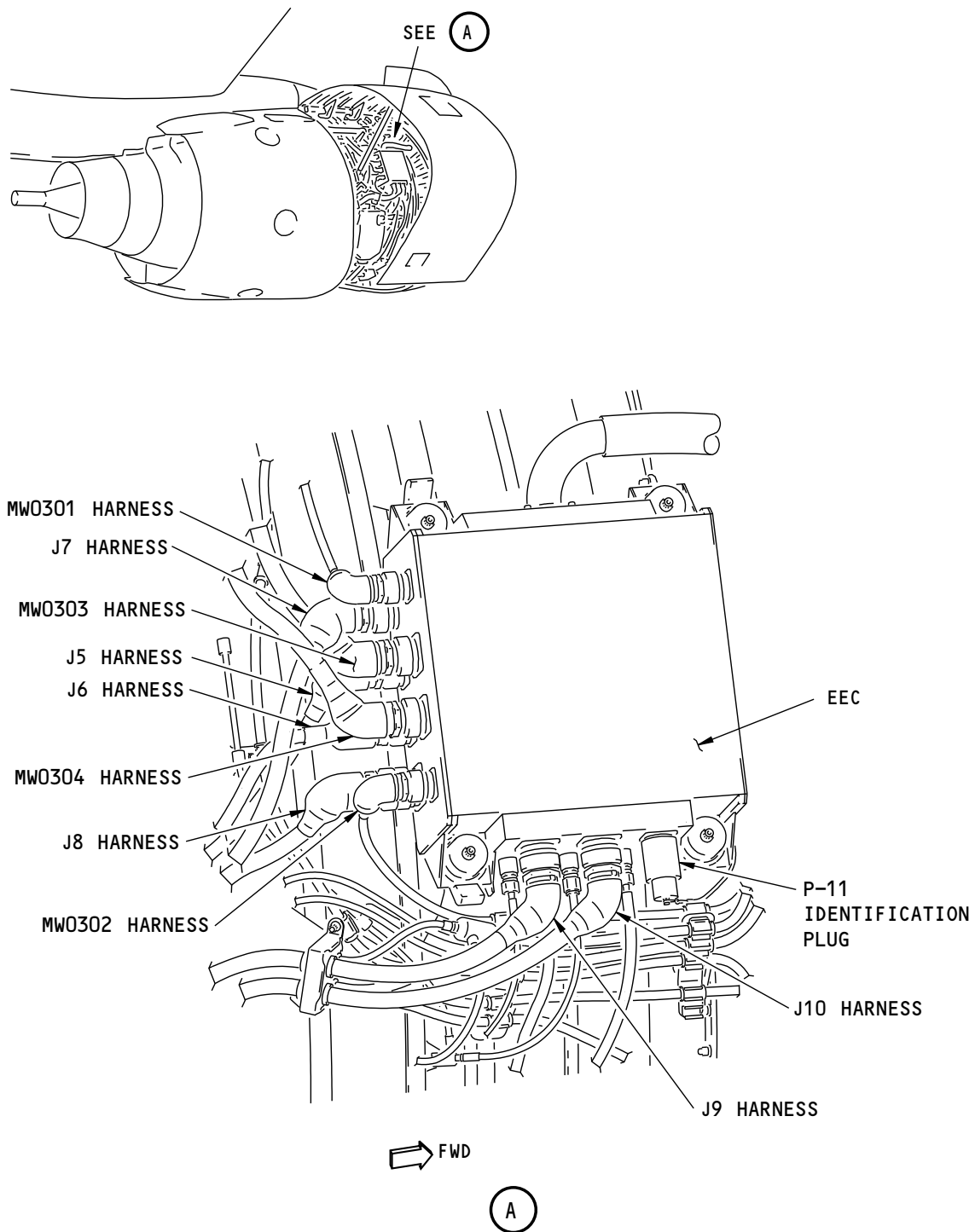
———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

73-27 TASK 813

D633A103-SIA

Page 232
Oct 15/2021

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


H31260 S0006745870_V1

Electronic Engine Control (EEC)
Figure 301/73-27-00-990-801-F00

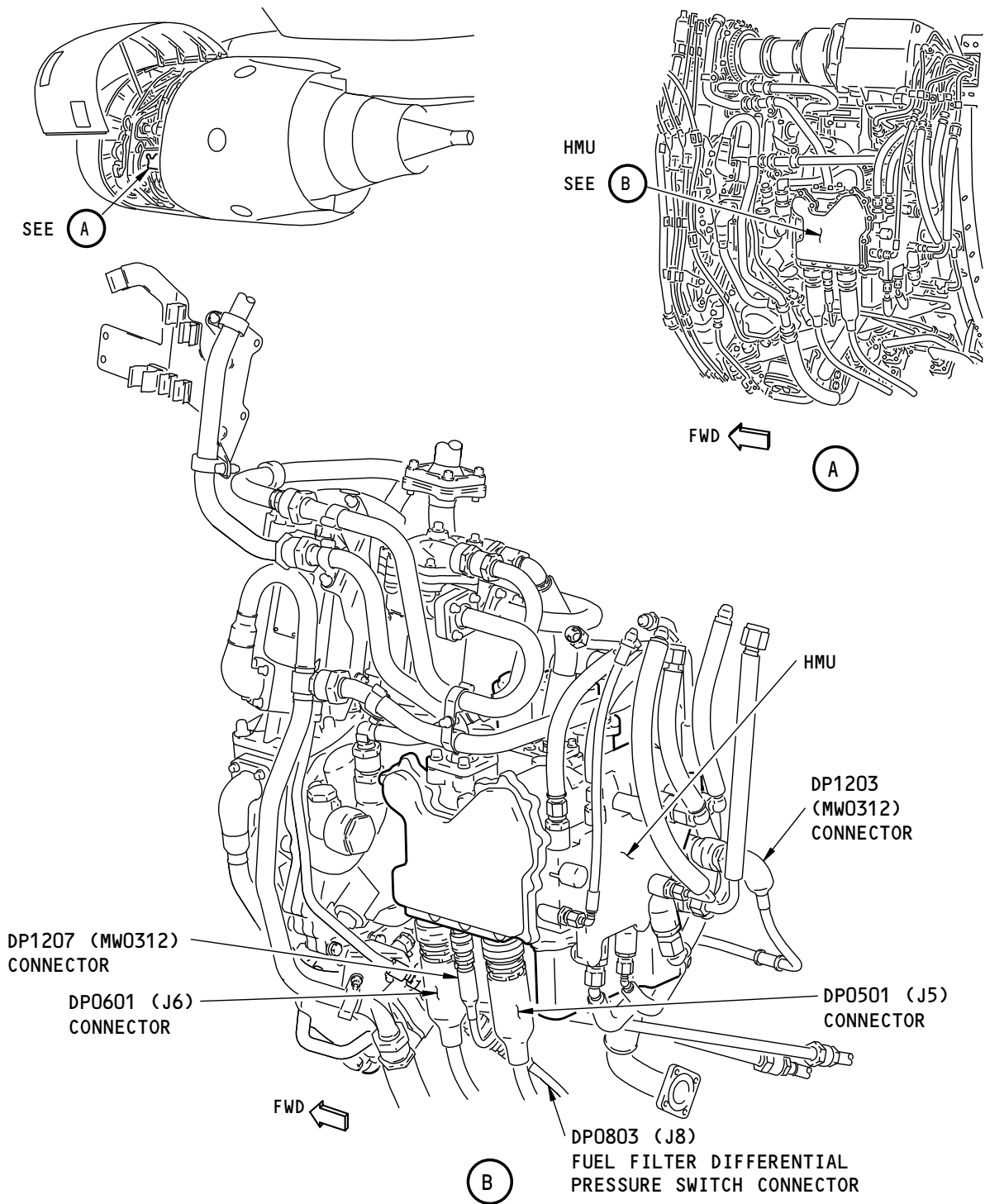
EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H37192 S0006745871_V1

Hydromechanical Unit (HMU)
Figure 302/73-27-00-990-802-F00

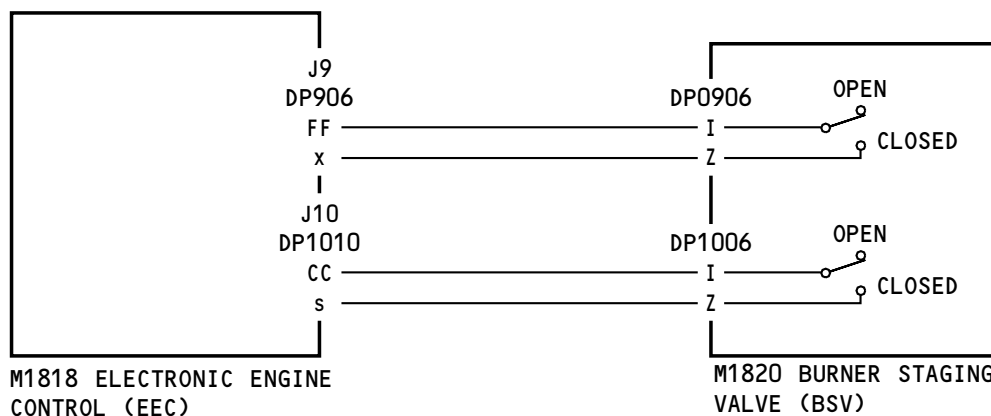
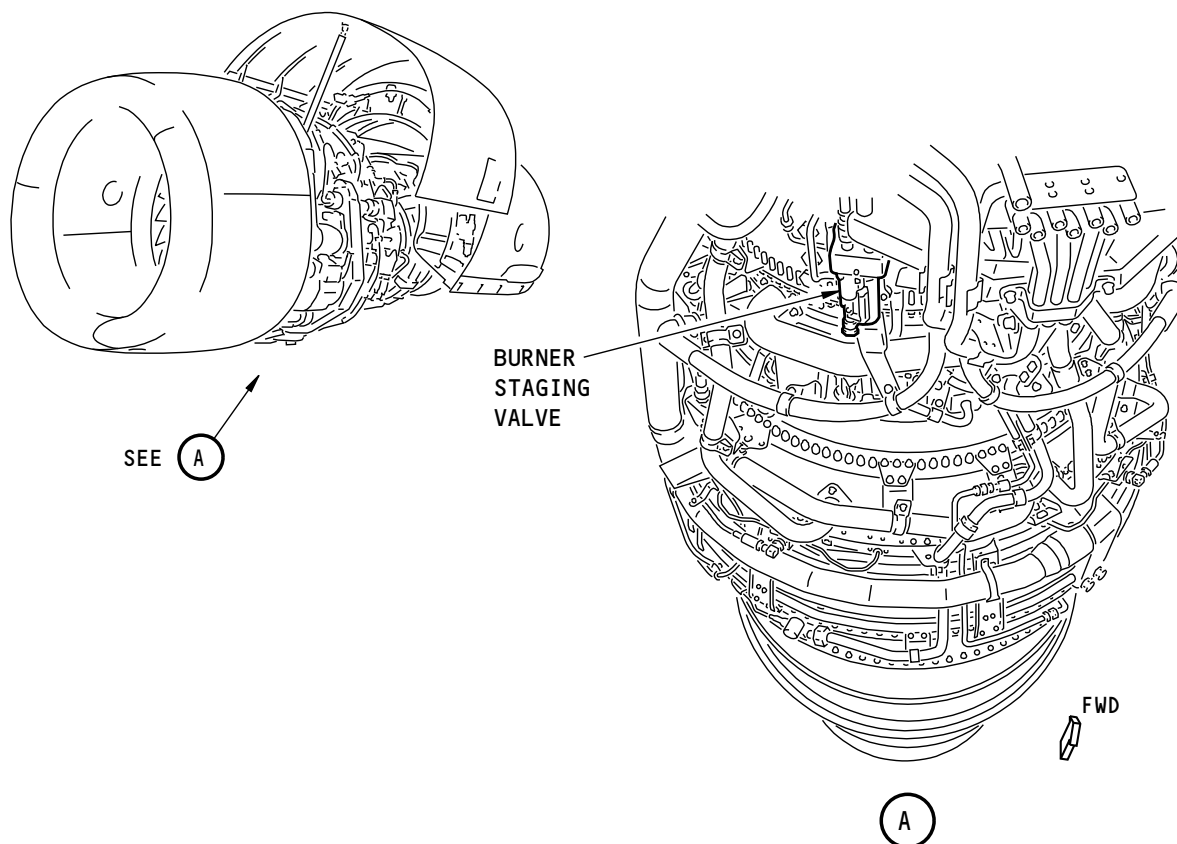
EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H43221 S0006745875_V1

Burner Staging Valve and Simplified Schematic
Figure 303/73-27-00-990-803-F00

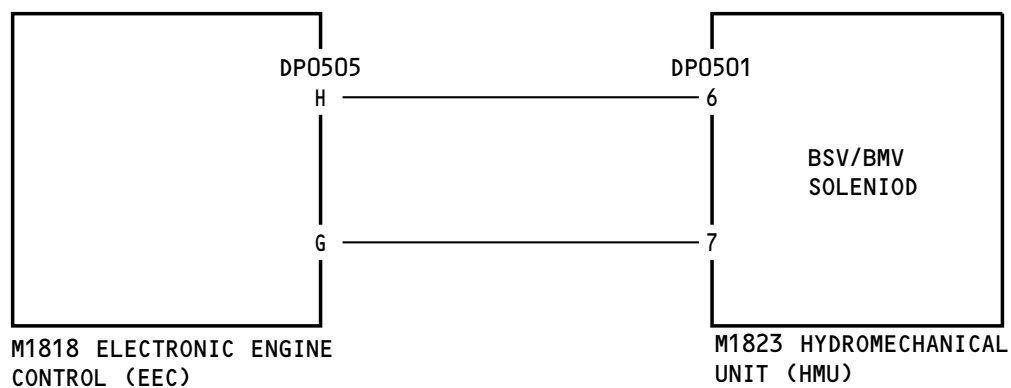
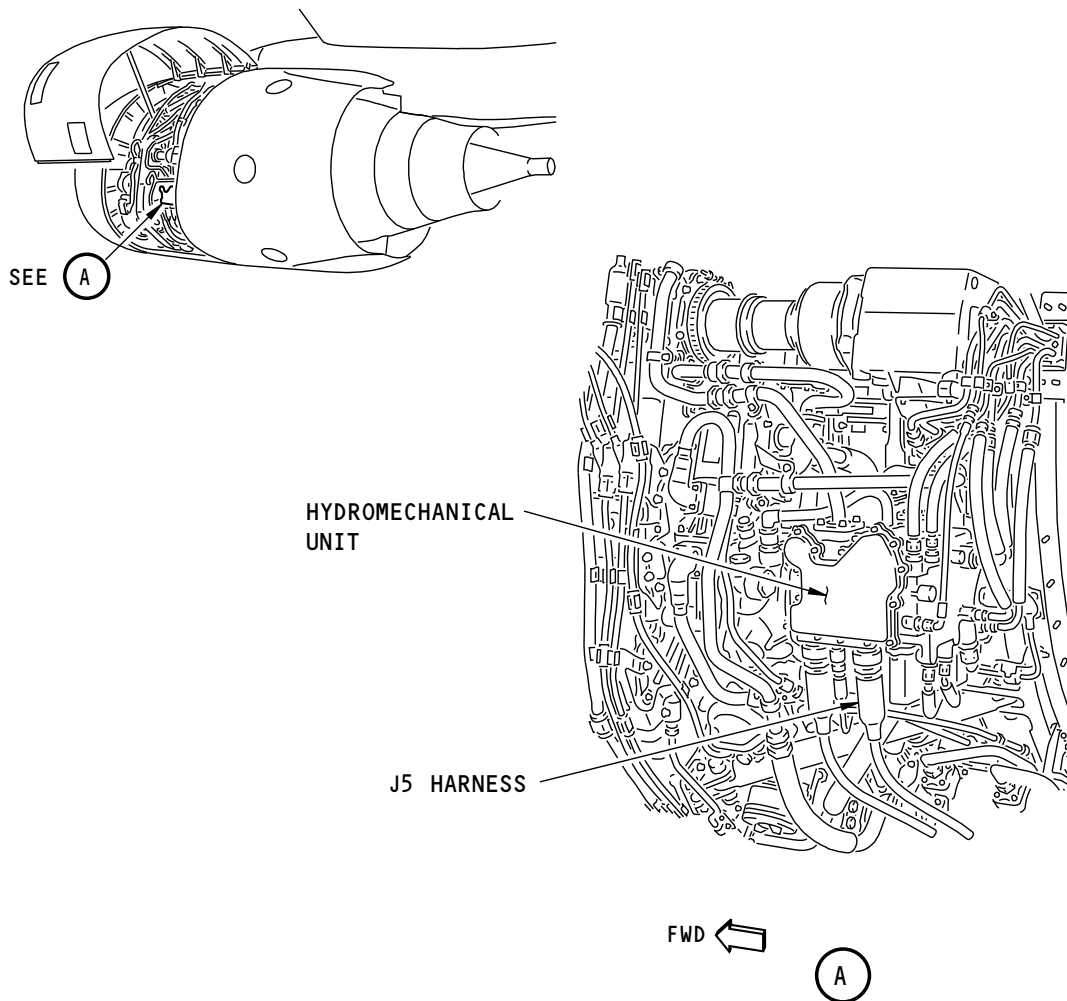
EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 303
Oct 15/2021

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



H32532 S0006745878_V1

Hydromechanical Unit (HMU) and Simplified Schematic
Figure 304/73-27-00-990-804-F00

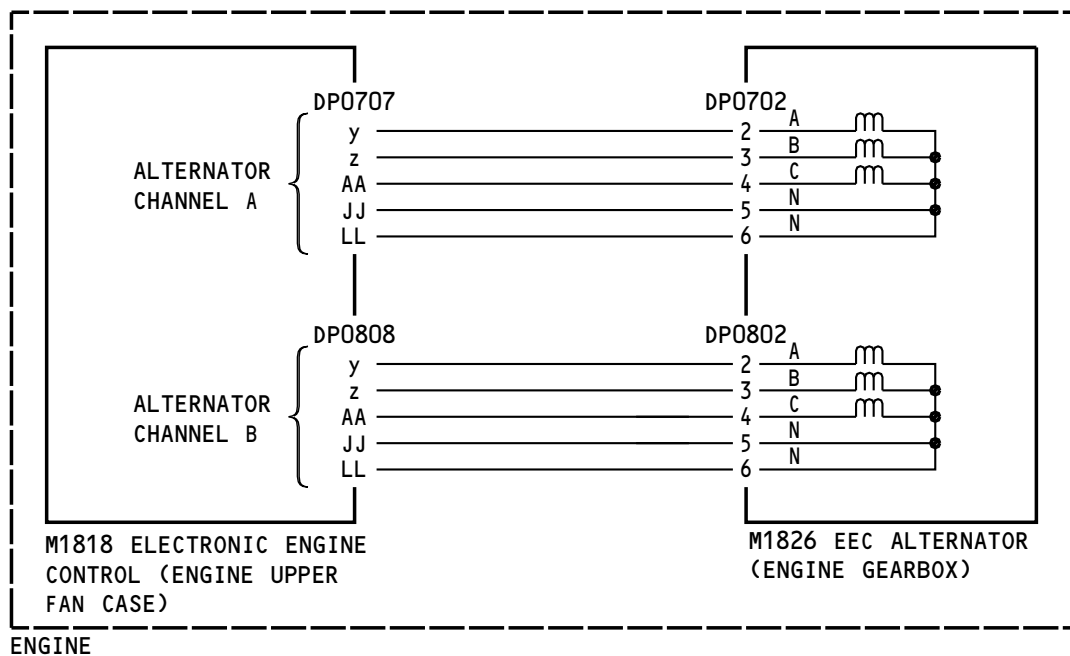
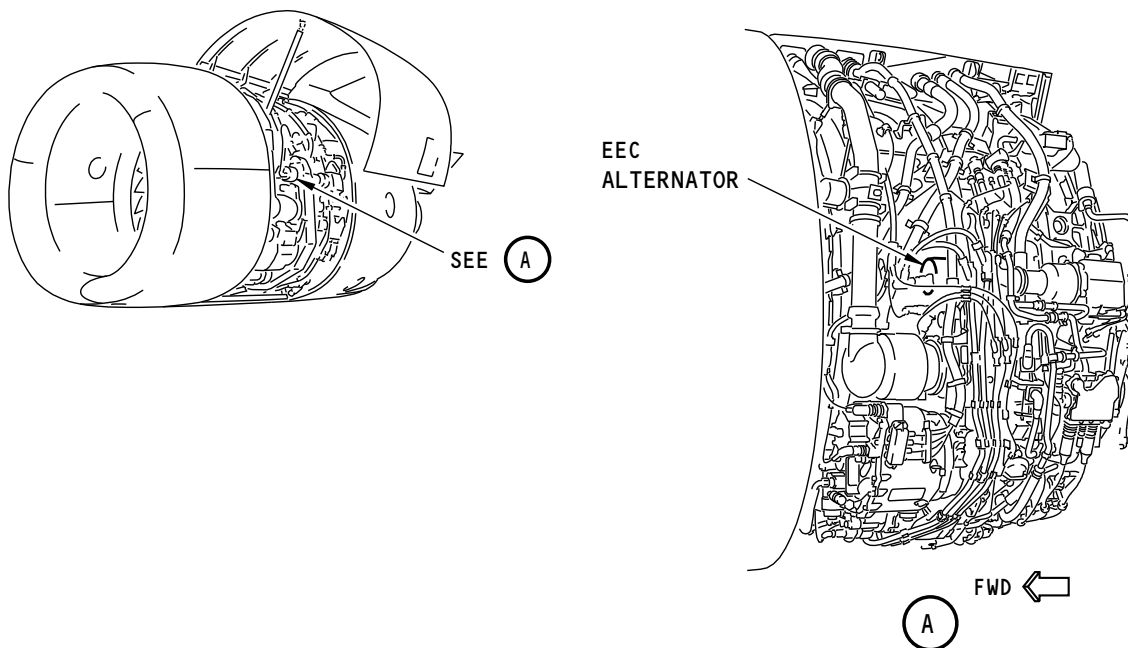
EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 304
Oct 15/2021

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



NOTE: THE WDM/SSM ADD A DASH TO THE PIN LETTER TO DENOTE A LOWER CASE PIN, SUCH AS A- = a.

H32552 S0006745879_V1

EEC Alternator and Simplified Schematic
Figure 305/73-27-00-990-805-F00

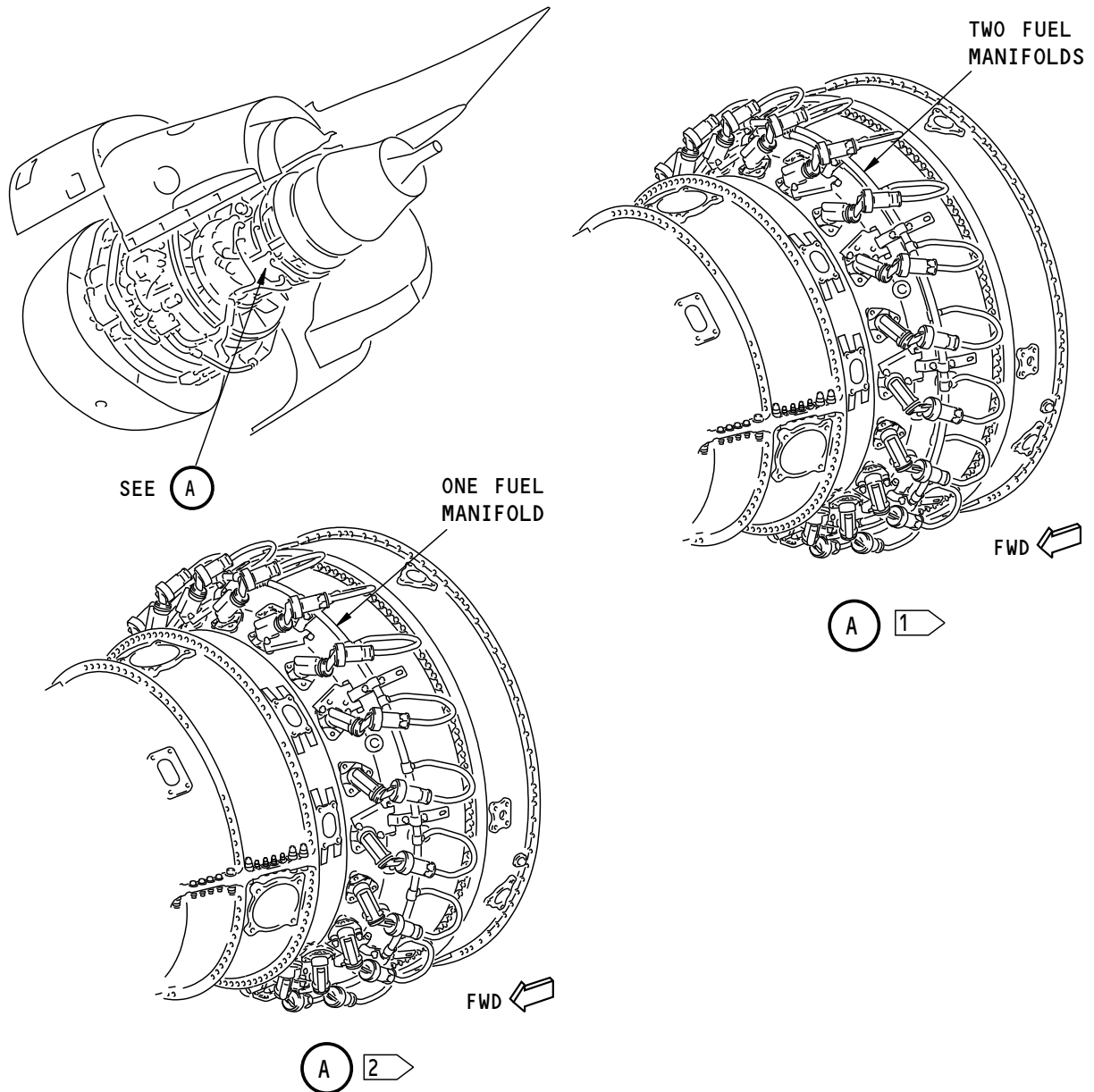
EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 305
Oct 15/2021

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



- 1 PRE- AND POST-CFMI-SB 72-239 ENGINES WITH THE BSV INSTALLED HAVE TWO FUEL MANIFOLDS. ONE GOING TO EVERY OTHER FUEL NOZZLE, THE OTHER GOING TO THE REMAINING FUEL NOZZLES. ENGINE WITH TWO FUEL MANIFOLD CAN HAVE EITHER AN ACTIVE OR DEACTIVATED BSV. YOU MUST LOOK AT THE AIRPLANE RECORDS FOR CFMI-SB 72-239.
- 2 ENGINES WITH THE BSV REMOVED HAVE ONLY ONE FUEL MANIFOLD THAT GOES TO ALL 20 FUEL NOZZLES.

L33838 S0006745880_V1

BSV Active, Deactivated, or Removed
Figure 306/73-27-00-990-806-F00

EFFECTIVITY
SIA ALL

73-27 TASK SUPPORT

D633A103-SIA

Page 306
Oct 15/2021

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

801. ADIRU TAT Data and T12 Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:
 - (a) 73-11701, 73-11702, 73-21701, 73-21702, 73-31701 and 73-31702.
 - (b) The maintenance messages 73-X170Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - (c) If X=1, then do the Fault Isolation Procedure for channel A.
 - (d) If X=2, then do the Fault Isolation Procedure for channel B.
 - (e) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure for channel A and B.
- (2) This fault is reported when the EEC has electrical power.
- (3) The absolute value of the difference between TAT1 and TAT2 is less than 5 degrees C and the absolute value of the difference between the local T12 signal and the selected TAT signal is greater than 5 degrees C.
- (4) You must do the Initial Evaluation to see if other faults are set.

B. Possible Causes

- (1) T12 sensor, sensor 1 (Ch A) or sensor 2 (Ch B)
- (2) TAT probe, M171
- (3) ADIRU, M1749 (Left), M1752 (Right)
- (4) DEU, M1808 (DEU1), M1809 (DEU2)
- (5) EEC, M1818
- (6) J7 (Ch A) and J8 (Ch B) wire harness.

C. Circuit Breakers

- (1) For engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator and Simplified Schematic, (73-28 TASK SUPPORT Figure 301, 73-28 TASK SUPPORT Figure 302)
- (2) (SSM 34-21-12)

EFFECTIVITY
SIA ALL

73-28 TASK 801

D633A103-SIA

Page 201
Oct 15/2021

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

- (3) (SSM 34-21-22)
- (4) (SSM 73-24-12)
- (5) (SSM 73-25-11)
- (6) (SSM 73-25-21)
- (7) (WDM 34-21-12)
- (8) (WDM 34-21-22)
- (9) (WDM 73-22-11)
- (10) (WDM 73-24-12)
- (11) (WDM 73-25-11)
- (12) (WDM 73-25-21)

E. Initial Evaluation

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.

NOTE: The airplane does not have aspirated TAT probes. Therefore, it is necessary to fly the airplane to verify the fault.

- (a) Look for these maintenance message numbers:
 - 1) 73-10811, 73-10812, 73-20811, 73-20812, 73-30811, 73-30812, 73-10901, 73-10902, 73-20901, 73-20902, 73-30901, 73-30902, 73-11691, 73-11692, 73-21691, 73-21692, 73-31691, 73-31692, 73-11711, 73-11712, 73-21711, 73-21712, 73-31711, or 73-31712.
- (b) If you find one or more of the maintenance messages, then do the Fault Isolation Procedure for those maintenance messages first.
- (c) If you find one or more of the 73-X170Y maintenance messages in all of the flight legs since the message first showed, then do the Fault Isolation Procedure below.
 - 1) If maintenance message 73-11701 (Ch A, Eng 1), 73-11702 (Ch A, Eng 2), 73-21701 (Ch B, Eng 1), or 73-21702 (Ch B, Eng 2) shows, then do the Fault Isolation Procedure for the applicable channel.
 - 2) If maintenance message 73-31701 (Ch A and B, Eng 1) or 73-31702 (Ch A and B, Eng 2) shows, then do the Fault Isolation Procedure for channel A and B.
- (d) If you do not find the 73-X170Y maintenance messages in all of the flight legs since the message first showed, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

EFFECTIVITY
SIA ALL

73-28 TASK 801

D633A103-SIA

Page 202
Oct 15/2021

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

F. Fault Isolation Procedure

- (1) Do the Initial Evaluation to see if other faults are set.
- (2) Do this task: T12 Sensor Inspection/Check, AMM TASK 73-21-05-200-801-F00.
 - (a) If you find a problem, then repair it.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If you do not find a problem, then continue.
- (3) Examine the T12 electrical connector:
 - (a) For engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2,
 - 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Open the T12 access door.

NOTE: The T12 access door is found on the right side of the inlet cowl, at the 2:00 O'clock position.
- (d) See if the T12 electrical connector, CH A or CH B, is correctly connected to the receptacle, DJ0704 (Ch A) or DJ0804 (Ch B), and continue.
- (e) Disconnect the T12 sensor from the receptacle, DJ0704 (Ch A) or DJ0804 (Ch B).
- (f) Visually examine the T12 and wire harness electrical connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If the T12 connector is damaged, then replace the T12 sensor, T509.

These are the tasks:

T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,

T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the applicable wire harness, J7 (Ch A) or J8 (Ch B).

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

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (g) If you do not find a problem, then continue.
- (4) Measure the resistance of the T12 sensor:
 - (a) Measure the resistance between these pins at the applicable electrical connector, CH A or CH B, through the T12 sensor:

Table 201

CONNECTOR	PINS	RESISTANCE
T12 RECEPTACLE CH A CH B	PINS 1 TO 2	156 TO 237 OHMS
	PIN 1 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN 2 TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS

- (b) If the resistance is not in the specified range, then replace the T12 sensor.
These are the tasks:
T12 Sensor Removal, AMM TASK 73-21-05-000-801-F00,
T12 Sensor Installation, AMM TASK 73-21-05-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (c) If the resistance is in the specified range, then do this step and continue.
 - 1) Re-connect the T12 sensor to the receptacles, DJ0704 (Ch A) and DJ0804 (Ch B) on the inlet cowl bulkhead.
- (5) Examine the electrical connector, DP0707 (J7, Ch A) or DP0808 (J8, Ch B), at the EEC:
 - (a) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
 - (b) See if the electrical connector, DP0707 (Ch A) or DP0808 (Ch B), is correctly connected to the EEC, and continue.
 - (c) Disconnect the electrical connector, DP0707 (J7, Ch A) or DP0808 (J8, Ch B), from the EEC.
 - (d) Visually examine the EEC receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EFFECTIVITY
SIA ALL

73-28 TASK 801

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

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the harness connector is damaged, then replace the applicable wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (e) If you did not find a problem, then continue.
- (6) Do an electrical check of the J7 (CH A), or J8 (CH B) wire harness between the EEC and the T12 sensor:
- (a) Measure the resistance at these pins in the electrical connector on the wire harness through the T12 sensor:

Table 202

CONNECTOR	PINS	RESISTANCE
DP0707 DP0808	PINS D TO E	156 TO 237 OHMS
	PIN D TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS
	PIN E TO CONNECTOR SHELL	GREATER THAN 20 MEGOHMS

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- (b) If the resistance is in the specified range and the fault was found by the Initial Evaluation, then replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

- 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (c) If the resistance is not in the specified range, then replace the wire harness, J7 (Ch A) or J8 (Ch B).

These are the tasks:

Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,

Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.

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

EFFECTIVITY
SIA ALL

73-28 TASK 801

D633A103-SIA

Page 205
Oct 15/2021

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

- a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (7) Replace the most likely LRU from the Possible Causes list.
 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that the T12 sensor is connected to the receptacles, DJ0704 (Ch A) and DJ0804 (Ch B) on the inlet cowl bulkhead.
 - (b) Make sure that the J7, DP0707 and J8, DP0808 electrical connectors are connected to the EEC.
 - (c) For engine 1,
 - 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
 - (f) Close the applicable T12 access door, 412AR or 422AR.
 - (2) Monitor the airplane on a subsequent flight.
- NOTE: The airplane does not have aspirated TAT probes. Therefore, it is necessary to fly the airplane to confirm the repair.

————— **END OF TASK** —————

802. ADIRU Total Pressure Data is Missing From a DEU - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:
 - (a) 73-11621, 73-11622, 73-21621, 73-21622, 73-31621 and 73-31622; 73-11631, 73-11632, 73-21631, 73-21632, 73-31631 and 73-31632.

EFFECTIVITY
SIA ALL

73-28 TASKS 801-802

D633A103-SIA

Page 206
Oct 15/2021

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

- (b) The maintenance messages 73-X162Y or 73-X163Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
- (3) At least one ADIRU label is valid on the DEU and the total pressure label (L242) has failed the parity check, failed the update rate, or the Status Matrix is set to Failure, Warning, or No Computed Data.
- (a) This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) ADM, M1750 (L ADM), M1753 (R ADM)
- (2) ADIRU, M1749 (ADIRU 1), M1752 (ADIRU 2)
- (3) DEU, M1808 (DEU 1), M1809 (DEU 2)
- (4) EEC, M1818.

C. Circuit Breakers

- (1) For engine 1,
 - (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For engine 2,
 - (a) 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

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

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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 34-21-12)
- (3) (SSM 34-21-22)
- (4) (SSM 73-24-12)
- (5) (WDM 34-21-12)
- (6) (WDM 34-21-22)
- (7) (WDM 73-24-12)

E. Initial Evaluation

- (1) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If only one of the maintenance messages 73-X1621 (Eng 1), 73-X1622 (Eng 2), 73-X1631 (Eng 1), or 73-X1632 (Eng 2) shows, then do the Fault Isolation Procedure - One EEC for the applicable engine.
 - (b) If the two maintenance messages 73-X1621 (Eng 1) and 73-X1622 (Eng 2), or 73-X1631 (Eng 1) and 73-X1632 (Eng 2) for the two engines show, then do the Fault Isolation Procedure - Two EEC's.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.

EFFECTIVITY
SIA ALL

73-28 TASK 802

D633A103-SIA

Page 208
Oct 15/2021

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

- b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - One EEC

- (1) Do these steps for the EEC (engine) that did not give the message:

NOTE: The total pressure sensors send the data to the ADIRU. The ADIRU sends the data to the DEU's, through an ARINC buss. The DEU's use the EEC/DEU ARINC bus to deliver the pressure information to the EEC's. The two EEC's should receive the same data from the two DEU's. If only one EEC finds the dual channel message, the EEC that found the fault could have an internal fault or the ARINC buss to the other EEC has an open or ground.

- (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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (b) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.
- (c) Disconnect the DP0303 (Ch A) and DP0404 (Ch B) electrical connectors from the EEC that did not find the message.
- (d) Get access to the E3-1 shelf in the EE bay and install a jumper between these pins of the terminal block TB3102 for the two DEU's:

EFFECTIVITY
SIA ALL

73-28 TASK 802

D633A103-SIA

Page 209
Oct 15/2021

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

- 1) For DEU 1, YA39 and YB39
 - 2) For DEU 2, YA73 and YB73.
- (2) Do a resistance check between these pins of the applicable wire harness connector, to examine the wires between the EEC that did not find the message and the terminal block TB3102:

Table 203

CONNECTOR	PINS	RESISTANCE
DP0303 & DP0404	PINS z TO k	LESS THAN 10 OHMS
	PIN z TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the EEC.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (b) If the resistance is not in the specified range, then continue.
- (3) Examine the electrical connectors, DP0324 (Ch A) and DP0460 (Ch B), at the strut:
 - (a) See if the electrical connectors, DP0324 (Ch A) and DP0460 (Ch B), is correctly connected to the strut receptacles, and continue.
 - (b) Disconnect the electrical connectors, DP0324 (Ch A) and DP0460 (Ch B), from the receptacles in the strut.
 - (c) Visually examine the strut receptacles and wire harness connectors (AMM TASK 70-70-01-200-801-F00).
 - 1) If a strut receptacle is damaged, then repair or replace the strut receptacle (SWPM Ch 20).
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If a harness connector is damaged, then replace the applicable wire harness, MW0303 (Ch A) or MW0304 (Ch B).
These are the tasks:
Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If a connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.

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

- (d) If you did not find a problem, then continue.
- (4) Examine the resistance at these pins on the strut receptacles; Engine 1 [D30224 (Ch A) and D30260 (Ch B)] or Engine 2 [D30424 (Ch A) and D30460 (Ch B)]:

Table 204

CONNECTOR	PINS	RESISTANCE
D30224 & D30424	PINS 5 TO 14	LESS THAN 10 OHMS
	PIN 5 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM
D30260 & D30460	PINS 2 TO 3	LESS THAN 10 OHMS
	PIN 2 TO THE AIRPLANE GROUND	GREATER THAN 1 MEGOHM

- (a) If the resistance is in the specified range, then replace the applicable MW0303 (J3) or MW0304 (J4) wire harness.
- These are the tasks:
- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,
Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.
- 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue with the Fault Isolation Procedure - Dual Channel Fault on EEC 1 and EEC 2.
- NOTE:** If the wires were damaged to the EEC that did not find the message, then the message should now show as a dual channel message from the two EEC.
- (b) If the resistance is not in the specified range, then repair or replace the wires between the applicable strut receptacle and the terminal block TB3102 (SWPM Ch 20).
- 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then continue with the Fault Isolation Procedure - Two EEC's.

G. Fault Isolation Procedure - Two EEC's

- (1) Do these steps to see if PT (total pressure) shows on the input monitoring display for the two engines:
 - (a) Get access to the applicable input monitoring screen on the FMC control display unit (CDU):
 - 1) Push the INIT REF key.
NOTE: This causes the INIT REF INDEX to show.
 - 2) Push the MAINT line select key (LSK).
NOTE: This causes the MAINT BITE INDEX to show.
 - 3) Push the ENGINE LSK.
NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.
 - 4) Push the line select key for one of the engines (ENGINE 1 or ENGINE 2).
NOTE: This causes the ENGINE X BITE TEST MAIN MENU to show.
 - 5) Push the INPUT MONITORING LSK.

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

- 6) Push the CONTINUE LSK.
NOTE: This causes the INPUT MONITORING MENU to show
- 7) Push the CONTROL PRESSURES LSK.
NOTE: This causes the INPUT MONITORING PRESSURES - PSIA screen to show.
- 8) Push the NEXT PAGE key and then push the PT LSK.
NOTE: This causes the INPUT MONITORING PT SELECTION - PSIA screen to show.
- (b) Look for a numerical value beside the applicable PT ADIRU (or ADC) X display.
NOTE: If PT ADIRU (or ADC) X is followed by ---- instead of a numerical value, then the applicable ADIRU is not sending the PT data.
- (c) Push the PREV PAGE key until the ENGINE/EXCEED BITE INDEX shows.
 - 1) Do the steps again, to get the PT value for the other engine.
- (d) After the two engines are examined, push the INIT REF key to end the INPUT MONITORING, then continue.
- (2) Do these steps if PT ADIRU (or ADC) X does not show a numerical value:
NOTE: PT ADIRU (or ADC) X is followed by ----.
 - (a) Replace the applicable ADM (the most likely LRU from the Possible Causes list).
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.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - c) Do the Repair Confirmation at the end of this task.
- (3) Do these steps if PT ADIRU (or ADC) X shows a numerical value:
NOTE: PT ADIRU (or ADC) X is not followed by ----.
 - (a) If the fault was found by the Initial Evaluation, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that the electrical connectors, DP0303 and DP0404, are connected to the receptacles in the EEC.
 - (b) Make sure that the electrical connectors, DP0324 (Ch A) and DP0460 (Ch B), are connected to the receptacles on the strut.

EFFECTIVITY
SIA ALL

73-28 TASK 802

D633A103-SIA

Page 212
Oct 15/2021

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

- (c) 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>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
Do this test on each engine if the fault occurred on the two engines.
- (a) If the maintenance message does not show, then you corrected the fault.
- (3) Close this access door:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

- (4) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

————— **END OF TASK** —————

803. ADIRU 1 and ADIRU 2 Total Pressure Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) 73-11641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-1 CH A fault
- (b) 73-11642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-2 CH A fault

EFFECTIVITY
SIA ALL

73-28 TASKS 802-803

D633A103-SIA

Page 213
Oct 15/2021

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

- (c) 73-21641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-1 CH B fault
- (d) 73-21642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-2 CH B fault
- (e) 73-31641 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-1 Dual Channel fault
- (f) 73-31642 THE ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE: ENG-2 Dual Channel fault
- (2) This maintenance message normally shows as a Dual Channel Fault.
- (3) The Total Pressure Label (L242) from Air Data Inertial Reference Unit (ADIRU) 1 and ADIRU 2 are valid, but the two sources differ by more than 0.05 MACH.
 - (a) This maintenance message shows when Electronic Engine Control (EEC) has Electrical Power.
- (4) You must do the Initial Evaluation to see if other faults are set.

B. Possible Causes

- (1) Blocked, Damaged or Leaking Pitot Probe
- (2) Left (Right) Air Data Module (ADM), M1750 (M1753)
- (3) Left (Right) Angle of Attack (AOA) Sensor

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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B

EFFECTIVITY
SIA ALL

73-28 TASK 803

D633A103-SIA

Page 214
Oct 15/2021

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator (73-28 TASK SUPPORT Figure 301)
- (2) WDM 34-21-12
- (3) WDM 34-21-22
- (4) WDM 73-24-12
- (5) SSM 34-21-12
- (6) SSM 34-21-22
- (7) SSM 73-24-12

E. Initial Evaluation

- (1) Do these steps to see if the message is still active and if other maintenance messages are also set:

- (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (b) Look for the maintenance messages shown in the Description above and also these "DEU1 (2) DATA IS MISSING" maintenance messages numbers:

NOTE: Information about the messages is necessary during the Fault Isolation Procedure.

- 73-11431
- 73-11432
- 73-21431
- 73-21432
- 73-11441
- 73-11442
- 73-21441
- 73-21442
- 73-31441
- 73-31442

- 1) If one or more of the "DEU1 (2) DATA IS MISSING" maintenance messages shows, refer to the 73-MAINT MSG INDEX at the beginning of this Chapter to find the applicable Fault Isolation Manual (FIM) Tasks for the messages that show and do the associated corrective action(s) for those messages first.

NOTE: The Total Pressure Sensor sends the data to the ADIRU and the ADIRU sends the data to the Display Electronic Unit (DEU)s, through an Aeronautical Radio Incorporated (ARINC) Bus.

The DEUs use the EEC/DEU ARINC Bus to deliver the pressure information to the EECs.

The two EECs receive the same data from the two DEUs.

EFFECTIVITY
SIA ALL

73-28 TASK 803

D633A103-SIA

Page 215
Oct 15/2021

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

• If only one EEC finds the Dual Channel Message, the EEC that found the fault could have an internal fault or the ARINC Bus to the other EEC has an open or grounded circuit.

- a) Do the Repair Confirmation at the end of this task.
- 2) If no “DEU1 (2) DATA IS MISSING” and no “ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE” maintenance messages show on the Control Display Unit (CDU), then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - a) Do the Fault Isolation Procedure below to make sure that the Pitot Probes do not have blockage, damage, or leakage.
 - b) Monitor the airplane on the subsequent flight(s).
- 3) If one or more “ADIRU1 AND ADIRU2 TOTAL PRESSURE DATA DISAGREE” maintenance message still shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Examine the Pitot Probes for blockage, damage and leakage.

NOTE: These conditions can cause problems in the Pitot Static System:

- Blockage of the Pitot Probes
 - Blockage of the Static Probes
 - Moisture in the Pitot or Static System
 - Leakage in the Pitot or Static System
 - Routing of the Pitot or Static System Tubing
- (a) An unsatisfactory Pitot Probe can also set the Common Display System (CDS) Message 31-65060 AIRSPEED DISAGREE.
 - 1) If this message shows, refer to this task: Airspeed Disagree - Fault Isolation, 31-62 TASK 876.
 - (b) Visually examine the Pitot Probe for unwanted material.
 - 1) If you find unwanted moisture, debris or other material, then clean the Pitot Probe. This is the task: Pitot Probe Cleaning, AMM TASK 34-11-01-100-801.
 - (c) Examine the Pitot Probe for damage. This is the task: Pitot Probe Detailed Inspection, AMM TASK 34-11-01-200-804.
 - 1) If you find damage, then replace the applicable Pitot Probe. These are the tasks:
 - Pitot Probe - Removal, AMM TASK 34-11-01-000-801
 - Pitot Probe - Installation, AMM TASK 34-11-01-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - (d) Do a flush of the Pitot Static System. This is the task: Pitot Static System - Flushing, AMM TASK 34-11-00-170-802.
 - 1) Do the Repair Confirmation at the end of this task.
 - (e) Do the Pitot System Leak Test. These are the tasks:
 - Left Pitot System Leak Test, AMM TASK 34-11-00-790-810
 - Right Pitot System Leak Test, AMM TASK 34-11-00-790-811
 - 1) If you find a leak, repair the leak or replace defective components as necessary.
 - 2) Do the Repair Confirmation at the end of the task.

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

- (2) Do this task: Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801.
 - (a) If you find ADM problems, then do the corrective action for the ADM problems that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then replace the two ADMs. 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) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find ADM problems, then replace the most likely Line Replaceable Unit (LRU) from the Possible Causes List.
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (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. ADIRU Pitot Probe Heat Data is Missing from a DEU - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:
 - (a) 73-11651, 73-11652, 73-21651, 73-21652, 73-31651 and 73-31652; 73-11661, 73-11662, 73-21661, 73-21662, 73-31661 and 73-31662.
 - (b) The maintenance messages 73-X165Y or 73-X166Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
- (3) At least one ADIRU label is valid on the DEU and the probe heat status label (L270) has failed the parity check or the update rate.
 - (a) This fault is reported when the EEC has electrical power.
- (4) You must do the Initial Evaluation to see if other faults are set.

B. Possible Causes

- (1) ADIRU, M1749 (ADIRU 1), M1752 (ADIRU 2)
- (2) DEU, M1808 (DEU 1), M1809 (DEU 2)
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,

EFFECTIVITY
SIA ALL

73-28 TASKS 803-804

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

- (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

- (a) 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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-28 TASK 804

D633A103-SIA

Page 218
Oct 15/2021

**737-600/700/800/900
FAULT ISOLATION MANUAL****D. Related Data**

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 31-62-11)
- (3) (SSM 31-62-21)
- (4) (SSM 73-24-12)
- (5) (WDM 31-62-11)
- (6) (WDM 31-62-21)
- (7) (WDM 73-24-12)
- (8) (WDM 73-22-11)

E. Initial Evaluation

- (1) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) Look for these maintenance message numbers:
 - 1) 73-11651, 73-11652, 73-21651, 73-21652, 73-31651, 73-31652, 73-11661, 73-11662, 73-21661, 73-21662, 73-31661, 73-31662, 73-11431, 73-11432, 73-21431, 73-21432, 73-31431, 73-31432, 73-11441, 73-11442, 73-21441, 73-21442, 73-31441, 73-31442.

NOTE: Information about these messages is necessary during the Fault Isolation Procedure.
 - (b) If one or more of the maintenance messages; 73-X1651 (Eng 1), 73-X1652 (Eng 2), 73-X1661 (Eng 1) or 73-X1662 (Eng 2) show, then do the Fault Isolation Procedure.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline's policy, and the Possible Causes to make a decision if you will try to correct this fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors from the fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

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

F. Fault Isolation Procedure

- (1) Do the Initial Evaluation to see if other faults are set.
- (2) If maintenance message numbers 73-31431 and 73-31441, or 73-31432 and 73-31442 showed during the Initial Evaluation, then do the fault isolation procedure for those messages first and then continue this procedure.

NOTE: The probe heat sensors send the data to the ADIRU. The ADIRU sends the data to the DEUs, through an ARINC bus. The DEUs use the EEC/DEU ARINC bus to send the heat information to the EECs. The two EECs should receive the same data from the two DEUs. If only one EEC finds the dual channel message, the EEC that found the fault could have an internal fault or the ARINC bus to the other EEC has an open or grounded circuit.

- (a) If you found and repaired the faults for maintenance message numbers 73-31431 and 73-31441 or 73-31432 and 73-31442 above, then, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - 1) Look for maintenance message number 73-31651, 73-31652, 73-31661, or 73-31662
 - 2) If you find maintenance messages, then you corrected the fault.
 - 3) If you do not find maintenance message number 73-31651, 73-31652, 73-31661, or 73-31662, then continue.
- (b) If maintenance message numbers 73-31431 and 73-31441, or 73-31432 and 73-31442 did not show during the Initial Evaluation, then continue.
- (3) Do these steps to get access to the Input Monitoring for the applicable engine:
 - (a) Make sure that the Pitot Static HEAT Switch (P5) is OFF.
 - (b) Get access to the FMCS CDU in the flight compartment.
 - (c) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.

NOTE: The FMCS CDU does not support a type-ahead function. You must have the prompt on the FMCS CDU screen before you type in the response.

- (d) Push these line select keys (LSK) on the FMCS CDU:

- 1) INDEX
- 2) MAINT

NOTE: This LSK causes the MAINT BITE INDEX screen to show.

- 3) ENGINE

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.

- 4) Applicable ENGINE X, (X = 1 or 2)

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The FMCS CDU will show INITIALIZING EEC X and EEC SORTING FAULT HISTORY DATA for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

- 5) INPUT MONITORING

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING menu to show.

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

6) CONTROL PRESSURES

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING PRESSURE PSIA menu to show.

(e) Push the NEXT PAGE Key.

(f) Push the PT LSK.

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING PT SELECTION PSIA menu to show.

(4) Do these steps to examine the PROBE HEAT ADIRU 1 and 2 data:

(a) Record the data that shows for the PROBE HEAT ADIRU 1 and PROBE HEAT ADIRU 2.

NOTE: With the Pitot Static HEAT Switch set to OFF, the PROBE HEAT ADIRU 1 and 2 data should show OFF.

(b) Set the Pitot Static HEAT Switch (P5) to ON.

(c) Record the data that shows for the PROBE HEAT ADIRU 1 and PROBE HEAT ADIRU 2.

NOTE: With the Pitot Static HEAT Switch set to ON, the PROBE HEAT ADIRU 1 and 2 data should show ON.

(d) Set the Pitot Static HEAT Switch (P5) to OFF.

(e) Continue.

(5) Replace the ADIRU whose data above does not agree with the switch position, M1749 (ADIRU 1) and M1752 (ADIRU 2).

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.

(6) If the data above from one of the ADIRUs is blank, -----, or ?????, then do these steps:

(a) Do this task: CDS BITE Procedure, 31-62 TASK 801.

1) Do the corrective action for the ADIRU maintenance messages that you find.

a) Do the Repair Confirmation at the end of this task

b) If the Repair Confirmation is not satisfactory, then continue.

(b) If you do not find ADIRU maintenance messages or the problem continues, then do the EEC BITE Procedure for Recent Faults. To do this, do this task: EEC BITE Procedure, 73-00 TASK 801.

1) Look for these DEU data maintenance messages 73-21431, 73-21432, 73-31441, or 73-31442.

2) Do the corrective action for the DEU data maintenance messages that you find.

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

b) If the Repair Confirmation is not satisfactory, then continue.

(c) If you do not find DEU data maintenance messages, then continue.

(7) Replace one of the ADIRUs (the most likely LRU from the Possible Causes list), M1749 (ADIRU 1) or M1752 (ADIRU 2).

These are the tasks:

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

EFFECTIVITY
SIA ALL

73-28 TASK 804

D633A103-SIA

Page 221
Oct 15/2021

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

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

- (a) Do the Repair Confirmation at the end of this task.
- (b) If the Repair Confirmation is not satisfactory, then replace the other ADIRU, M1749 (ADIRU 1) or M1752 (ADIRU 2).

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.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

805. ADIRU PS and the Engine PO Signals Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:
 - (a) 73-11681, 73-11682, 73-21681, 73-21682, 73-31681 and 73-31682.
 - (b) The maintenance messages 73-X168Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, do the fault isolation procedure for a single channel fault.
 - 2) If X=1 and 2 (two messages), or X=3, do the fault isolation procedure for a dual channel fault.
- (2) This maintenance message should show as a dual channel fault. If you find a single channel fault, then there is an internal EEC problem.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The local value of the engine PO disagrees with the PS signal from ADIRU 1 and ADIRU 2 by more than 0.5 psia.

B. Possible Causes

- (1) For a single channel fault:
 - (a) EEC, M1818.
- (2) For a dual channel fault on only one engine:
 - (a) EEC, M1818.
- (3) For a dual channel fault on the two engines:
 - (a) ADIRUs, M1749 (ADIRU 1) and M1752 (ADIRU 2)
 - (b) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,

EFFECTIVITY
SIA ALL

73-28 TASKS 804-805

D633A103-SIA

Page 222
Oct 15/2021

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

- (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,

- (a) 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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-28 TASK 805

D633A103-SIA

Page 223
Oct 15/2021

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

D. Related Data

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 31-62-11)
- (3) (SSM 31-62-21)
- (4) (SSM 73-24-12)
- (5) (WDM 31-62-11)
- (6) (WDM 31-62-21)
- (7) (WDM 73-24-12)
- (8) (WDM 73-22-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
Do this test on each engine if the fault occurred on the two engines.
 - (b) If one of the single channel maintenance messages; 73-11681, 73-11682, 73-21681, or 73-21682 show, then do the Fault Isolation Procedure - Single Channel Fault.
NOTE: A single channel message implies the CH A and CH B can not communicate the P0 data, internal to the EEC.
 - (c) If only one of the dual channel maintenance messages, 73-31681 or 73-31682, show, then do the Fault Isolation Procedure - Dual Channel Fault on a Single EEC for the applicable engine.
NOTE: A dual channel message on only one EEC implies that the EEC has a bad P0 sensor or the P0 inlet port is clogged.
 - (d) If the two dual channel maintenance messages 73-31681 and 73-31682, show, then do the Fault Isolation Procedure - Dual Channel Fault on EEC 1 and EEC 2.
 - (e) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) For an intermittent fault you must use your judgment, your airline's policy, and the Possible Causes to make a decision if you will try to correct this fault.
 - 4) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 5) Monitor the airplane on the subsequent flight.

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

F. Fault Isolation Procedure - Single Channel Fault

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818 that reported the single channel fault.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault on a Single EEC

- (1) If the fault was found by the Initial Evaluation, then replace the EEC, M1818 that reported the fault 73-31681 or 73-31682.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

H. Fault Isolation Procedure - Dual Channel Fault on EEC 1 and EEC 2

- (1) Do the CDS BITE procedure on the two DEUs. To do this, do this task: CDS BITE Procedure, 31-62 TASK 801.

- (a) Do the corrective action for the ADIRU maintenance messages that you find.

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

- a) If the Repair Confirmation is not satisfactory, then continue.

- (b) If you do not find ADIRU maintenance messages, then continue.

- (2) Get access to the FMCS CDU in the flight compartment.

- (a) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.

NOTE: The FMCS CDU does not support a type ahead function. You must have a prompt on the screen before you type the response.

- (b) Push the INDEX line-select-key (LSK).

- (c) Push the MAINT LSK.

NOTE: This LSK causes the MAINT BITE INDEX to show.

- (d) Push the ENGINE LSK.

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX to show.

- (3) Do these steps for the two engines:

- (a) Push the LSK for the applicable engine (ENGINE 1 or ENGINE 2)

NOTE: This LSK causes the ENGINE X (X=1 or 2) BITE TEST MAIN MENU to show.

Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The FMCS CDU will show INITIALIZING EEC X and EEC SORTING FAULT HISTORY for a short time before the ENGINE X BITE TEST MAIN MENU shows.

- (b) Push the INPUT MONITORING LSK.

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING screen to show.

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

- (c) Push the CONTROL PRESSURE LSK.

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING PRESSURE - PSIA screen to show.

- (d) Push the P0 LSK.

NOTE: This LSK causes the ENGINE X BITE TEST INPUT MONITORING P0 SELECTION - PSIA screen to show.

- (e) Record the values for these pressures:

- 1) P0 CH A
- 2) P0 CH B
- 3) PS ADIRU 1
- 4) PS ADIRU 2

- (f) Repeat this subtask for the other engine.

- (4) Compare the four values for PO and PS from the two engines.

NOTE: This maintenance message can show if local value of the engine PO disagrees with the PS signal from ADIRU 1 and ADIRU 2 by more than 0.5 psia.

- (a) If the values for PS do not agree with the values for P0, then replace the ADIRU whose PS values do not agree with the values for P0, M1749 (ADIRU 1) or M1752 (ADIRU 2).

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.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then replace the other ADIRU, M1749 (ADIRU 1) or M1752 (ADIRU 2).

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.
- b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
- c) Do the Repair Confirmation at the end of this task.

I. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

Do this test on each engine if the fault occurred on the two engines.

- (a) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

806. ADIRU 1 and ADIRU 2 TAT Data From DEU 1 and DEU 2 is Missing - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:

- (a) 73-11691, 73-11692, 73-21691, 73-21692, 73-31691 and 73-31692.

EFFECTIVITY
SIA ALL

73-28 TASKS 805-806

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

- (b) The maintenance messages 73-X169Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
 - (a) This fault is reported when the EEC has electrical power.
- (3) The TAT (L211) from ADIRU 1 and ADIRU 2 failed the update rate or the parity check.
- (4) You must do the Initial Evaluation to see if other faults are set.

B. Possible Causes

- (1) ADIRU, M1749 (ADIRU 1), M1752 (ADIRU 2)
- (2) DEU, M1808 (DEU 1), M1809 (DEU 2)
- (3) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
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
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (2) For Engine 2,
 - (a) 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

EFFECTIVITY
SIA ALL

73-28 TASK 806

D633A103-SIA

Page 227
Oct 15/2021

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

(Continued)

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 31-62-11)
- (3) (SSM 31-62-21)
- (4) (SSM 73-24-12)
- (5) (WDM 31-62-11)
- (6) (WDM 31-62-21)
- (7) (WDM 73-24-12)
- (8) (WDM 73-22-11)

E. Initial Evaluation

- (1) Do these steps to find out if the message is still active and if another fault is set:
 - (a) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (b) If one or more of the maintenance messages, 73-X1691 or 73-X1692 show, then do the Fault Isolation Procedure.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.

EFFECTIVITY
SIA ALL

73-28 TASK 806

D633A103-SIA

Page 228
Oct 15/2021

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

- c) If you find no problems, then replace components as listed in the Possible Causes list above.
- 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure

- (1) Do these steps to see if TAT (total air temperature) shows on the input monitoring display for the two engines:
 - (a) Get access to the applicable input monitoring screen on the FMC control display unit (CDU):
 - 1) Push the INIT REF key two times.
 - 2) Push the INDEX key.
NOTE: This causes the INIT REF INDEX to show.
 - 3) Push the MAINT line select key (LSK).
 - 4) Push the ENGINE LSK.
NOTE: This causes the ENGINE/EXCEED BITE INDEX to show.
 - 5) Push the line select key for one of the engines (ENGINE 1 or ENGINE 2).
NOTE: This causes the ENGINE X BITE TEST MAIN MENU to show.
 - 6) Push the INPUT MONITORING LSK.
 - 7) Push the CONTINUE LSK.
NOTE: This causes the INPUT MONITORING MENU to show
 - 8) Push the CONTROL TEMPERATURES LSK.
NOTE: This causes the INPUT MONITORING RTD TEMPERATURES - DEG C screen to show.
 - 9) Push the TAT LSK.
NOTE: This causes the INPUT MONITORING TAT SELECTION - DEG C screen to show.
 - (b) Look for a numerical value beside the applicable TAT ADIRU (or ADC) X display.
NOTE: If TAT ADIRU (or ADC) X is followed by ---- instead of a numerical value, then the applicable ADIRU is not getting the TAT data.
- (2) If TAT ADIRU (or ADC) X is followed by a numerical value, then replace the applicable EEC. These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) If TAT ADIRU (or ADC) X is followed by ----, then, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) Look for Code 22, TAT PROBE SIGNAL FAIL.
 - (b) If the Code 22 shows, then do the fault isolation for that message.
 - 1) Do the Repair Confirmation at the end of this task.
 - (c) If the Code 22 does not show, then replace one of the ADIRUs (the most likely LRU from the Possible Causes list).
These are the tasks:

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

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.

- 1) Do the Repair Confirmation at the end of this task.
- (d) If the Repair Confirmation is not satisfactory, then replace the other 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.

- 1) Do the Repair Confirmation at the end of this task.
- 2) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If the fault does not show, then you corrected the fault.

————— **END OF TASK** —————

807. Pitot Probe Heat was Off - Fault Isolation

A. Description

- (1) This task is for these maintenance messages numbers:
 - (a) 73-11671, 73-11672, 73-21671, 73-21672, 73-31671 and 73-31672.
 - (b) The maintenance messages 73-X167Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) This maintenance message should show as a dual channel fault.
- (3) This fault is set if the probe heat status BIT (L270-14) from ADIRU 1 and ADIRU 2 is at logic 0 (off) when the airplane is in the air or when the filtered value of the thrust lever angle resolver (TRA) if greater than 53 degrees (approximately 55% N1 or greater).
 - (a) This fault is set if the probe heat is OFF with these two conditions:
 - 1) The airplane is in flight.
 - 2) The engine was operated above approximately 55% N1.

B. Possible Causes

- (1) Window and pitot heat panel, P5-9
- (2) ADIRU, M1749 (ADIRU 1), M1752 (ADIRU 2)
- (3) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (4) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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

EFFECTIVITY
SIA ALL

73-28 TASKS 806-807

D633A103-SIA

Page 230
Oct 15/2021

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

(Continued)

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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
D	5	C01359	DISPLAY DEU 1 PRI
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	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(2) For Engine 2,

(a) 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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT

EFFECTIVITY
SIA ALL

73-28 TASK 807

D633A103-SIA

Page 231
Oct 15/2021

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

(Continued)

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 30-31-11)
- (3) (SSM 30-31-12)
- (4) (SSM 34-21-12)
- (5) (SSM 34-21-22)
- (6) (SSM 73-24-12)
- (7) (WDM 30-31-11)
- (8) (WDM 30-31-12)
- (9) (WDM 34-21-12)
- (10) (WDM 34-21-22)
- (11) (WDM 73-24-12)

E. Initial Evaluation

- (1) To verify this maintenance message, it is necessary to operate the engine above 55% N1 with the probe heat ON, or fly the airplane. Therefore, an Initial Evaluation is not recommended.

EFFECTIVITY
SIA ALL

73-28 TASK 807

D633A103-SIA

Page 232
Oct 15/2021

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

F. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
- (2) If the maintenance messages 73-31671 (Eng 1) or 73-31672 (Eng 2) shows only in flight leg 0 and during that ground operation the throttle was advanced so the thrust lever angle resolver (TLA) data was 53 degrees or greater (approximately 55% N1 or greater) with the probe heat OFF for more than 15 seconds, then no corrective action is necessary.
- (3) If maintenance message shows in Flight Leg 1, 2, or 3, then examine the airplane log book to see if the CAPT PITOT and F/O PITOT warning light were ON during the flight.
 - (a) If the warning lights were OFF, then examine the wires between the window and pitot heat panel, P5-9 and the ADIRU's, M1749 (ADIRU 1), M1752 (ADIRU 2).
 - 1) Repair the problems that you find.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If no problem is found, then replace the most likely LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then replace the subsequent LRU from the Possible Causes list.
 - c) Do the Repair Confirmation at the end of this task.
 - (b) If the warning lights were ON, then continue.
- (4) Examine and repair the wires and connectors between the window and pitot heat panel, P5-9 and the probe heat power source, P18-3 (SWPM Ch 20).
 - (a) If a problem is found, do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If no problem is found, then continue.
- (5) Examine and repair the wires and connectors between the window and pitot heat panel, P5-9 and the ADIRU's, M1749 (ADIRU 1), M1752 (ADIRU 2).
 - (a) If a problem is found, do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If no problem is found, then replace the window and pitot heat panel, P5-9 (the most likely LRU from the Possible Causes list).
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the fault continues, the replace a subsequent LRU from the Possible Causes list.
 - a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Set the PITOT STATIC switches to ON/HEAT for a minimum of 30 second.
 - (a) Turn the PITOT STATIC switches off.
 - (b) Make sure that the two pitot probes get warm.
- (2) Monitor the airplane on subsequent flights.

————— END OF TASK —————

EFFECTIVITY
SIA ALL

73-28 TASK 807

D633A103-SIA

Page 233
Oct 15/2021

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

808. ADIRU 1 TAT Data and ADIRU 2 TAT Data Disagree - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11711, 73-11712, 73-21711, 73-21712, 73-31711 and 73-31712.
 - (b) The maintenance messages 73-X171Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
- (2) The TAT data label (Label 211) is "valid" from the two DEUs. The EEC senses that the difference between the absolute values of TAT 1 and TAT 2 is greater than 5 degrees C.
 - (a) This maintenance message should show as a dual channel fault on the two EEC's.
 - (b) This fault is reported when the EEC has electrical power.

B. Possible Causes

- (1) TAT probe, M171
- (2) ADIRU, M1749 (ADIRU 1) or M1752 (ADIRU 2)
- (3) DEU, M1808 (DEU 1) or M1809 (DEU 2)
- (4) EEC, M1818.

C. Circuit Breakers

- (1) For Engine 1,
 - (a) 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>
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
D	5	C01359	DISPLAY DEU 1 PRI
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	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

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

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

(2) For Engine 2,

(a) 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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

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	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

EFFECTIVITY
SIA ALL

73-28 TASK 808

D633A103-SIA

Page 235
Oct 15/2021

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

D. Related Data

- (1) Component Locator, (73-28 TASK SUPPORT Figure 301)
- (2) (SSM 30-31-11)
- (3) (SSM 30-31-12)
- (4) (SSM 34-21-12)
- (5) (SSM 34-21-22)
- (6) (SSM 73-24-12)
- (7) (WDM 30-31-11)
- (8) (WDM 30-31-12)
- (9) (WDM 34-21-12)
- (10) (WDM 34-21-22)
- (11) (WDM 73-24-12)

E. Initial Evaluation

- (1) For the two engines, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) If only one of the maintenance messages, 73-X1711 (Eng 1) or 73-X1712 (Eng 2), shows, then do the Fault Isolation Procedure - One EEC.
 - (b) If two maintenance messages, 73-x1711 (Eng 1) and 73-X1712 (Eng 2), show, then do the Fault Isolation Procedure - Two EEC's.
 - (c) If the maintenance message does not show on the FMCS CDU, then the Initial Evaluation has shown that the fault is not active at this time and you have an intermittent fault.
 - 1) If you cannot find the fault at this time, then the Fault Isolation Procedure cannot isolate the fault.
 - 2) For an intermittent fault you must use your judgment, your airline policies, and the Possible Causes list to make the decision if you will try to correct the fault.
 - 3) If you will try to correct the fault, it is recommended that you do these steps:
 - a) Do the visual checks of the electrical connectors in the applicable fault isolation procedure below.
 - b) Use the WDM references to identify intermediate electrical connections in the wire harness and do a visual check.
 - c) If you find no problems, then replace components as listed in the Possible Causes list above.
 - 4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - One EEC

- (1) Do the Initial Evaluation before you continue to find if the maintenance message is still active.
- (2) For the engine that did not report the message, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
 - (a) Do the Fault Isolation Procedure for the DEU data (ARINC) maintenance messages that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - 2) If the Repair Confirmation is not satisfactory, then do the Fault Isolation Procedure - Two EEC's.

EFFECTIVITY
SIA ALL

73-28 TASK 808

D633A103-SIA

Page 236
Oct 15/2021

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

- (b) If you do not find DEU data maintenance messages and the fault was found by the Initial Evaluation, then replace the EEC that set this message, 73-X1711 or 73-X1712.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Two EEC's

- (1) For the two ADIRUs, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (a) Do the Fault Isolation Procedure for the TAT maintenance messages that you find.
- 1) Do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then continue.
- (b) If you do not find TAT maintenance messages, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
- (a) Do the Fault Isolation Procedure for the ADIRS data maintenance messages that you find.
- 1) Do the Repair Confirmation at the end of this task.
- a) If the Repair Confirmation is not satisfactory, then continue.
- (b) If you do not find ADIRS data maintenance messages, then continue.
- (3) Replace the TAT probe (the most likely LRU from the Possible Causes list).

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.
- 1) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
- a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- Do this test on each engine if the fault occurred on the two engines.
- (a) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

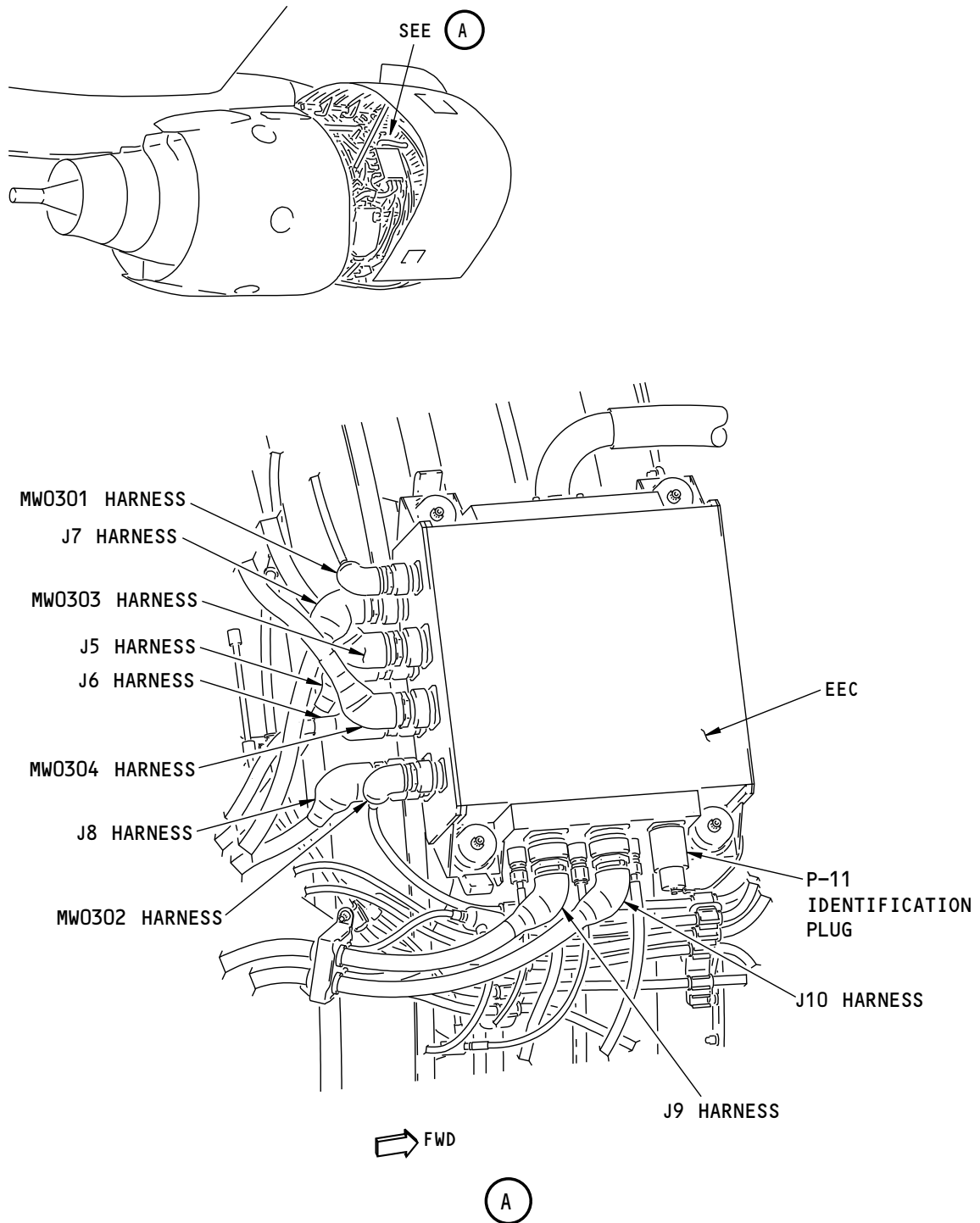
73-28 TASK 808

D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 237
Oct 15/2021

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



H86297 S0006745897_V1

Electronic Engine Controller
Figure 301/73-28-00-990-801-F00

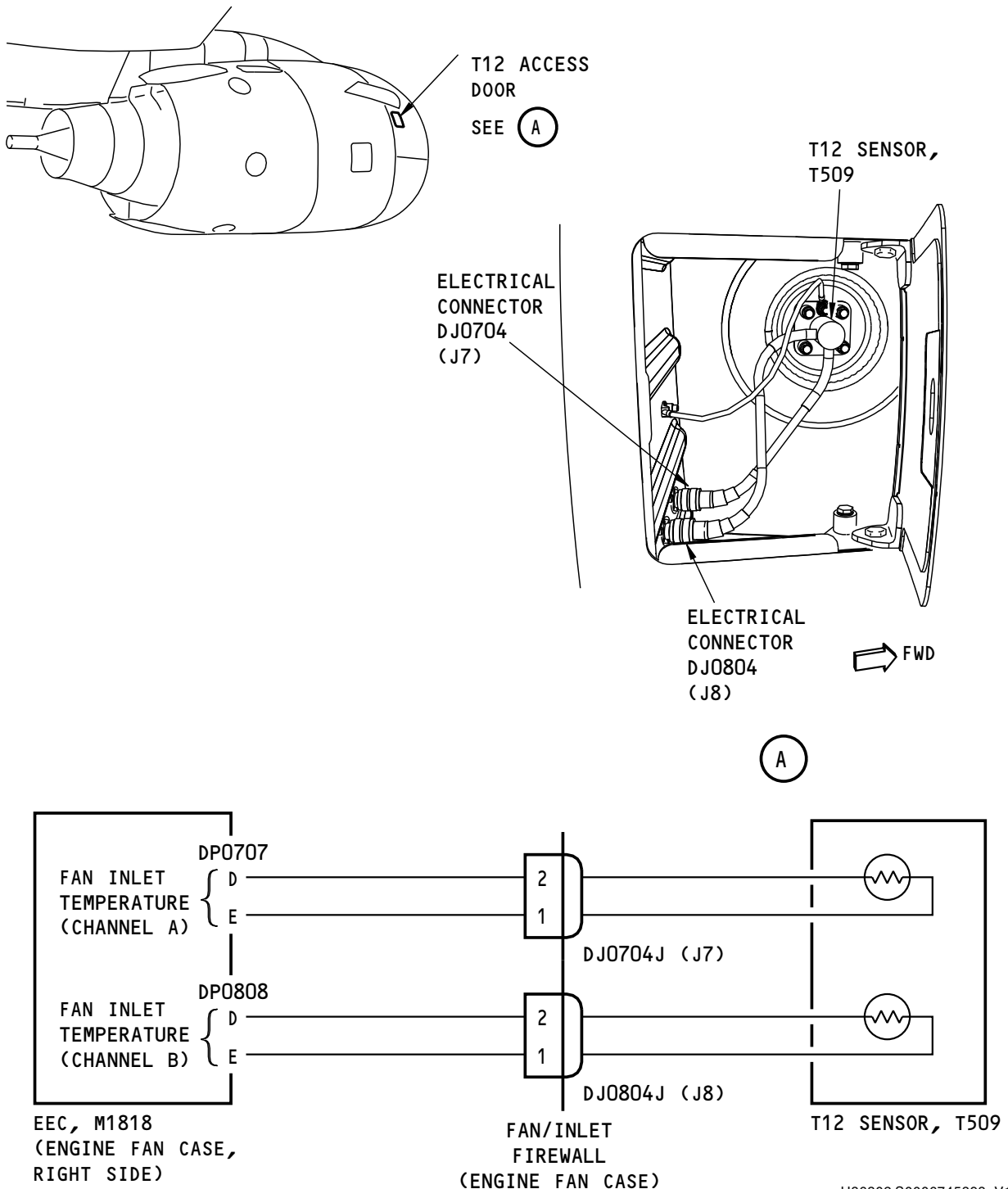
EFFECTIVITY
SIA ALL

73-28 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H86302 S0006745898_V1

T12 Sensor and Simplified Schematic
Figure 302/73-28-00-990-802-F00

EFFECTIVITY
SIA ALL

73-28 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021

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

801. Fuel Flow Signal is out of Range - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11051, 73-11052, 73-21051, 73-21052, 73-31051 and 73-31052.
 - (b) The maintenance messages 73-X105Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, then do the Fault Isolation Procedure - Single Channel Fault.
 - 2) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure - Dual Channel Fault.
- (2) This fault is reported when the EEC has electrical power.
 - (a) This fault should show as a dual channel message, if a single channel message shows, there is an internal EEC problem.
- (3) The EEC senses the fuel flow signal is out of the valid range.

B. Possible Causes

- (1) For the single channel maintenance message:
 - (a) EEC, M1818.
- (2) For the dual channel maintenance message:
 - (a) Fuel flow transmitter, T435
 - (b) EEC, M1818
 - (c) J5 harness.

C. Circuit Breakers

- (1) For engine 1,
 - (a) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (2) For engine 2,
 - (a) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

D. Related Data

- (1) Component Location (73-31 TASK SUPPORT Figure 301, 73-31 TASK SUPPORT Figure 302)
- (2) Simplified Schematic (73-31 TASK SUPPORT Figure 302)
- (3) (SSM 73-31-11)
- (4) (WDM 73-22-11)
- (5) (WDM 73-31-11)

EFFECTIVITY
SIA ALL

73-31 TASK 801

D633A103-SIA

Page 201
Oct 15/2021

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

E. Initial Evaluation

- (1) It is necessary to run the engine to make sure that the fault is active. An initial evaluation is not recommended.

NOTE: An engine run is necessary for the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure - Single Channel Fault

- (1) Replace the EEC, M1818.

These are the tasks:

EEC Removal, AMM TASK 73-21-60-000-801-F00,

EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

G. Fault Isolation Procedure - Dual Channel Fault

- (1) Do these steps to prepare for the procedure:

- (a) For engine 1,

- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (b) For engine 2,

- 1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (c) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

- (2) Visually examine the connector, DP0502 at the fuel flow transmitter (FFT), T435:

- (a) See if the electrical connector DP0502 (J5) is correctly installed on the FFT, and continue.

- (b) Disconnect the electrical connector DP0502 from the FFT.

- (c) Visually examine the FFT receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).

- 1) If the FFT receptacle is damaged, then replace the FFT, T435.

These are the tasks:

Fuel Flow Transmitter Removal, AMM TASK 73-31-01-000-801-F00,

Fuel Flow Transmitter Installation, AMM TASK 73-31-01-400-801-F00.

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

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

- b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 2) If the J5 wire harness connector is damaged, then replace the wire harness.
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
 - (d) If no problem is found, then continue.
- (3) Measure the resistance between this pins on the FFT receptacle:

Table 201

RECEPTACLE DP0502	RESISTANCE
PINS 1 TO 2	300 TO 400 OHMS
PINS 2 TO 3	300 TO 400 OHMS
PIN 1 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 2 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN 3 TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (a) If the resistance is not in the specified range, then replace the FFT, T435.
These are the tasks:
Fuel Flow Transmitter Removal, AMM TASK 73-31-01-000-801-F00,
Fuel Flow Transmitter Installation, AMM TASK 73-31-01-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the resistance is in the specified range, then continue.
- (4) Install the electrical connector DP0502 on the FFT.
- (5) Visually examine the electrical connector DP0505 at the EEC, M1818:
 - (a) See if the DP0505 (J5) electrical connector is correctly installed on the EEC, and continue.
 - (b) Disconnect the electrical connector DP0505 from the EEC.
 - (c) Visually examine the EEC receptacle and the wire harness connector (AMM TASK 70-70-01-200-801-F00).
 - 1) If the EEC receptacle is damaged, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.

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

- a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 2) If the J5 wire harness connector is damaged, then replace the wire harness.
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- 3) If the connector was not correctly connected and no other problem was found, then re-connect the connector and do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then open the circuit breakers above and continue.
- (d) If no problem is found, then continue.
- (6) Do an electrical check of the J5 wire harness between the EEC and the FFT:
 - (a) Measure the resistance at these pins in the electrical connector DP0505 on the J5 wire harness through the FFT:

Table 202

CONNECTOR DP0505	RESISTANCE
PINS S TO R	300 TO 400 OHMS
PINS R TO P	300 TO 400 OHMS
PIN P TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN R TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS
PIN S TO THE CONNECTOR SHELL	GREATER THAN 10 MEGOHMS

- (b) If the resistance is in the specified range, then replace the EEC, M1818.
These are the tasks:
EEC Removal, AMM TASK 73-21-60-000-801-F00,
EEC Installation, AMM TASK 73-21-60-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.
- (c) If the resistance is not in the specified range, then replace the J5 wire harness.
These are the tasks:
Fan Wiring Harness Removal, AMM TASK 73-21-06-000-801-F00,
Fan Wiring Harness Installation, AMM TASK 73-21-06-400-801-F00.
 - 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do these steps to prepare for the procedure:
 - (a) Make sure that the electrical connector DP0502 is correctly installed at the FFT.
 - (b) Make sure that the electrical connector DP0505 is correctly installed at the EEC.

EFFECTIVITY
SIA ALL

73-31 TASK 801

D633A103-SIA

Page 204
Oct 15/2021

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

- (c) For engine 1,
- 1) 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	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A

- (d) For engine 2,
- 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

- (e) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Examine the operation of the FFT:
- (a) Do this task: Test 13 - Engine Run - EEC BITE Check, AMM TASK 71-00-00-700-808-F00.
 - (b) If the maintenance message does not show in Flight Leg 0, then you corrected the fault.

— END OF TASK —

803. Fuel Flow Was Not Detected During Start Attempt - Fault Isolation

A. Description

- (1) This task is for these maintenance message numbers:
 - (a) 73-11551, 73-11552, 73-21551, 73-21552, 73-31551 and 73-31552.
 - (b) The maintenance messages 73-X155Y; where X = EEC Channel (1=Channel A, 2=Channel B, 3=Dual Channel), and Y = Engine Position (1=Eng 1, 2=Eng 2).
 - 1) If X=1 or 2, then do the Fault Isolation Procedure for the applicable channel components.
 - 2) If X=1 and 2 (two messages), or X=3, then do the Fault Isolation Procedure for both channel components.
- (2) The engine senses low or no [<150 PPH($\times\times\times$ KPH) fuel flow for seven seconds during the start attempt with the start lever in the idle position.
 - (a) This task is for FRM codes 730 090 51 and 730 090 52.

B. Possible Causes

- (1) Start Brake Assmbly Switch
- (2) HMU, M1823
- (3) Engine fuel pump
- (4) Fuel spar valve.

EFFECTIVITY
SIA ALL

73-31 TASKS 801-803

D633A103-SIA

Page 205
Oct 15/2021

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

C. Circuit Breakers

- (1) Not applicable

D. Related Data

- (1) Component Location (73-31 TASK SUPPORT Figure 301)
- (2) (SSM 73-31-11)
- (3) (SSM 76-21-11, 76-21-21)
- (4) (WDM 73-31-11, 73-31-21)
- (5) (WDM 76-21-11, 76-21-21)

E. Initial Evaluation

- (1) If no associated engine start abnormalities were reported by the flight crew, then fault isolation is not necessary.
- (2) If either the ENG VALVE CLOSED or SPAR VALVE CLOSED lights were on after the start lever moved to idle, then do the applicable step:
 - (a) Do this task: Engine Start - No Lightoff, Duct Pressure and N2 Normal, ENG VALVE CLOSED Light On - Fault Isolation, 80-06 TASK 801.
 - (b) Do this task: Engine Start - No Lightoff, Duct Pressure and N2 Normal, SPAR VALVE CLOSED Light ON - Fault Isolation, 80-06 TASK 802.

F. Fault Isolation Procedure

- (1) Do this task: EEC BITE Procedure, 73-00 TASK 801.
 - (a) Look for INTERNAL EEC and HMU maintenance messages.
 - 1) Do the corrective action for the maintenance message that you find first.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find the maintenance messages or the problem continues, then continue.
- (2) Do this check of the HPSOV control power at the HMU:
 - (a) Disconnect the electrical connector DP1203 from the HMU.
 - (b) Look for airplane ground at pin 2 of the DP1203 electrical connector.
 - 1) If you do not find the ground, then examine and repair the wire between DP1203, pin 2 and the airplane ground connection GD3836-DC (Eng 1) or GD3936-DC (Eng 2).
 - a) Continue.
 - 2) If you find the ground, then continue.
 - (c) For engine 1,
 - 1) 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>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (d) For engine 2,

EFFECTIVITY
SIA ALL

73-31 TASK 803

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

- 1) 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>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (e) Look for these voltages between pin 1 and pin 2 of electrical connector DP1203:

Table 203

START LEVER POSITION	CONNECTOR DP1203	RANGE
CUTOFF	PIN 1 TO PIN 2	GREATER THAN 22 VDC
IDLE	PIN 1 TO PIN 2	LESS THAN 5 VDC

- (f) If you find the correct voltages above, then replace the HMU.

- 1) These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.

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

- (g) If you do not find the correct voltages above, then do these steps:

- 1) Examine and repair the wiring between pin 2 and the applicable circuit breaker.

- 2) For engine 1,

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- 3) For engine 2,

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- 4) Connect the connector DP1203 to the HMU.

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

- (3) Examine the fuel pump:

- (a) Do this task: The Visual Inspection of the Impeller Rotation, AMM TASK 73-11-01-200-801-F00.

Do not operate the engine as directed in the Lubrication Flow Screen Installation Test.

- 1) Make sure that the N2 rotor turns freely and smoothly as you do the fuel pump impeller inspection.

- a) If the N2 rotor does not turn freely and smoothly, then replace the engine.

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

These are the tasks:

Power Plant - Removal, AMM TASK 71-00-02-000-801-F00,

Power Plant - Installation, AMM TASK 71-00-02-400-801-F00.

- 2) If the fuel pump impeller inspection is not satisfactory, then replace the fuel pump.
 - a) These are the tasks:

Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,

Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - b) Do the Repair Confirmation at the end of this task.
 - c) If the Repair Confirmation is not satisfactory, then continue.
- 3) If you do not find a problem, then continue.
- (4) Examine the fuel filter for signs of contamination.
 - (a) Do this task: Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00.
 - (b) If there are large amounts of aluminum or bronze particles, do these steps:
 - 1) Replace the fuel filter.

These are the tasks:

Fuel Filter - Removal, AMM TASK 73-11-02-000-801-F00,

Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00.
 - 2) Replace the HMU.

These are the tasks:

HMU Removal, AMM TASK 73-21-10-000-801-F00,

HMU Installation, AMM TASK 73-21-10-400-801-F00.
 - 3) Replace the fuel pump.

These are the tasks:

Fuel Pump Package Removal, AMM TASK 73-11-01-000-801-F00,

Fuel Pump Package Installation, AMM TASK 73-11-01-400-801-F00.
 - 4) Replace the fuel nozzle filter.

These are the tasks:

Fuel Nozzle Filter Removal (SAC), AMM TASK 73-11-03-000-802-F00,

Fuel Nozzle Filter Installation (SAC), AMM TASK 73-11-03-400-802-F00.
 - 5) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (c) If contamination is not found, do this task: Fuel Filter - Installation, AMM TASK 73-11-02-400-801-F00, then continue.
 - (5) Do this task: Engine Fuel Spar Valve - Electrical Control and Indication Test, AMM TASK 28-22-00-710-801.
 - (a) If the test fails, repair the problem that you find.
 - 1) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (b) If the test passes, then continue.

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

- (c) To make sure that the actuator is engaged to the valve body and the valve moves from closed to open, do this task: Fuel Boost Pump Output Pressure Test, AMM TASK 28-22-00-720-803.
- 1) Do this test for the applicable fuel pump. This pump pressurizes the engine fuel feed manifold.
NOTE: To pass this test, the spar valve must open and the pump must develop pressure. This test will show if the valve opens, but cannot show if the valve is fully open or not fully open. If the engine does not get high-power then examine the spar valve body. Entry to the fuel tank is necessary.
 - 2) If you find a problem, then repair or replace components as it is necessary.
 - a) Do the Repair Confirmation at the end of this task.
 - b) If the Repair Confirmation is not satisfactory, then continue.
 - 3) If you do not find a problem, then continue.
- (6) Replace the HMU (the most likely LRU from the Possible Causes list).
 These are the tasks:
 HMU Removal, AMM TASK 73-21-10-000-801-F00,
 HMU Installation, AMM TASK 73-21-10-400-801-F00.
- (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then replace a subsequent LRU from the Possible Causes list.
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Prepare for the procedure:
 - (a) Make sure that the DP1203 electrical connector is correctly connected to the HMU.
 - (b) For engine 1,
 - 1) 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	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- (c) For engine 2,
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A

EFFECTIVITY
SIA ALL

73-31 TASK 803

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

(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

- (d) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.
- (2) Do these steps to operate the engine:
- (a) Do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.
 - (b) Let the engine become stable at idle.
 - (c) Do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.
 - (d) If the start procedure is correct, then you corrected the fault.

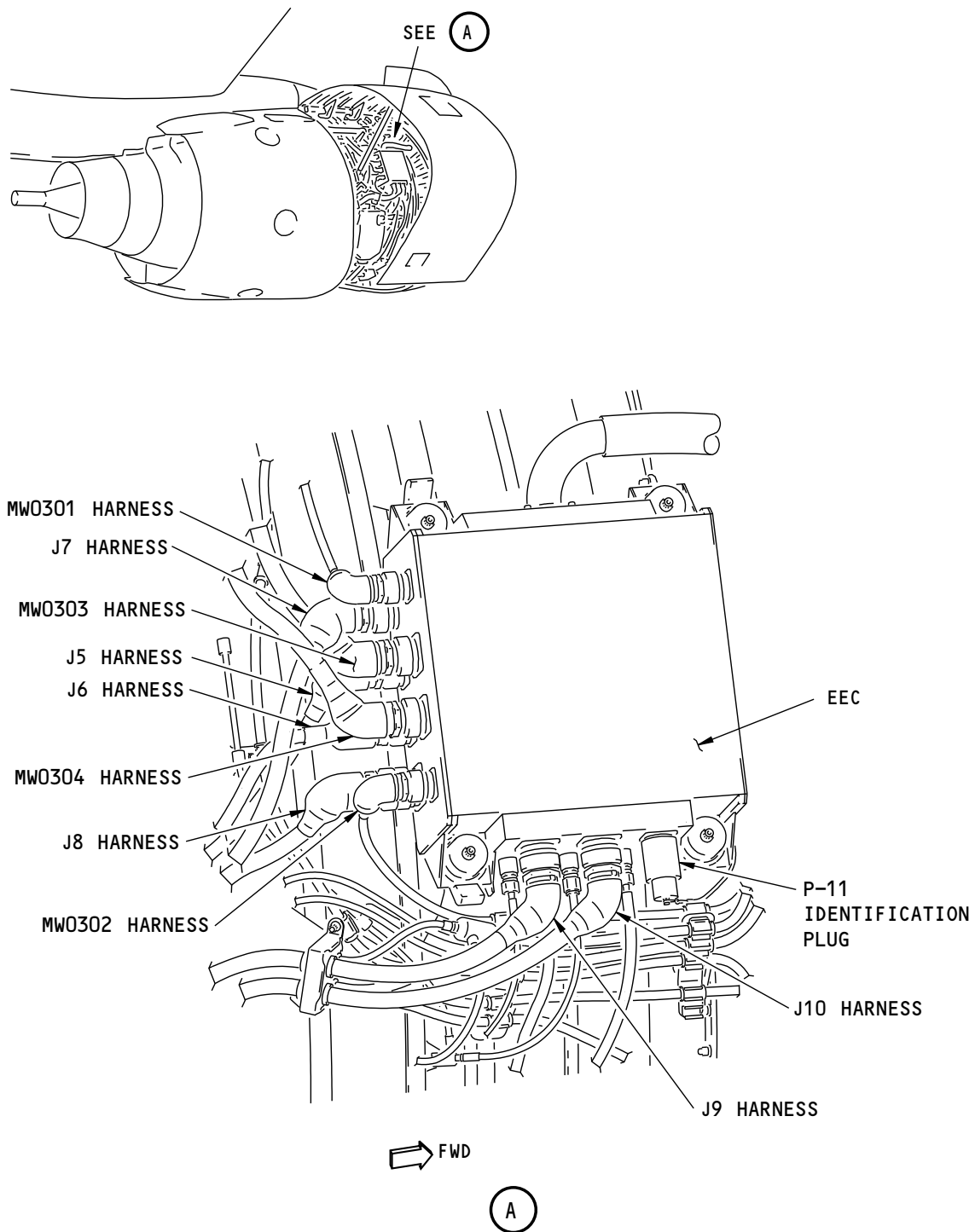
———— **END OF TASK** ————

EFFECTIVITY
SIA ALL

73-31 TASK 803

D633A103-SIA

Page 210
Oct 15/2021

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


H32597 S0006745912_V1

Electronic Engine Controller
Figure 301/73-31-00-990-801-F00

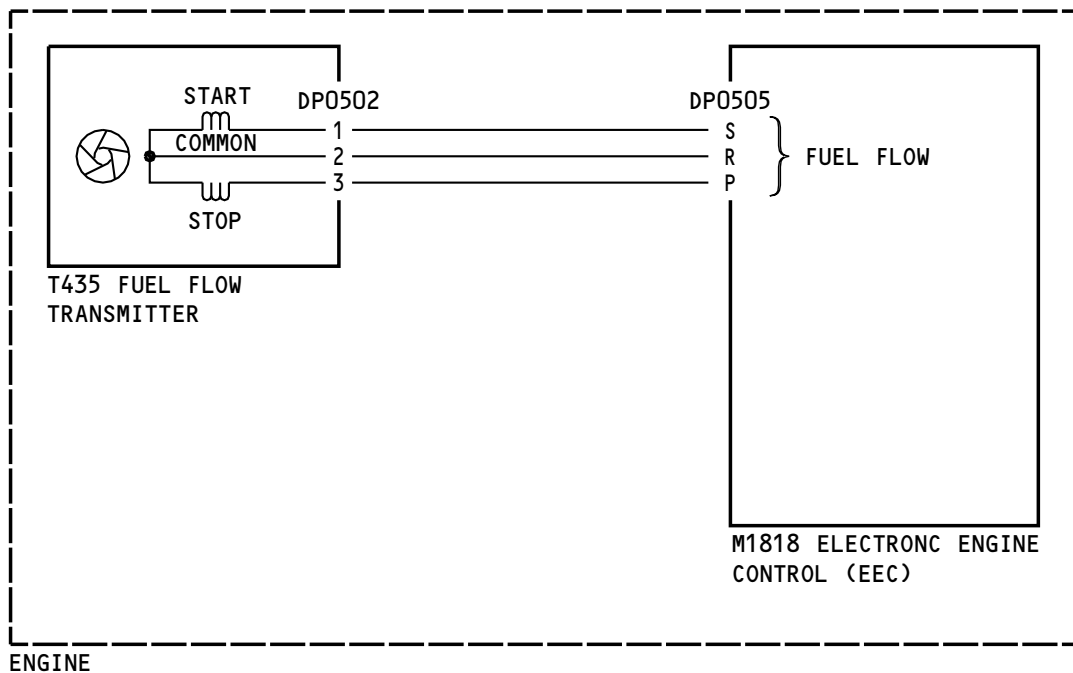
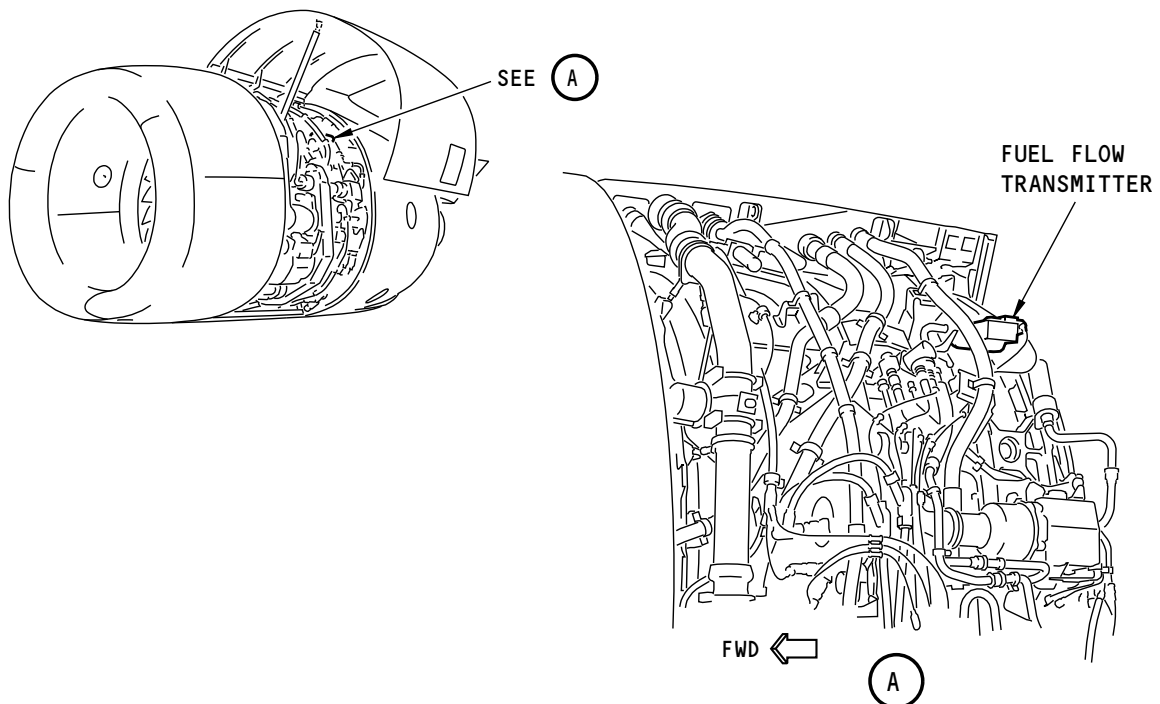
EFFECTIVITY
SIA ALL

73-31 TASK SUPPORT

D633A103-SIA

Page 301
Oct 15/2021

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



H32875 S0006745913_V1

Fuel Flow Transmitter and Simplified Schematic
Figure 302/73-31-00-990-802-F00

EFFECTIVITY
SIA ALL

73-31 TASK SUPPORT

D633A103-SIA

Page 302
Oct 15/2021