CHAPTER

74

IGNITION

(CFM56 ENGINES (CFM56-7))

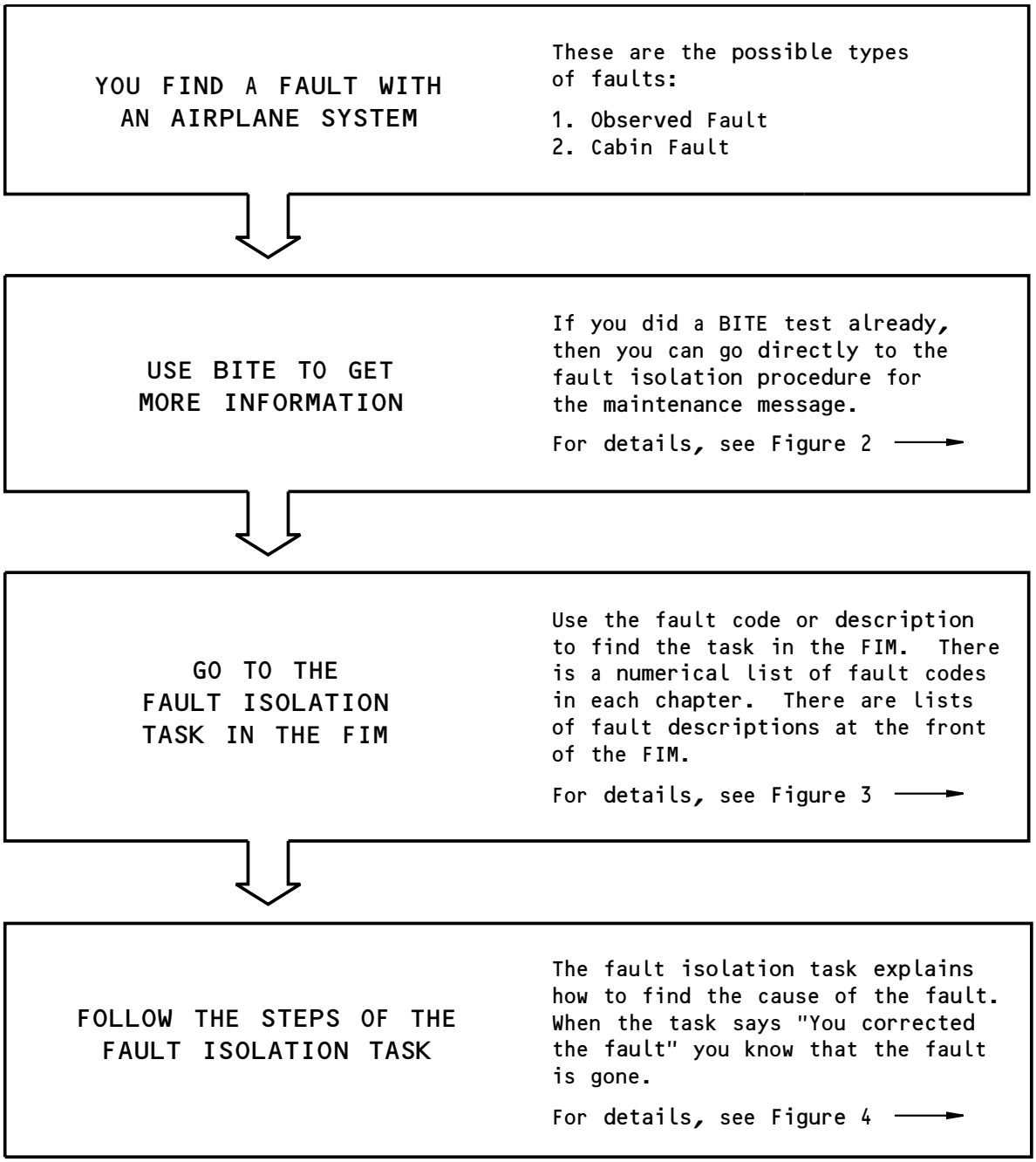
BOEING

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

CHAPTER 74
IGNITION

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

74-EFFECTIVE PAGES



G04902 S0000148576_V1

Basic Fault Isolation Process
Figure 1

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.

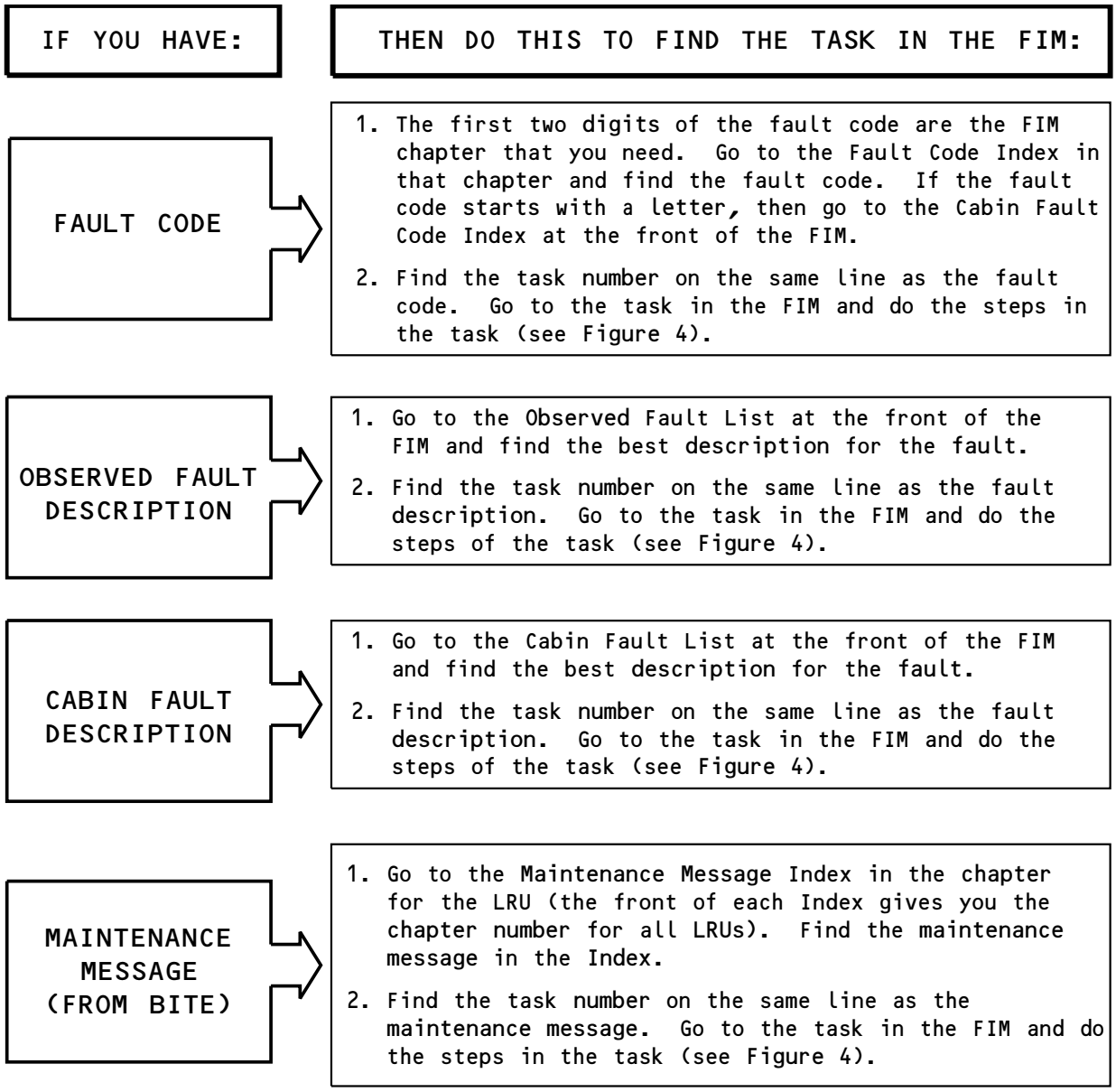
To find the fault isolation task for a maintenance message, go to the Maintenance Message Index in the chapter for the applicable system.

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



G04979 S0000148579_V2

Finding the Fault Isolation Task in the FIM
Figure 3

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

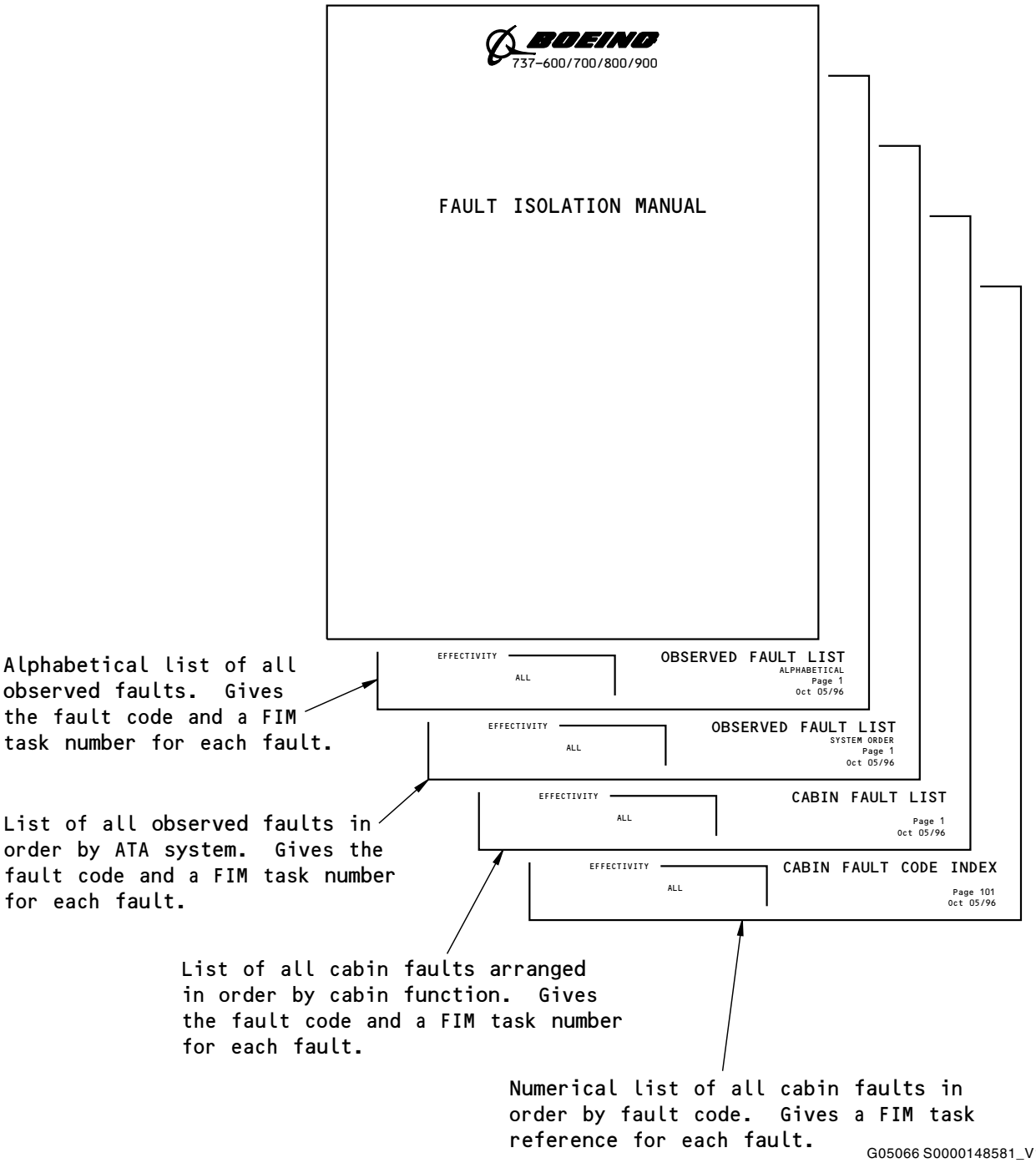
- The primary purpose of the Initial Evaluation paragraph at the start of the task is to help you find out if you can detect the fault right now:
  - If you cannot detect the fault right now, then the task cannot isolate the fault and the Initial Evaluation paragraph will say that there was an intermittent 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

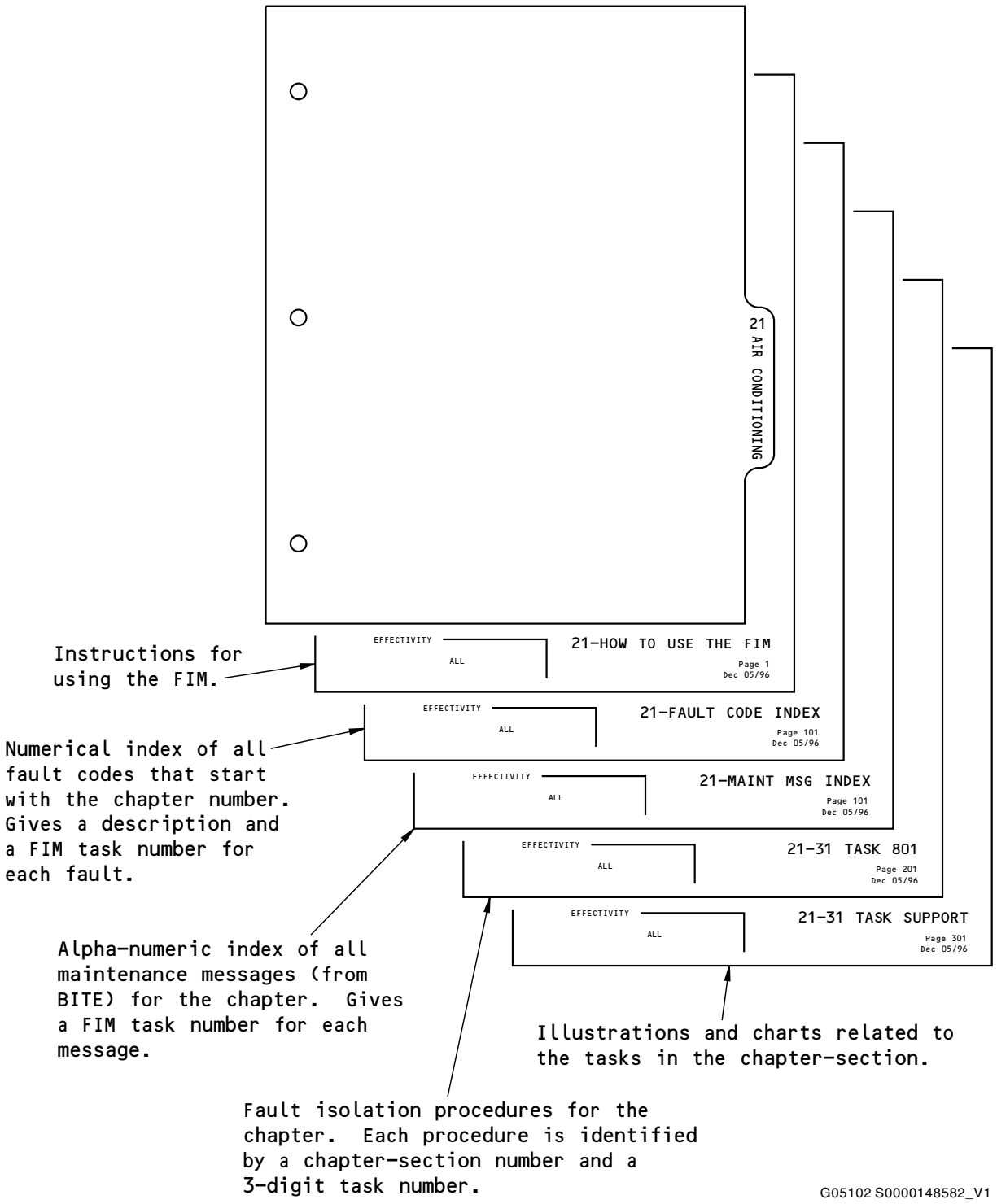
- The FIM task steps are presented in a specified order. The "If... then" statements will guide you along a logical path. But if you do not plan to follow the FIM task exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an 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



Subjects at Front of FIM
Figure 5



Subjects in Each FIM Chapter
Figure 6

LRU/SYSTEM	SHORT NAME	CHAPTER
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
Cabin Temperature Controller	CAB TEMP CONT	21
Cargo Electronic Unit - Lower Aft	CEU - LWR AFT	26
Cargo Electronic Unit - Lower Forward	CEU - LWR FWD	26
Cargo Electronic Unit - Main Aft	CEU - MAIN AFT	26
Cargo Fire Control Panel	CFCP	26
Common Display System	CDS	31
Compartment Overheat Detection Control Module	WING/BODY OHT	26
Digital Flight Control System	DFCS	22
Distance Measurement Equipment Interrogator	DME INTRROGTR	34
Electrical Meters, Battery, and Galley Power Module	P5-13	24
Electronic Engine Controller - 1	ENGINE - 1	73
Electronic Engine Controller - 2	ENGINE - 2	73
Emergency Locator Transmitter	ELT	23
Engine Accessory Unit	EAU	78
Engine Accessory Unit/TR DEPLOY ENG 1	EAU/TR DPLOY-ENG 1	78
Engine Accessory Unit/TR DEPLOY ENG 2	EAU/TR DPLOY-ENG 2	78
Engine Accessory Unit/TR STOW ENG 1	EAU/TR STOW-ENG 1	78
Engine Accessory Unit/TR STOW ENG 2	EAU/TR STOW-ENG 2	78
Engine and Auxiliary Power Unit Fire Detection Control Module	ENG/APU FIRE	26
Enhanced Digital Flight Control Computer-A	EDFCC-A	22
Enhanced Digital Flight Control System	EDFCS	22
Flap/Slat Electronics Unit	FSEU	27

LRU/SYSTEM	SHORT NAME	CHAPTER
Flight Data Acquisition Unit	FDAU	31
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
Low Limit (35 Degree F) Controller - Left	35 DEG CONT L	21
Low Limit (35 Degree F) Controller - Right	35 DEG CONT R	21
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
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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
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
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 - 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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
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

801. Airplane Input Voltage For The Left Exciter (IGN 1) Is Out of Range - Fault Isolation

A. Description

(1) This task is for these “APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS OUT OF RANGE” maintenance messages:

- 74-10971: ENG-1 CH A fault
- 74-10972: ENG-2 CH A fault
- 74-20971: ENG-1 CH B fault
- 74-20972: ENG-2 CH B fault
- 74-30971: ENG-1 Dual Channel fault
- 74-30972: ENG-2 Dual Channel fault

(2) This message shows when one of these conditions occurs:

(a) The Electronic Engine Control (EEC) senses that the Left Igniter Power (115V AC) is less than 89 V with the Start Lever in the IDLE position.

(b) The EEC senses that the Left Igniter Power (115V AC) is more than 141 V with the Start Lever in the IDLE position.

(3) This fault shows when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel message.

(b) If a Single Channel message shows, there is an internal EEC problem.

B. Possible Causes

(1) For a Single Channel maintenance message:

(a) L (R) ENG EEC, M1818

(2) For the Dual Channel maintenance message:

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(a) Wires, Connectors and the ENG-1 (ENG-2) Left Ignition Switch between the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) and the EEC

SHZ 885-899

(b) Wires, Connectors and the ENG-1 (ENG-2) Start Lever between the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) and the EEC

SHZ ALL

(c) L (R) ENG 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	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	6	C00151	ENGINE 2 IGNITION LEFT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

SHZ ALL

(3) WDM 74-11-11

(4) SSM 74-11-11

E. Initial Evaluation

(1) To see if the fault is still active, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If maintenance message 74-10971, 74-10972, 74-20971, or 74-20972 shows, then do the “Fault Isolation Procedure - Single Channel Fault”.

(b) If maintenance message number 74-30971 or 74-30972 shows, then do the “Fault Isolation Procedure - Dual Channel Fault”.

(c) If the maintenance message does not show on the Flight Management Computer System (FMCS) Control Display Unit (CDU), then there was a momentary loss of Electrical Power to the Left Exciter or EEC, or an intermittent fault.

1) For a momentary loss of electrical power, do a check of the pilots' log for an indication of a momentary power interruption on the airplane or on the 115 VAC Transfer Bus 1 (ENG 1) or 2 (ENG 2).

a) If you find a report, then this was the cause of this fault. If no report was made, then there was an intermittent 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 indicated in the Possible Causes List above.

4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

(1) Replace the applicable ENG 1 (ENG 2) 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: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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	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) Make sure that the applicable Start Lever is in the CUTOFF position.

(4) Examine the Electrical Connector DP0101 at the applicable EEC:

NOTE: The electrical connector DP0101 is on the MW0301 Wire Harness, at the J1 Receptacle.

(a) Make sure that the electrical connector DP0101 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0101 from the EEC.

(c) Visually examine the EEC J1 Receptacle and Wire Harness connector.

1) If the EEC J1 Receptacle is damaged, then replace the applicable ENG 1 (ENG 2) 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 MW0301 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 do the Repair Confirmation at the end of this task.

(d) If you did not find a problem, then do this step and continue:

1) Re-connect the electrical connector DP0101 to the EEC.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(5) To examine the applicable Left Ignition Switch, S88 (ENG-1) or S90 (ENG-2), in the Engine Start Brake Assembly, you can use INPUT MONITORING to see if the switch operation agrees with the selected Start Lever position.

NOTE: Some initial switches in the Engine Start Brake Assembly can cause Engine Start problems.

(a) 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	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	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) On the CDU, get access to the INPUT MONITORING Screen:

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 LSK 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.

NOTE: An alert message will show to tell you that only data from one channel is available.

7) Push the CONTINUE LSK.

NOTE: This causes the INPUT MONITORING MENU to show. Push the NEXT PAGE key to go to page 2 of the menu.

8) Push the DISCRETES LSK.

NOTE: This causes the INPUT MONITORING GMM DISCRETES screen to show.

9) Push the NEXT PAGE key twice to see page 3/3 and find the L IGNITER 115V line on the screen.

(c) With the applicable Start Lever in the CUTOFF position, make sure the value is OFF.

(d) Put the applicable Start Lever to the IDLE position and make sure the value is ON for each line.

(e) Operate the Start Lever several times and see if the switch operates correctly.

(f) If the switch does not operate correctly, replace the applicable Switch, S88 or S90. 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

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

(g) If the switch operates correctly, then continue.

(6) Do these steps to measure the input voltage at the EEC electrical connector DP0101:

(a) Put the applicable Start Lever to the IDLE position.

(b) Do a check for 115V AC from pin A to pin B (Ground) of the electrical connector DP0101.

1) If you do not find 115V AC, then do these steps:

a) Put the applicable Start Lever to the CUTOFF position.

b) Examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) through the ENG 1 (ENG 2) Start Lever Module, M1824 (M1825) to the applicable EEC.

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

2) If you find 115V AC, then continue.

SHZ 885-899

(7) Do these steps to measure the input voltage at the EEC electrical connector DP0101:

(a) Put the applicable Start Lever to the IDLE position.

(b) Do a check for 115V AC from pin A to pin B (Ground) of the electrical connector DP0101.

1) If you do not find 115V AC, then do these steps:

a) Put the applicable Start Lever to the CUTOFF position.

b) Examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) through the ENG 1 (ENG 2) Start Lever, S1221 (S1222) to the applicable EEC.

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

2) If you find 115V AC, then continue.

SHZ ALL

(8) Do the Audible Test again. This is the task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If the maintenance message shows, then replace the applicable 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) Make sure that the electrical connector DP0101 is correctly connected to the EEC.

(2) Do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-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.

(b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

802. Airplane Input Voltage For The Right Exciter (IGN 2) Is Out of Range - Fault Isolation

A. Description

(1) This task is for these “APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS OUT OF RANGE” maintenance messages:

- 74-10981: ENG-1 CH A fault
- 74-10982: ENG-2 CH A fault
- 74-20981: ENG-1 CH B fault
- 74-20982: ENG-2 CH B fault
- 74-30981: ENG-1 Dual Channel fault
- 74-30982: ENG-2 Dual Channel fault

(2) This message shows when one of these conditions occurs:

(a) The EEC senses that the Right Igniter Power (115V AC) is less than 89 V with the Start Lever in the IDLE position.

(b) The EEC senses that the Right Igniter Power (115V AC) is more than 141 V with the Start Lever in the IDLE position.

(3) This fault shows when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel message.

(b) If a Single Channel message shows, there is an internal EEC problem.

B. Possible Causes

(1) For a Single Channel maintenance message:

(a) L (R) ENG EEC, M1818

(2) For the Dual Channel maintenance message:

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(a) Wires, Connectors and the ENG-1 (ENG-2) Right Ignition Switch between the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) and the EEC

SHZ 885-899

(b) Wires, Connectors and the ENG-1 (ENG-2) Start Lever between the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) and the EEC

SHZ ALL

(c) L (R) ENG 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	1	C00458	ENGINE 1 IGNITION RIGHT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

SHZ ALL

(3) WDM 74-11-11

(4) SSM 74-11-11

E. Initial Evaluation

(1) To see if the fault is still active, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If maintenance message 74-10981, 74-10982, 74-20981, or 74-20982 shows, then do the “Fault Isolation Procedure - Single Channel Fault”.

(b) If maintenance message number 74-30981 or 74-30982 shows, then do the “Fault Isolation Procedure - Dual Channel Fault”.

(c) If the maintenance message does not show on the FMCS CDU, then there was a momentary loss of Electrical Power to the Right Exciter or EEC, or an intermittent fault.

1) For a momentary loss of electrical power, do a check of the pilots' log for an indication of a momentary power interruption on the airplane or on the 115 VAC Transfer Bus 1 (ENG 1) or 2 (ENG 2).

a) If you find a report, then this was the cause of this fault. If no report was made, then there was an intermittent 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 indicated in the Possible Causes List above.

4) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

(1) Replace the applicable ENG 1 (ENG 2) 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: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
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	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(3) Make sure that the applicable Start Lever is in the CUTOFF position.

(4) Examine the Electrical Connector DP0202 at the applicable EEC:

NOTE: The electrical connector DP0202 is on the MW0302 Wire Harness, at the J2 Receptacle.

(a) Make sure that the electrical connector DP0202 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0202 from the EEC.

(c) Visually examine the EEC J2 Receptacle and Wire Harness connector.

1) If the EEC J2 Receptacle is damaged, then replace the applicable ENG 1 (ENG 2) 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 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.

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 do this step and continue:

1) Re-connect the electrical connector DP0202 to the EEC.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(5) To examine the applicable Right Ignition Switch, S89 (ENG 1) or S91 (ENG 2), in the Engine Start Brake Assembly, you can use INPUT MONITORING to see if the switch operation agrees with the selected Start Lever position.

NOTE: Some initial switches in the Engine Start Brake Assembly can cause Engine Start problems.

(a) 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	1	C00458	ENGINE 1 IGNITION RIGHT
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	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(b) On the CDU, get access to the INPUT MONITORING Screen:

1) Push the INIT REF key two times.

NOTE: This causes the PERF INIT INDEX to show.

2) Push the INDEX LSK.

3) Push the MAINT LSK.

4) Push the ENGINE LSK.

5) Push the LSK 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.

NOTE: An alert message will show to tell you that only data from one channel is available.

7) Push the CONTINUE LSK.

NOTE: This causes the INPUT MONITORING MENU to show. Push the NEXT PAGE key to go to page 2 of the menu.

8) Push the DISCRETES LSK.

NOTE: This causes the INPUT MONITORING GMM DISCRETES screen to show.

9) Push the NEXT PAGE key twice to see page 3/3 and find the R IGNITER 115V line on the screen.

(c) With the applicable Start Lever in the CUTOFF position, make sure the value is OFF.

(d) Put the applicable Start Lever to the IDLE position and make sure the value is ON for each line.

(e) Operate the Start Lever several times and see if the switch operates correctly.

(f) If the switch does not operate correctly, replace the applicable Switch, S89 or S91. 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

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

(g) If the switch operates correctly, then continue.

(6) Do these steps to measure the input voltage at the EEC electrical connector DP0202:

(a) Put the applicable Start Lever to the IDLE position.

(b) Do a check for 115V AC from pin A to pin B (Ground) of the electrical connector DP0202.

1) If you do not find 115V AC, then do these steps:

a) Put the applicable Start Lever to the CUTOFF position.

b) Examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) through the ENG 1 (ENG 2) Start Lever Module, M1824 (M1825) to the applicable EEC.

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

2) If you find 115V AC, then continue.

SHZ 885-899

(7) Do these steps to measure the input voltage at the EEC electrical connector DP0202:

(a) Put the applicable Start Lever to the IDLE position.

(b) Do a check for 115V AC from pin A to pin B (Ground) of the electrical connector DP0202.

1) If you do not find 115V AC, then do these steps:

a) Put the applicable Start Lever to the CUTOFF position.

b) Examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) through the ENG 1 (ENG 2) Start Lever, S1221 (S1222) to the applicable EEC.

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

2) If you find 115V AC, then continue.

SHZ ALL

(8) Do the Audible Test again. This is the task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If the maintenance message shows, then replace the applicable 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) Make sure that the electrical connector DP0202 is correctly connected to the EEC.

(2) Do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-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.

(b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

803. Airplane Input Voltage For The Left Exciter (IGN 1) Is Always On - Fault Isolation

A. Description

(1) This task is for these “APL INPUT VOLTAGE FOR THE L EXCITER (IGN 1) IS ALWAYS ON” maintenance messages:

- 74-10991: ENG-1 CH A fault
- 74-10992: ENG-2 CH A fault
- 74-20991: ENG-1 CH B fault
- 74-20992: ENG-2 CH B fault
- 74-30991: ENG-1 Dual Channel fault
- 74-30992: ENG-2 Dual Channel fault

(2) This message shows when the EEC senses that the Left Igniter Power (115V AC) is 89 V or more with the Start Lever in the CUTOFF position.

(3) This fault shows when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel message.

(b) If a Single Channel message shows, there is an internal EEC problem.

B. Possible Causes

(1) For a Single Channel maintenance message:

(a) L (R) ENG EEC, M1818

(2) For the Dual Channel maintenance message:

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(a) Wires, Connectors and the ENG-1 (ENG-2) Left Ignition Switch between the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) and the EEC

SHZ 885-899

(b) Wires, Connectors and the ENG-1 (ENG-2) Start Lever between the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) and the EEC

SHZ ALL

(c) L (R) ENG 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	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	6	C00151	ENGINE 2 IGNITION LEFT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

(3) WDM 74-11-11

(4) SSM 74-11-11

E. Initial Evaluation

(1) To see if the fault is still active, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If maintenance message 74-10991, 74-10992, 74-20991, or 74-20992 shows, then do the “Fault Isolation Procedure - Single Channel Fault”.

(b) If maintenance message number 74-30991 or 74-30992 shows, then do the “Fault Isolation Procedure - Dual Channel Fault”.

(c) If the maintenance message does not show on the FMCS CDU, then there was an intermittent fault.

1) 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.

2) 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 indicated in the Possible Causes List above.

3) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Single Channel Fault

(1) Replace the applicable ENG 1 (ENG 2) 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: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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	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) Make sure that the applicable Start Lever is in the CUTOFF position.

(4) Examine the Electrical Connector DP0101 at the applicable EEC:

NOTE: The electrical connector DP0101 is on the MW0301 Wire Harness, at the J1 Receptacle.

(a) Make sure that the electrical connector DP0101 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0101 from the EEC.

(c) Visually examine the EEC J1 Receptacle and Wire Harness connector.

1) If the EEC J1 Receptacle is damaged, then replace the applicable ENG 1 (ENG 2) 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 MW0301 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 do the Repair Confirmation at the end of this task.

(d) If you did not find a problem, then continue.

(5) Do these steps to measure the input voltage at the EEC electrical connector DP0101:

(a) 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	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	6	C00151	ENGINE 2 IGNITION LEFT

(b) Put the applicable Start Lever to the CUTOFF position.

(c) Do a check for 0V AC from pin A to pin B (Ground) of the electrical connector DP0101.

1) If you find 0V AC, then replace the applicable 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 find 89 V AC or more, then continue.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(6) Do this check of the applicable ENG-1 (ENG-2) Left Ignition Switch, S88 (S90):

NOTE: The S88 Switch is in the ENG-1 Start Brake Assembly, M1824 in the Control Stand.

The S90 Switch is in the ENG-2 Start Brake Assembly, M1825 in the Control Stand.

(a) Remove the Upper and Side Panels from the Control Stand.

(b) Disconnect the ENG-1 (ENG-2) Left Ignition Switch electrical connector D11286P (D11290P).

(c) With the Start Lever in the CUTOFF position, do a continuity check between pins 11 and 12 at the Control Stand.

1) If you find continuity, then replace the applicable ENG-1 (ENG-2) Left Ignition Switch, S88 (S90). 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

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

2) If you do not find continuity, then examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) through the ENG 1 (ENG 2) Start Lever Module, M1824 (M1825) to the applicable EEC.

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

SHZ 885-899

(7) Do this check of the applicable ENG-1 (ENG-2) Start Lever, S1221 (S1222):

(a) Remove the Upper and Side Panels from the Control Stand.

(b) Disconnect the ENG-1 (ENG-2) Start Lever electrical connector D11286P (D11290P).

(c) With the Start Lever in the CUTOFF position, do a continuity check between pins 11 and 12 at the Control Stand.

1) If you find continuity, 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

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

2) If you do not find continuity, then examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION LEFT circuit breaker, C00153 (C00152) through the ENG 1 (ENG 2) Start Lever, S1221 (S1222) to the applicable EEC.

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

SHZ ALL

H. Repair Confirmation

(1) Make sure that the electrical connector DP0101 is correctly connected to the EEC.

(2) Make sure that the ENG-1 (ENG-2) Left Ignition Switch electrical connector D11286P (D11290P) is correctly connected to the Control Stand.

(3) For ENG 1 (ENG 2), make sure that the applicable circuit breakers closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(4) 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) Install the Upper and Side Panels to the Control Stand.

2) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

(b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

804. Airplane Input Voltage For The Right Exciter (IGN 2) Is Always ON - Fault Isolation

A. Description

(1) This task is for these “APL INPUT VOLTAGE FOR THE R EXCITER (IGN 2) IS ALWAYS ON” maintenance messages:

- 74-11001: ENG-1 CH A fault
- 74-11002: ENG-2 CH A fault
- 74-21001: ENG-1 CH B fault
- 74-21002: ENG-2 CH B fault
- 74-31001: ENG-1 Dual Channel fault
- 74-31002: ENG-2 Dual Channel fault

(2) This message shows when the EEC senses that the Right Igniter Power (115V AC) is 89 V or more with the Start Lever in the CUTOFF position.

(3) This fault shows when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel message.

(b) If a Single Channel message shows, there is an internal EEC problem.

B. Possible Causes

(1) For a Single Channel maintenance message:

(a) L (R) ENG EEC, M1818

(2) For the Dual Channel maintenance message:

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(a) Wires, Connectors and the ENG-1 (ENG-2) Right Ignition Switch between the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) and the EEC

SHZ 885-899

(b) Wires, Connectors and the ENG-1 (ENG-2) Start Lever between the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) and the EEC

SHZ ALL

(c) L (R) ENG 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	1	C00458	ENGINE 1 IGNITION RIGHT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

(3) WDM 74-11-11

(4) SSM 74-11-11

E. Initial Evaluation

(1) To see if the fault is still active, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

(a) If maintenance message 74-11001, 74-11002, 74-21001, or 74-21002 shows, then do the “Fault Isolation Procedure - Single Channel Fault”.

(b) If maintenance message number 74-31001 or 74-31002 shows, then do the “Fault Isolation Procedure - Dual Channel Fault”.

(c) If the maintenance message does not show on the FMCS CDU, then there was an intermittent fault.

1) 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.

2) 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 indicated in the Possible Causes List above.

3) Monitor the airplane on the subsequent flight.

F. Fault Isolation Procedure - Dual Channel Fault

(1) Replace the applicable ENG 1 (ENG 2) 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) Do this task: Open the Fan Cowl Panels, AMM TASK 71-11-02-010-801-F00.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
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	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(4) Make sure that the applicable Start Lever is in the CUTOFF position.

(5) Examine the Electrical Connector DP0202 at the applicable EEC:

NOTE: The electrical connector DP0202 is on the MW0302 Wire Harness, at the J2 Receptacle.

(a) Make sure that the electrical connector DP0202 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0202 from the EEC.

(c) Visually examine the EEC J2 Receptacle and Wire Harness connector.

1) If the EEC J2 Receptacle is damaged, then replace the applicable ENG 1 (ENG 2) 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 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.

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) Do these steps to measure the input voltage at the EEC electrical connector DP0202:

(a) 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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT

(b) Put the applicable Start Lever to the CUTOFF position.

(c) Do a check for 0V AC from pin A to pin B (Ground) of the electrical connector DP0202.

1) If you find 0V AC, then replace the applicable 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 find 89 V AC or more, then continue.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(7) Do this check of the applicable ENG-1 (ENG-2) Right Ignition Switch, S89 (S91):

NOTE: The S89 Switch is in the ENG-1 Start Brake Assembly, M1824 in the Control Stand.

The S91 Switch is in the ENG-2 Start Brake Assembly, M1825 in the Control Stand.

(a) Remove the Upper and Side Panels from the Control Stand.

(b) Disconnect the ENG-1 (ENG-2) Right Ignition Switch electrical connector D11288P (D11292P).

(c) With the Start Lever in the CUTOFF position, do a continuity check between pins 11 and 12 at the Control Stand.

1) If you find continuity, then replace the applicable ENG-1 (ENG-2) Right Ignition Switch, S89 (S91). 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

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

2) If you do not find continuity, then examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) through the ENG 1 (ENG 2) Start Lever Module, M1824 (M1825) to the applicable EEC.

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

SHZ 885-899

(8) Do this check of the applicable ENG-1 (ENG-2) Start Lever, S1221 (S1222):

(a) Remove the Upper and Side Panels from the Control Stand.

(b) Disconnect the ENG-1 (ENG-2) Start Lever electrical connector D11288P (D11292P).

(c) With the Start Lever in the CUTOFF position, do a continuity check between pins 11 and 12 at the Control Stand.

1) If you find continuity, 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

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

2) If you do not find continuity, then examine and repair the wiring and connectors from the ENGINE 1 (2) IGNITION RIGHT circuit breaker, C00458 (C00459) through the ENG 1 (ENG 2) Start Lever, S1221 (S1222) to the applicable EEC.

SHZ 885-899 (Continued)

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

SHZ ALL

G. Repair Confirmation

(1) Make sure that the electrical connector DP0202 is correctly connected to the EEC.

(2) Make sure that the ENG-1 (ENG-2) Left Ignition Switch electrical connector D11288P (D11292P) is correctly connected to the Control Stand.

(3) For ENG 1 (ENG 2), make sure that the applicable circuit breakers closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
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	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

(4) 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) Install the Upper and Side Panels to the Control Stand.

2) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

(b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

805. Display Electronic Unit (DEU) Igniter Data Is Incorrect - Fault Isolation

A. Description

(1) This task is for these maintenance message numbers:

(a) 74-11301, 74-11302, 74-21301, 74-21302, 74-31301, or 74-31302 and 74-11311, 74-11312, 74-21311, 74-21312, 74-31311, or 74-31312.

(b) The maintenance messages 74-X130Y or 74-X131Y 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:

(c) 74-X130Y is reported by the EEC for data from DEU1. 74-X131Y is reported by the EEC for data from DEU2.

(2) This message can be set by this condition:

(a) The EEC notes that Display Electronic Unit (DEU)1 or DEU2 cannot sense the selection of the left igniter or the right igniter from the engine ignition switch S858.

(3) This fault is reported when the EEC has electrical power.

(a) This fault should show as a dual channel message.

(4) You should do the Initial Evaluation to see if a dual channel maintenance message is set.

B. Possible Causes - One DEU Fault

(1) The wires and the connectors between the engine ignition switch (P5 forward overhead panel) and the DEUs

(2) M1808 (DEU1)

(3) M1809 (DEU2)

(4) Engine Ignition Switch, S858.

C. Possible Causes - Two DEU Fault

(1) Engine Ignition Switch, S858.

D. Circuit Breakers

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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

E. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 303)

(3) (SSM 74-31-11)

(4) (WDM 74-31-11)

F. Initial Evaluation

(1) To find out if the fault is active, for each engine, do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

(a) If one of these combinations of maintenance messages, 74-X1301 and 74-X1302, or 74-X1311 and 74-X1312 shows for one DEU, then do the Fault Isolation Procedure - One DEU Fault.

(b) If all four maintenance messages 74-X1301, 74-X1302, 74-X1311 and 74-X1312 show for the two DEUs, then do the Fault Isolation Procedure - Two DEU 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:

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 - One DEU Fault

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

(a) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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

(b) Get access to the E3-1 shelf in the Electronic Equipment (EE) bay.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(2) Do a check of the wiring:

(a) Remove the S858 switch.

(b) Remove the applicable DEU. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

(c) Do this resistance check between these pins to examine the wires from the engine ignition switch S858 in the P5 pilots overhead panel to the two DEUs or to ground:

Engine Ignition Switch S858	Display Electronic Unit 1 D3973E	RESISTANCE
2	A7	LESS THAN 10 OHMS

Engine Ignition Switch S858	Display Electonic Unit 2 D3975E	RESISTANCE
2	A7	LESS THAN 10 OHMS

Engine Ignition Switch S858	Display Electronic Unit 1 D3973A	RESISTANCE
8	A7	LESS THAN 10 OHMS

Engine Ignition Switch S858	Display Electronic Unit 2 D3935A	RESISTANCE
8	A7	LESS THAN 10 OHMS

Engine Ignition Switch S858	Airplane Ground	RESISTANCE
3	Airplane Ground	LESS THAN 10 OHMS

Engine Ignition Switch S858	Airplane Ground	RESISTANCE
7	Airplane Ground	LESS THAN 10 OHMS

(d) If the resistance is not in the specified range, then repair or replace the wires between the S858 switch, and the DEU connector or ground.

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

2) If the Repair Confirmation is not satisfactory, then continue.

(e) If resistance is in the specified range, then do these steps:

1) With the S858 switch in the BOTH position, do a check for continuity through the switch between pins 2 and 3 and between pins 8 and 7.

2) If there is no continuity, then replace the S858 switch.

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

3) If there is continuity, then replace the applicable 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.

H. Fault Isolation Procedure - Two DEU Fault

(1) Replace the engine ignition switch, S858 on the P5 pilots overhead panel.

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

I. Repair Confirmation

(1) Prepare for the procedure:

(a) Make sure that the DEUs are installed in the E3-1 shelf.

(b) Make sure the S858 ignition switch and connector are correctly connected in the P5 overhead panel.

(c) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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

(2) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——— END OF TASK ———

806. IGN L (IGN 1) IS FAILED - Fault Isolation

A. Description

(1) This task is for these “IGN L (IGN 1) IS FAILED” maintenance messages:

(a) 74-10951: ENG-1 CH A fault

(b) 74-10952: ENG-2 CH A fault

(c) 74-20951: ENG-1 CH B fault

(d) 74-20952: ENG-2 CH B fault

(e) 74-30951: ENG-1 Dual Channel fault

(f) 74-30952: ENG-2 Dual Channel fault

(2) The EEC detects that there was no engine start (no increase in Exhaust Gas Temperature (EGT) with these conditions:

(a) The Start Lever is in the IDLE position.

(b) The Fuel Metering Valve (FMV) is in the correct position.

(c) The input voltage to the EEC for the Left Exciter is correct.

(d) The engine does not start when the Left Igniter is selected.

(3) This fault is reported when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel Message.

B. Possible Causes

(1) For an Audible Igniter Test (Left Igniter) with one audible confirmation:

(a) EEC, M1818

(2) For an Audible Igniter Test (Left Igniter) with no audible confirmation:

(a) Left Igniter Plug

(b) Left Ignition Lead

(c) Left Ignition Exciter

(d) MW0301 Wire Harness

(3) For an Audible Igniter Test (Left Igniter) with two audible confirmations:

(a) Left Igniter Plug

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(b) ENG 1 (2) Start Brake Assembly, M1824 (M1825) for Left Ignition Switches S88, S90

SHZ ALL

(c) Left Ignition Lead

(d) Left Ignition Exciter

(e) EEC, M1818

(f) MW0301 Wire Harness

(g) Upper 11 Fuel Nozzles (if problem occurred during the first start of the day or with a cold soaked engine)

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	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	6	C00151	ENGINE 2 IGNITION LEFT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

(3) SSM 74-11-11

(4) WDM 74-11-11

E. Initial Evaluation

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

(2) Look at the RECENT FAULTS for Flight Leg 0.

(a) If a combination of maintenance messages as shown below shows, do this task FMV Demand and Position Signals Disagree - Fault Isolation, 73-25 TASK 802:

1) 74-10951 and 73-20331

2) 74-20951 and 73-10331

3) 74-10952 and 73-20332

4) 74-20952 and 73-10332

(b) If a maintenance message 74-X095Y IGN L (IGN 1) IS FAILED 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 indicated in the Possible Causes list above.

4) Monitor the airplane on the subsequent flight(s).

(c) If a maintenance message 74-X095Y IGN L (IGN 1) IS FAILED shows, then continue.

(3) Do this task to see if the Left Igniter Plug operates correctly: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

NOTE: You should hear the operation of the Left Igniter Plug two times, first for CH A and then for CH B.

(a) If you only hear one audible confirmation, do the “Fault Isolation Procedure - One Audible Confirmation” below.

(b) If you hear no audible confirmation, then do the “Fault Isolation Procedure - No Audible Confirmation” below.

(c) If you hear the two audible confirmations, then do these steps:

1) With the IGN L selected, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

a) If the engine starts correctly, then there was an intermittent fault.

b) If the engine does not start, do the “Fault Isolation Procedure - Two Audible Confirmations” below.

F. Fault Isolation Procedure - One Audible Confirmation

(1) Replace the EEC, M1818, for a defective EEC Internal Igniter Relay. 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 - No Audible Confirmation

(1) If there are maintenance messages, do the applicable Fault Isolation Manual (FIM) Tasks for the maintenance messages that show.

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

(b) If the Repair Confirmation is not satisfactory, then continue.

(2) If there are no maintenance messages, then examine the Left Igniter Plug. This is the task: Main Igniter Plug Inspection, AMM TASK 74-21-02-200-801-F00.

(a) If the damage is more than the limits, replace the Left Igniter Plug. These are the tasks:

- Main Igniter Plug Removal, AMM TASK 74-21-02-000-801-F00
- Main Igniter Plug Installation, AMM TASK 74-21-02-400-801-F00

1) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(b) Examine the Left Ignition Lead. This is the task: Ignition Lead Inspection, AMM TASK 74-21-01-200-801-F00.

1) If the damage is more than the limits, replace the Left Ignition Lead. These are the tasks:
   - Ignition Lead Removal, AMM TASK 74-21-01-000-801-F00
   - Ignition Lead Installation, AMM TASK 74-21-01-400-801-F00
2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(c) Examine the Left Ignition Exciter. This is the task: Ignition Exciter Inspection, AMM TASK 74-11-01-200-801-F00.

1) If the damage is more than the limits, replace the Left Ignition Exciter. These are the tasks:
   - Ignition Exciter Removal, AMM TASK 74-11-01-000-801-F00
   - Ignition Exciter Installation, AMM TASK 74-11-01-400-801-F00
2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(3) Examine the electrical connector DP0101 at the EEC:

NOTE: The electrical connector DP0101 is on the MW0301 Wire Harness at the J1 Receptacle.

(a) Make sure that the electrical connector DP0101 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0101 from the EEC.

(c) Visually examine the EEC J1 Receptacle and Wire Harness connector.

1) If the EEC J1 Receptacle is damaged, then replace the EECC, 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 MW0301 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 do the Repair Confirmation at the end of this task.

H. Fault Isolation Procedure - Two Audible Confirmation

(1) For the Left Igniter Plug, do this task: Main Igniter Plug Inspection, AMM TASK 74-21-02-200-801-F00.

(a) If the damage to the Igniter Plug is more than the limits, then replace the Left Igniter Plug (Main Igniter Plug Installation, AMM TASK 74-21-02-400-801-F00).

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

2) If the Repair Confirmation is not satisfactory, then continue.

(b) If the damage is in the limits, then re-install the Left Igniter Plug and continue (Main Igniter Plug Installation, AMM TASK 74-21-02-400-801-F00).

(2) Replace the Upper 11 Fuel Nozzles. These are the tasks:

- AMM TASK 73-11-04-000-805-F01 or AMM TASK 73-11-04-000-804-F02
- AMM TASK 73-11-04-400-805-F01 or AMM TASK 73-11-04-400-804-F02

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

(3) If the problem continues, then this could be an intermittent fault.

(a) 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.

1) Replace components as shown in the Possible Causes list above and do the Repair Confirmation.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(4) Use INPUT MONITORING to examine the applicable ENG 1 (ENG 2) Left Ignition Switch, S88 (S90), in the Engine Start Brake Assembly to see if the switch operation agrees with the selected Start Lever position.

NOTE: Some switches in the Engine Start Brake Assembly can cause engine start problems.

(a) Get access to the INPUT MONITORING Screen on the CDU:

1) Push the INIT REF key two times.

NOTE: This causes the PERF INIT INDEX to show.

2) Push the INDEX LSK.

3) Push the MAINT LSK.

4) Push the ENGINE LSK.

5) Push the LSK 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.

NOTE: An alert message will show to tell you that only data from one channel is available.

7) Push the CONTINUE LSK.

NOTE: This causes the INPUT MONITORING MENU to show. Push the NEXT PAGE key to go to page 2 of the menu

8) Push the DISCRETES LSK.

NOTE: This causes the INPUT MONITORING GMM DISCRETES screen to show.

9) Push the NEXT PAGE key two times to see page 3/3 and find the L IGNITER 115V line on the screen.

(b) With the applicable Start Lever in the CUTOFF position, make sure that the value is OFF.

(c) Put the applicable Start Lever to the IDLE position and make sure that the value is ON for each line.

(d) Operate the Start Lever many times and see if the switch operates correctly.

1) If the switch does not operate correctly, replace the applicable ENG 1 (ENG 2) Left Ignition Switch, S88 (S90). 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

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

SHZ ALL

I. Repair Confirmation

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

(a) Make sure that the electrical connector DP0102 is correctly connected to the Left Ignition Exciter.

(b) Make sure that the electrical connector DP0101 is correctly connected to the EEC at J1.

(2) If the initial Audible Test of the Ignition System failed, do these steps:

(a) For the Left Igniter Plug, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

1) If the Left Igniter Test passes and you hear two audible confirmations, then you corrected the problem.

(3) If the initial Audible Test of the Ignition System passed, do these steps:

(a) With the IGN L selected, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

1) If the engine start is normal, then you corrected the problem.

(4) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

——— END OF TASK ———

807. IGN R (IGN 2) IS FAILED - Fault Isolation

A. Description

(1) This task is for these “IGN R (IGN 2) IS FAILED” maintenance messages:

(a) 74-10961: (ENG-1 CH A fault

(b) 74-10962: ENG-2 CH A fault

(c) 74-20961: ENG-1 CH B fault

(d) 74-20962: ENG-2 CH B fault

(e) 74-30961: ENG-1 Dual Channel fault

(f) 74-30962: ENG-2 Dual Channel fault

(2) The EEC detects that there was no engine start (no increase in EGT with these conditions:

(a) The Start Lever is in the IDLE position.

(b) The FMV is in the correct position.

(c) The input voltage to the EEC for the Right Exciter is correct.

(d) The engine does not start when the Right Igniter is selected.

(3) This fault is reported when the EEC has Electrical Power.

(a) This fault should show as a Dual Channel Message.

B. Possible Causes

(1) For an Audible Igniters Test (Right Igniter) with one audible confirmation:

(a) EEC, M1818

(2) For an Audible Igniter Test (Right Igniter) with no audible confirmation:

(a) Right Igniter Plug

(b) Right Ignition Lead

(c) Right Ignition Exciter

(d) MW0302 Wire Harness.

(3) For an Audible Igniter Test (Right Igniter) with two audible confirmations:

(a) Right Igniter Plug

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(b) ENG 1 (2) Start Brake Assembly, M1824 (M1825) for Right Ignition Switches S89, S91

SHZ ALL

(c) Right Ignition Lead

(d) EEC, M1818

(e) MW0302 Wire Harness

(f) Upper 11 Fuel Nozzles (if problem occurred during the first start of the day or with a cold soaked engine)

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	1	C00458	ENGINE 1 IGNITION RIGHT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT

D. Related Data

(1) Component Location (74-21 TASK SUPPORT Figure 301)

(2) Simplified Schematic (74-21 TASK SUPPORT Figure 302)

(3) SSM 74-11-11

(4) WDM 74-11-11

E. Initial Evaluation

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

(2) Look at the RECENT FAULTS for Flight Leg 0.

(a) If a combination of maintenance messages as shown below shows, do this task FMV Demand and Position Signals Disagree - Fault Isolation, 73-25 TASK 802:

1) 74-10961 and 73-20331

2) 74-20961 and 73-10331

3) 74-10962 and 73-20332

4) 74-20962 and 73-10332

(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 indicated in the Possible Causes list above.

4) Monitor the airplane on the subsequent flight(s).

(c) If a maintenance message number 74-X096Y IGN R (IGN 2) IS FAILED shows, then continue.

(3) Do this task to see if the Right Igniter Plug operates correctly: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00.

NOTE: You should hear the operation of the Right Igniter Plug two times, first for CH A and then for CH B.

(a) If you only hear one audible confirmation, do the “Fault Isolation Procedure - One Audible Confirmation” below.

(b) If you hear no audible confirmation, then do the “Fault Isolation Procedure - No Audible Confirmation” below.

(c) If you hear the two audible confirmations, then do these steps:

1) With the IGN R selected, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

a) If the engine starts correctly, then there was an intermittent fault.

b) If the engine does not start, do the “Fault Isolation Procedure - Two Audible Confirmations” below.

F. Fault Isolation Procedure - One Audible Confirmation

(1) Replace the EEC, M1818, for a defective EEC Internal Igniter Relay. 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 - No Audible Confirmation

(1) If there are maintenance messages, do the applicable FIM Tasks for the maintenance messages that show.

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

(b) If the Repair Confirmation is not satisfactory, then continue.

(2) If there are no maintenance messages, then examine the Right Igniter Plug. This is the task: Main Igniter Plug Inspection, AMM TASK 74-21-02-200-801-F00.

(a) If the damage is more than the limits, replace the Right Igniter Plug. These are the tasks:

- Main Igniter Plug Removal, AMM TASK 74-21-02-000-801-F00
- Main Igniter Plug Installation, AMM TASK 74-21-02-400-801-F00

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

a) If the Repair Confirmation is not satisfactory, then continue.

(b) Examine the Right Ignition Lead. This is the task: Ignition Lead Inspection, AMM TASK 74-21-01-200-801-F00.

1) If the damage is more than the limits, replace the Right Ignition Lead. These are the tasks:

- Ignition Lead Removal, AMM TASK 74-21-01-000-801-F00
- Ignition Lead Installation, AMM TASK 74-21-01-400-801-F00

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) Examine the Right Ignition Exciter. This is the task: Ignition Exciter Inspection, AMM TASK 74-11-01-200-801-F00.

1) If the damage is more than the limits, replace the Right Ignition Exciter. These are the tasks:

- Ignition Exciter Removal, AMM TASK 74-11-01-000-801-F00
- Ignition Exciter Installation, AMM TASK 74-11-01-400-801-F00

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

a) If the Repair Confirmation is not satisfactory, then continue.

(3) Examine the electrical connector DP0202 at the EEC:

NOTE: The electrical connector DP0202 is on the MW0302 Wire Harness at the J2 Receptacle.

(a) Make sure that the electrical connector DP0202 is correctly connected to the EEC.

(b) Disconnect the electrical connector DP0202 from the EEC.

(c) Visually examine the EEC J2 Receptacle and Wire Harness connector.

1) If the EEC J2 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 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.

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.

H. Fault Isolation Procedure - Two Audible Confirmation

(1) For the Right Igniter Plug, do this task: Main Igniter Plug Inspection, AMM TASK 74-21-02-200-801-F00.

(a) If the damage to the Igniter Plug is more than the limits, then replace the Right Igniter Plug (AMM TASK 74-21-02-400-801-F00).

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

2) If the Repair Confirmation is not satisfactory, then continue.

(b) If the damage is in the limits, then re-install the Right Igniter Plug and continue(AMM TASK 74-21-02-400-801-F00).

(2) Replace the upper 11 fuel nozzles. These are the tasks:

- AMM TASK 73-11-04-000-805-F01 or AMM TASK 73-11-04-000-804-F02
- AMM TASK 73-11-04-400-805-F01 or AMM TASK 73-11-04-400-804-F02

(3) If the problem continues, then this could be an intermittent fault.

(a) 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.

1) Replace components as shown in the Possible Causes list above and do the Repair Confirmation.

SHZ 002, 009-699, 706, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-884, 901-999

(4) Use INPUT MONITORING to examine the applicable ENG 1 (ENG 2) Right Ignition Switch, S89 (S91), in the Engine Start Brake Assembly to see if the switch operation agrees with the selected Start Lever position.

NOTE: Some switches in the Engine Start Brake Assembly can cause engine start problems.

(a) Get access to the INPUT MONITORING Screen on the CDU:

1) Push the INIT REF key two times.

NOTE: This causes the PERF INIT INDEX to show.

2) Push the INDEX LSK.

3) Push the MAINT LSK.

4) Push the ENGINE LSK.

5) Push the LSK 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.

NOTE: An alert message will show to tell you that only data from one channel is available.

7) Push the CONTINUE LSK.

NOTE: This causes the INPUT MONITORING MENU to show. Push the NEXT PAGE key to go to page 2 of the menu

8) Push the DISCRETES LSK.

NOTE: This causes the INPUT MONITORING GMM DISCRETES screen to show.

9) Push the NEXT PAGE key two times to see page 3/3 and find the R IGNITER 115V line on the screen.

(b) With the applicable Start Lever in the CUTOFF position, make sure that the value is OFF.

(c) Put the applicable Start Lever to the IDLE position and make sure that the value is ON for each line.

(d) Operate the Start Lever several times and see if the switch operates correctly.

1) If the switch does not operate correctly, replace the applicable ENG 1 (ENG 2) Right Ignition Switch, S89 (S91). 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

SHZ ALL

I. Repair Confirmation

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

(a) Make sure that the electrical connector DP0201 is correctly connected to the Right Ignition Exciter.

(b) Make sure that the electrical connector DP0202 is correctly connected to the EEC at J2.

(2) If the initial audible test of the Ignition System failed, then do these steps:

(a) For the Right Igniter Plug, do this task: Ignition System Audible Test, AMM TASK 74-00-00-750-801-F00

(b) If the Right Igniter Test passes two audible confirmations are heard, then you corrected the fault.

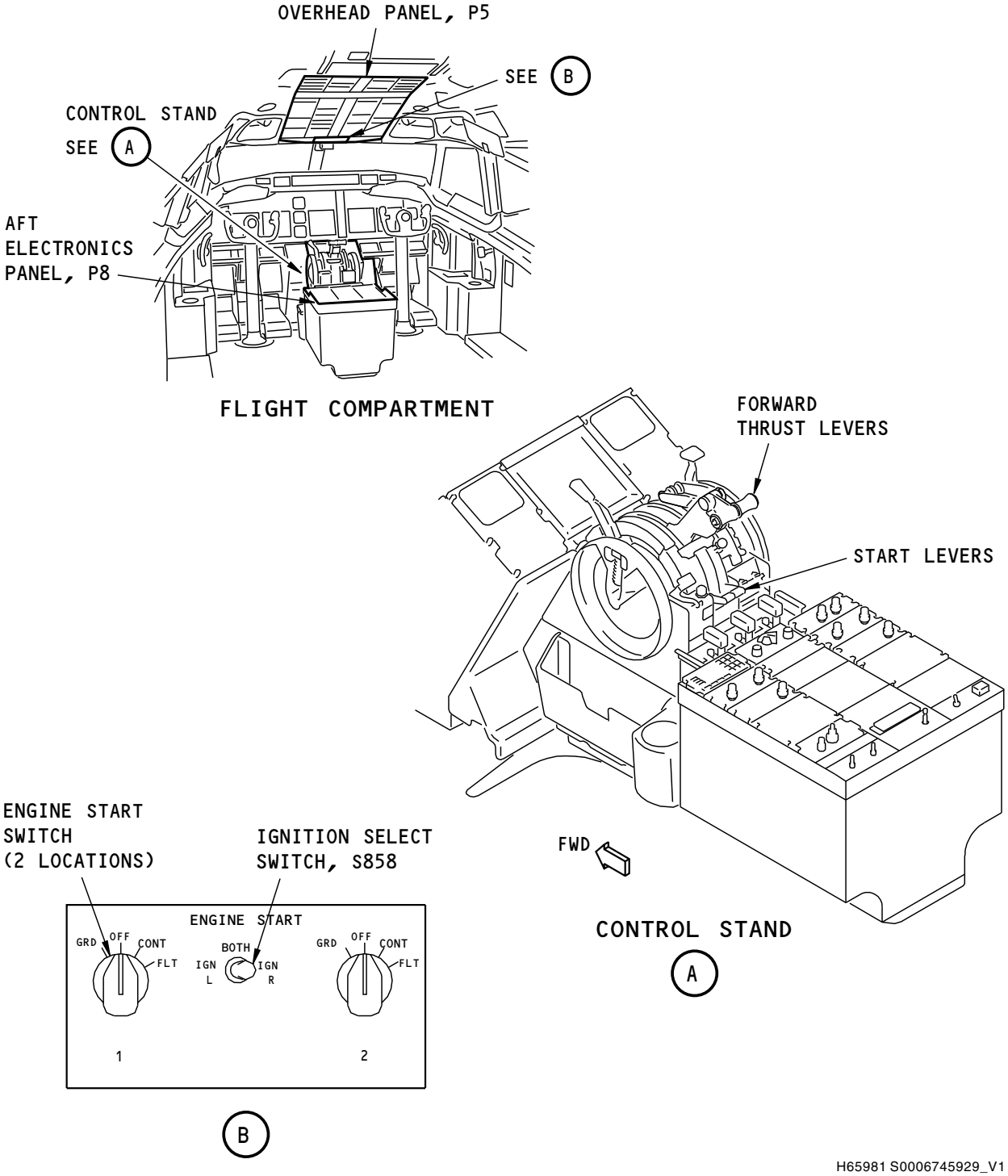
(3) If the initial audible test of the Ignition System passed, do these steps:

(a) With the IGN R selected, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

(b) If the engine start is normal, then you corrected the fault.

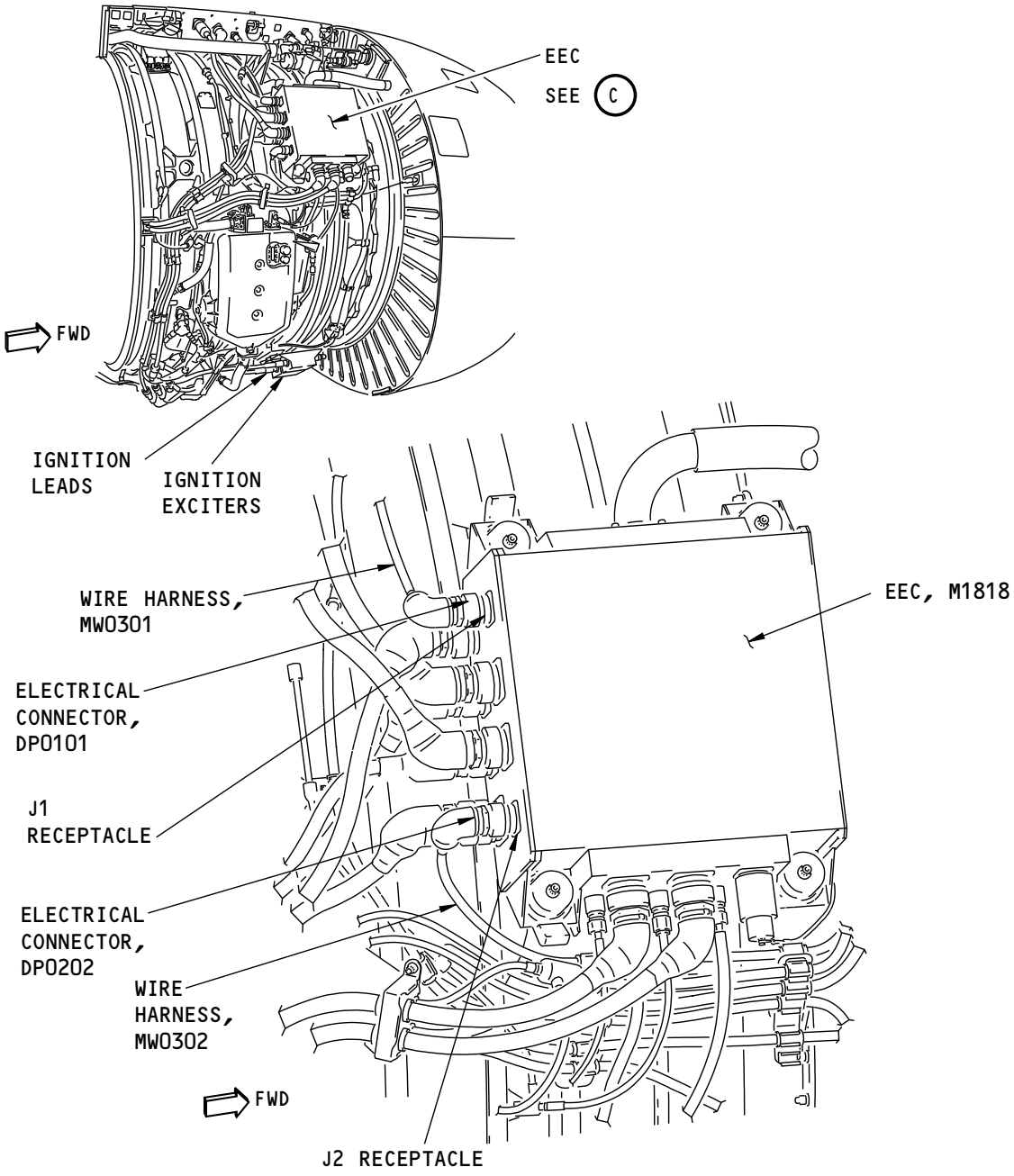
(4) Do this task: Close the Fan Cowl Panels, AMM TASK 71-11-02-410-801-F00.

END OF TASK



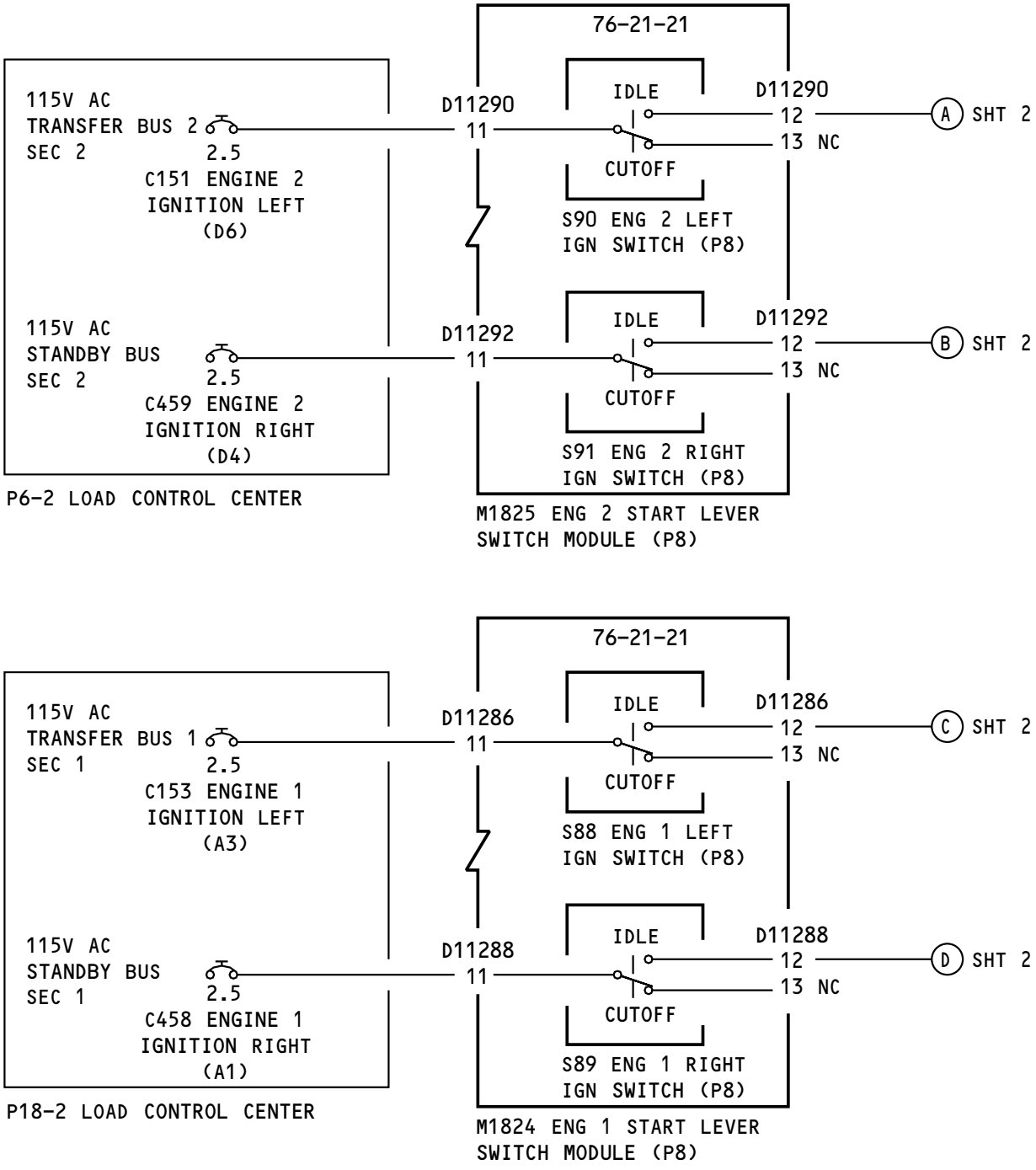
H65981 S0006745929_V1

Ignition System - Component Location
Figure 301/74-21-00-990-801-F00 (Sheet 1 of 2)



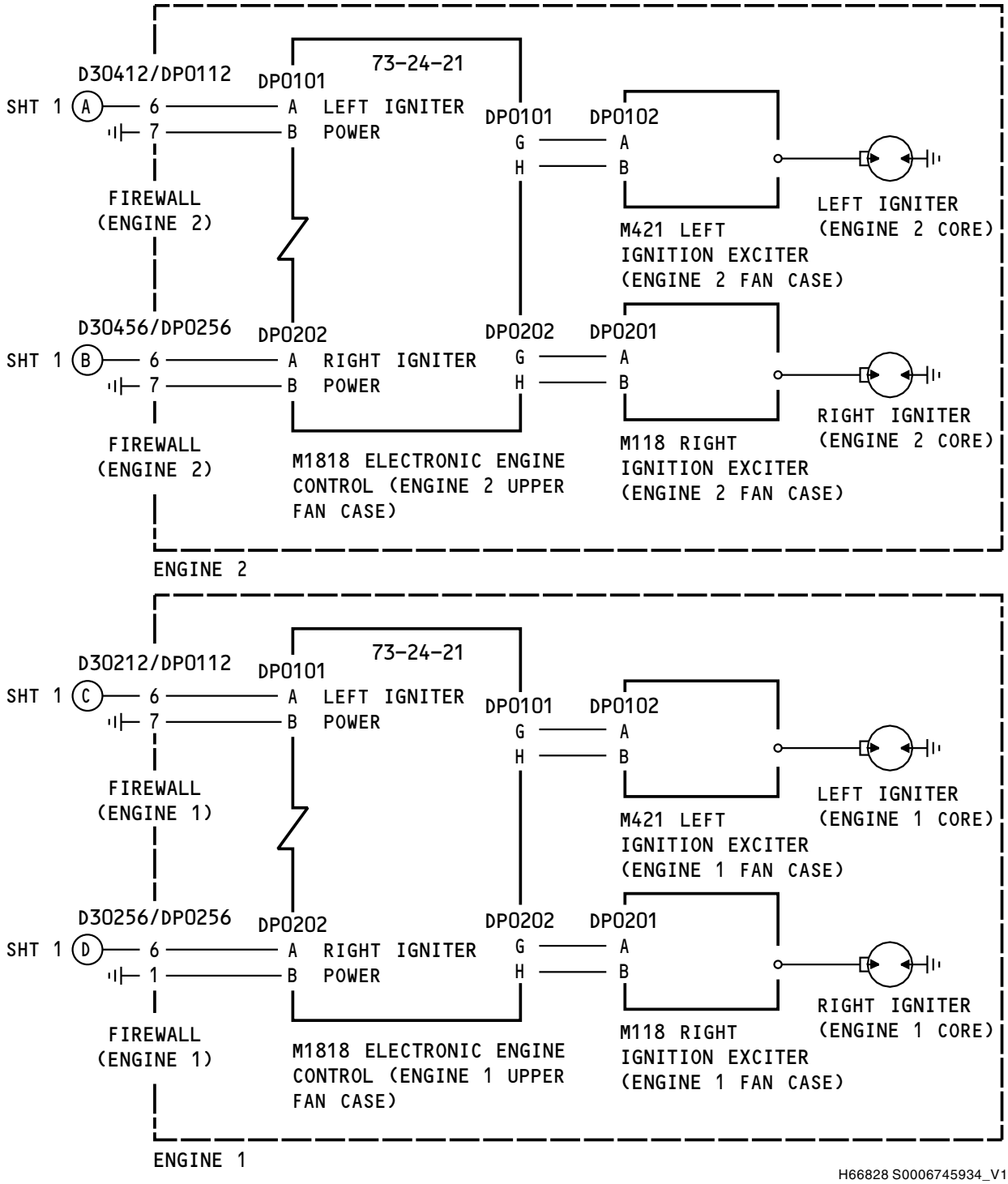
H66035 S0006745932_V1

Ignition System - Component Location
Figure 301/74-21-00-990-801-F00 (Sheet 2 of 2)

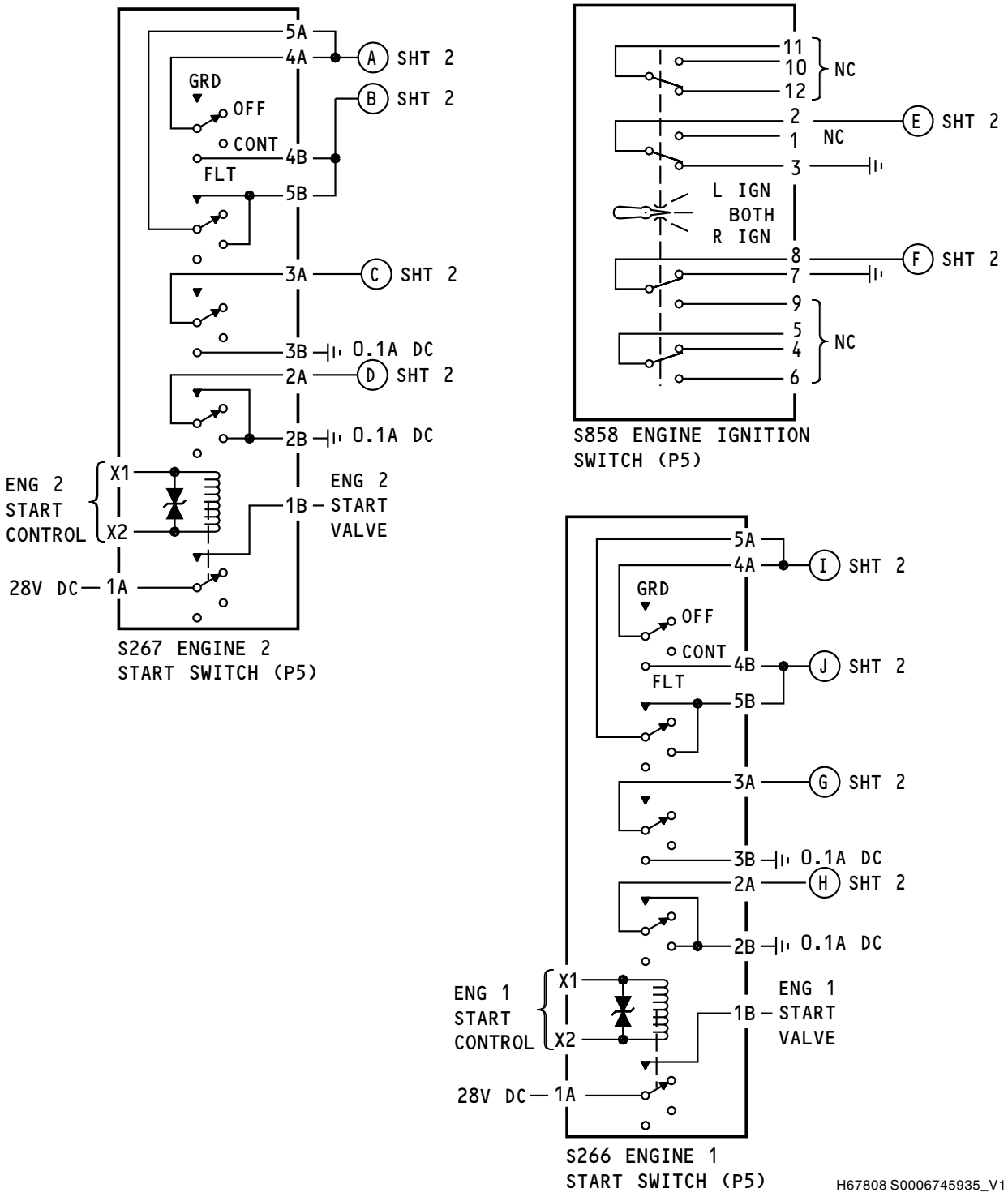


H66499 S0006745933_V1

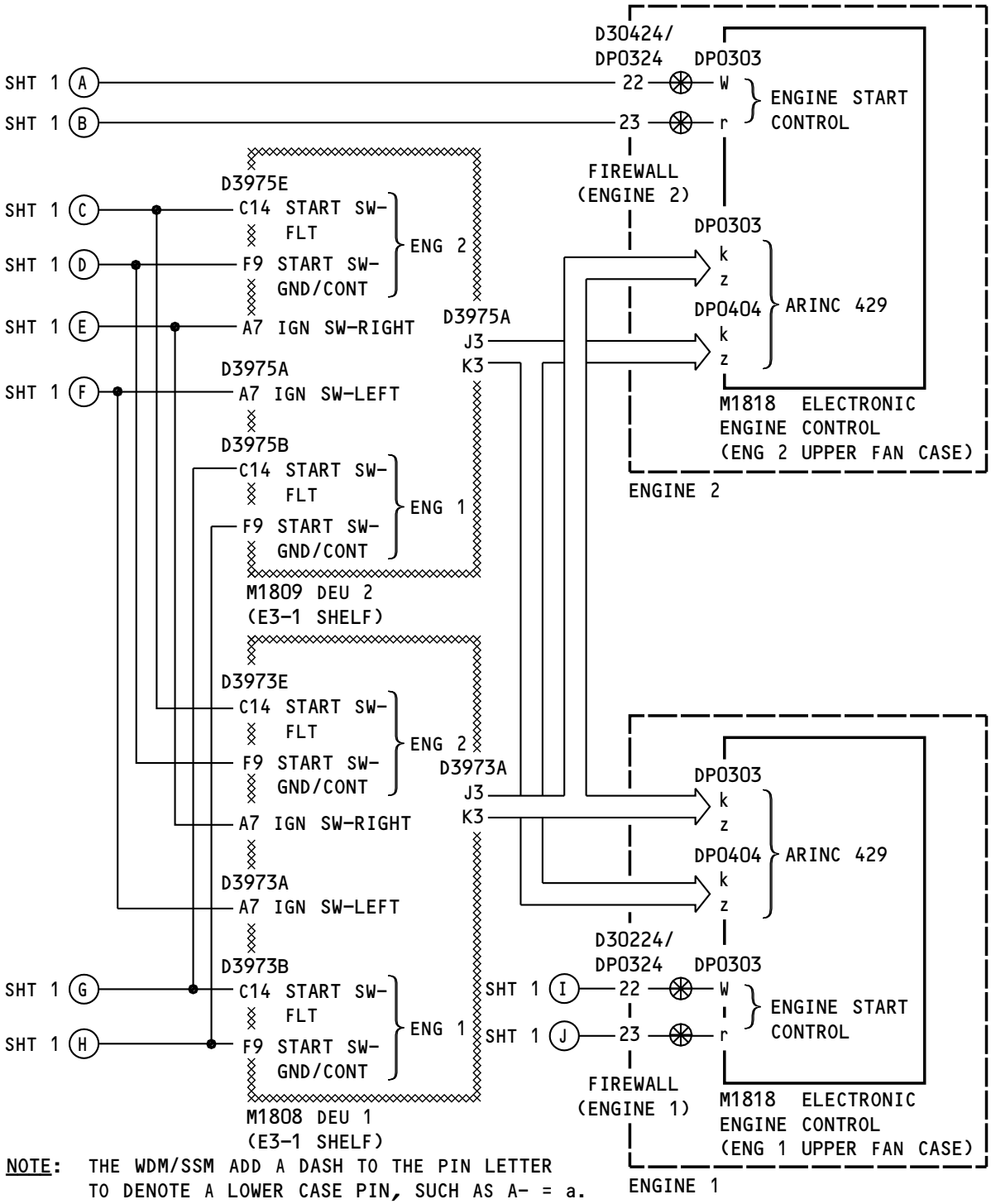
Ignition Power Simplified Schematic
Figure 302/74-21-00-990-802-F00 (Sheet 1 of 2)



Ignition Power Simplified Schematic
Figure 302/74-21-00-990-802-F00 (Sheet 2 of 2)



Engine Ignition Control Simplified Schematic
Figure 303/74-21-00-990-803-F00 (Sheet 1 of 2)



Engine Ignition Control Simplified Schematic
Figure 303/74-21-00-990-803-F00 (Sheet 2 of 2)