

**CHAPTER**

**74**

**IGNITION**

**(CFM56 ENGINES (CFM56-7))**



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

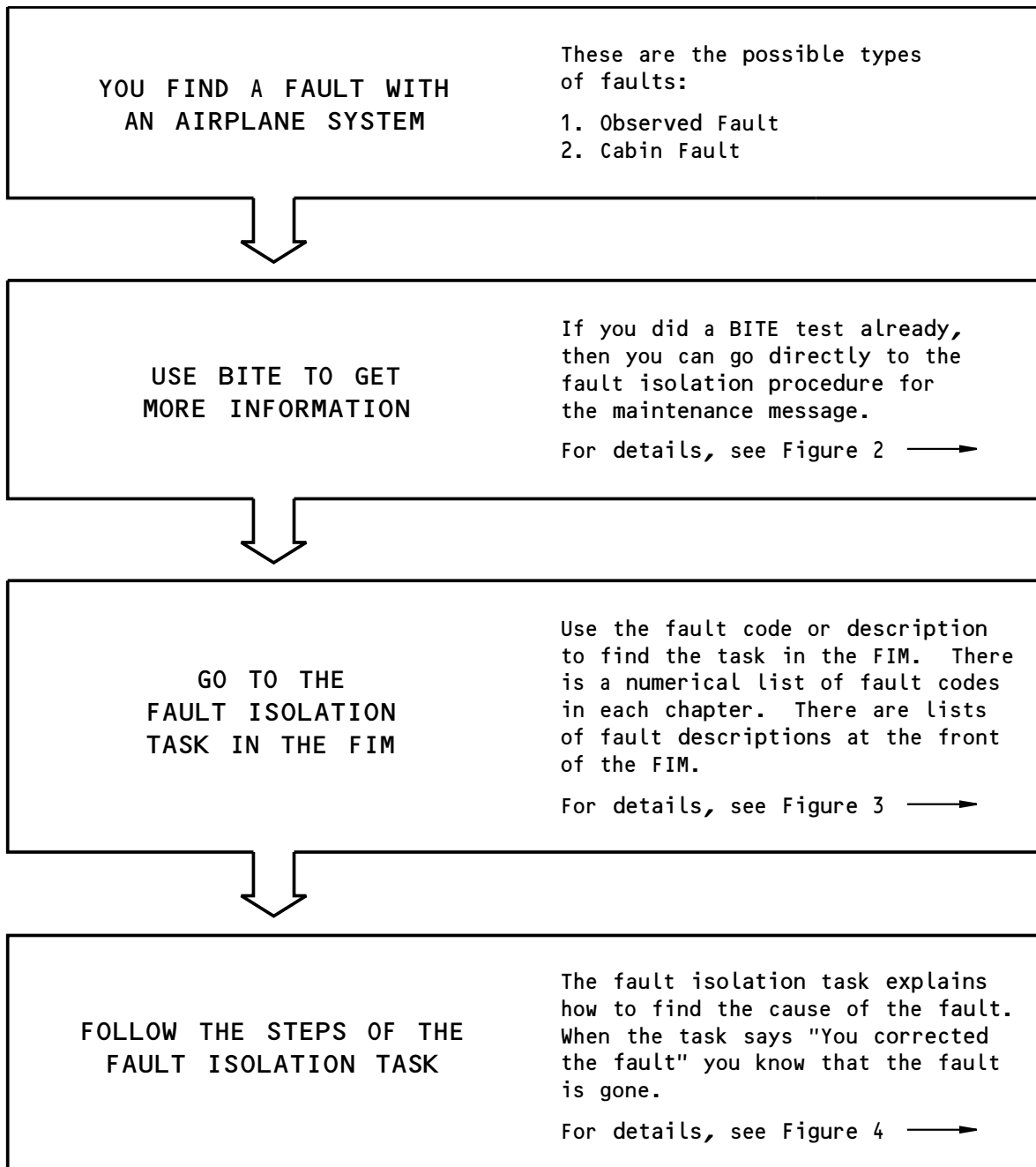
**CHAPTER 74  
IGNITION**

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

## 74-EFFECTIVE PAGES



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

G04902 S0000148576\_V1

**Basic Fault Isolation Process  
Figure 1**

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FAULT ISOLATION MANUAL**

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

A maintenance message can be any of these:

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

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

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

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

G04950 S0000148578\_V1

**Getting Fault Information from BITE**  
**Figure 2**

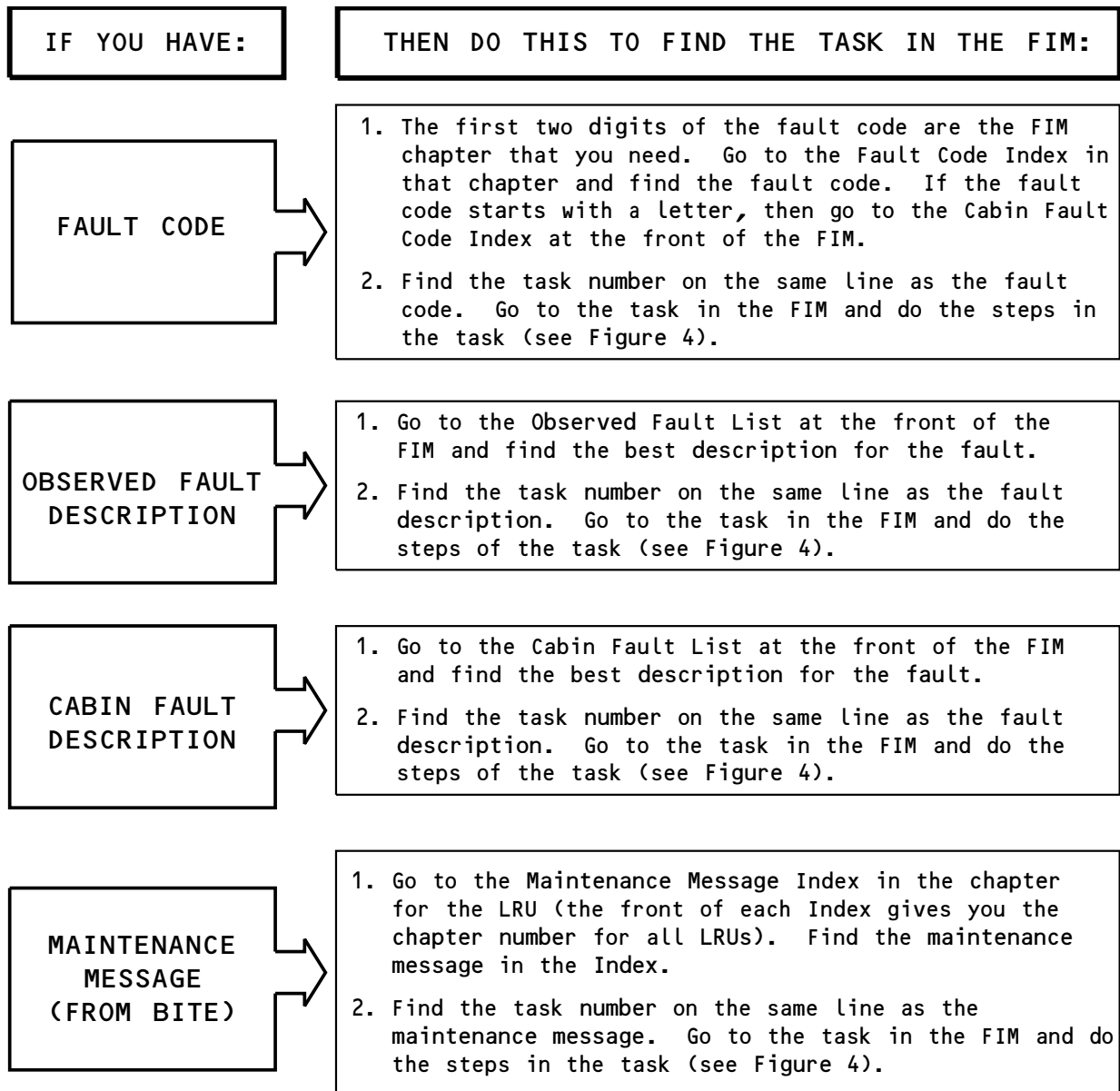
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Finding the Fault Isolation Task in the FIM  
Figure 3

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## 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.

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### Doing the Fault Isolation Task Figure 4

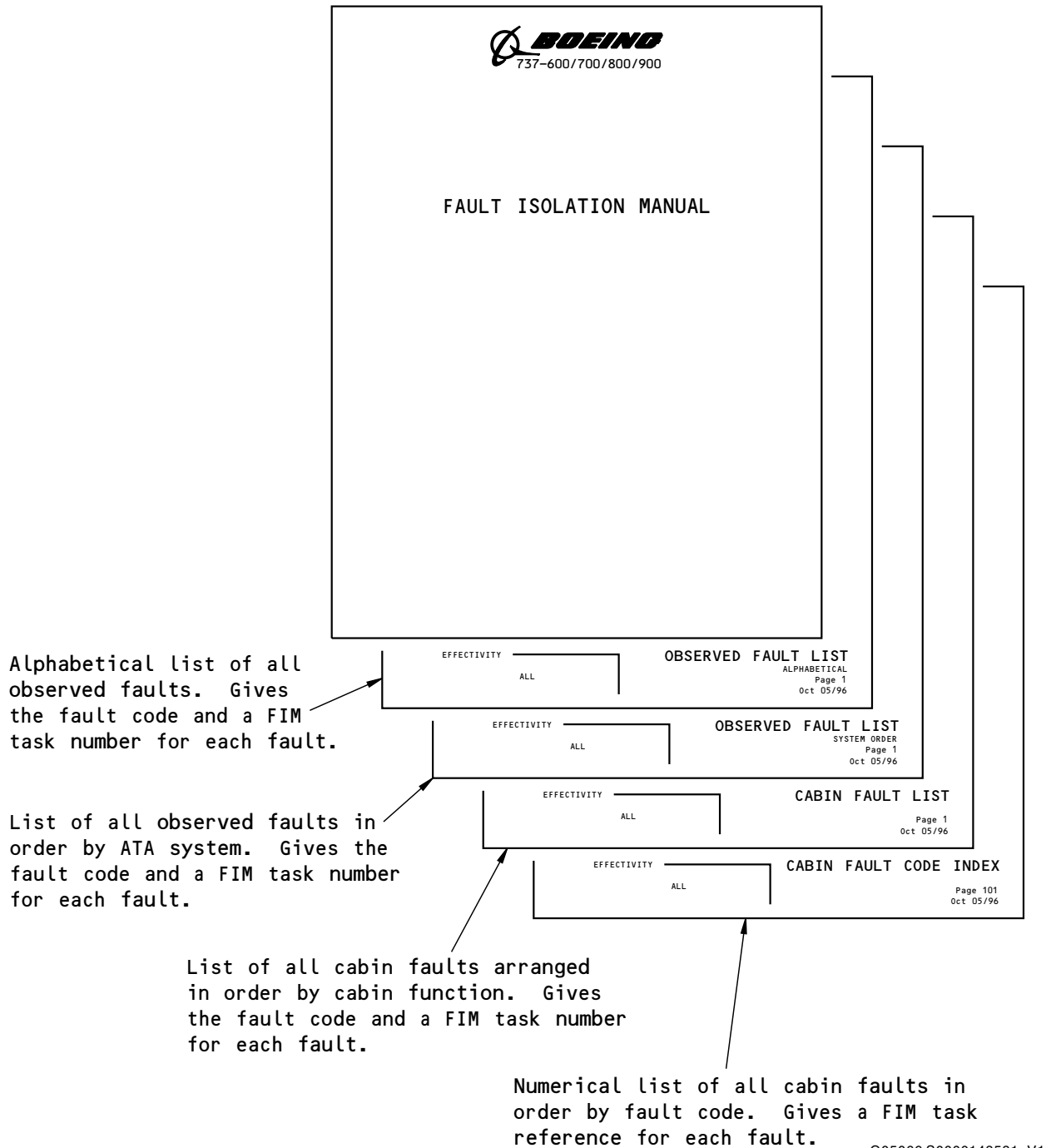
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**Subjects at Front of FIM  
Figure 5**

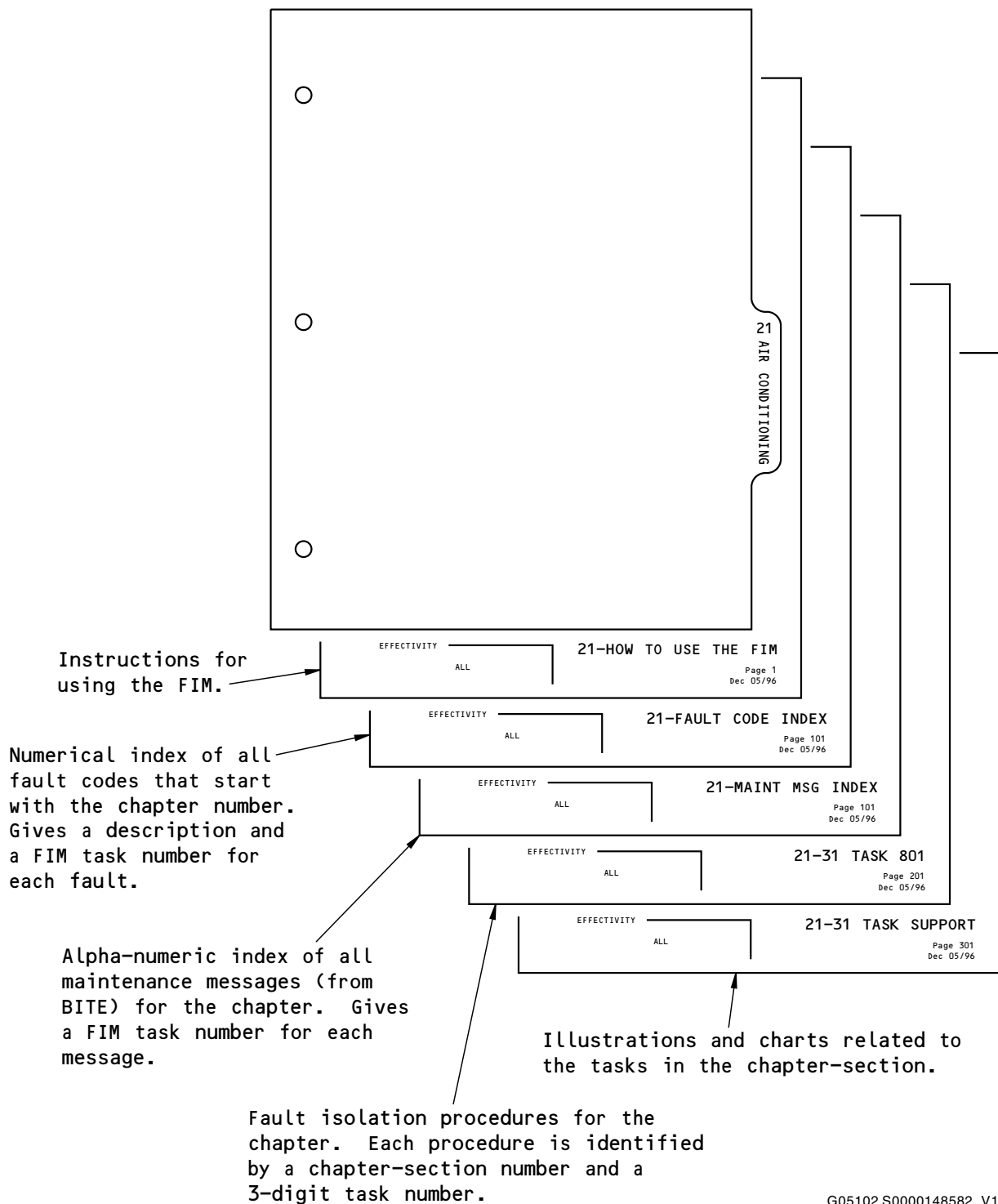
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**Subjects in Each FIM Chapter**  
**Figure 6**

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

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

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

| 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 |

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| 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 |

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

### 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:

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- (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

#### SIA 716-999

- (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

#### SIA 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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>            |
|------------|------------|---------------|------------------------|
| 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          | 6          | C00151        | ENGINE 2 IGNITION LEFT |

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## 74-21 TASK 801

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**D. Related Data**

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

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

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- (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.

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# 74-21 TASK 801

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- (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

| <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 |

### 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 |

- (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.

### SIA 702-714

- (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.

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### SIA 702-714 (Continued)

- (a) 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          | 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          | 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.

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

### SIA 702-714 (Continued)

- (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.

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- (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.

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- (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** —————

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FAULT ISOLATION MANUAL**

**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:

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- (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

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- (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

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- (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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>             |
|------------|------------|---------------|-------------------------|
| A          | 1          | C00458        | ENGINE 1 IGNITION RIGHT |

**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 |

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### D. Related Data

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

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

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- (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.

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- (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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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.

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- (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.

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### SIA 702-714 (Continued)

- (a) 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          | 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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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.

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### SIA 702-714 (Continued)

- (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.

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- (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.

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- (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** —————

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

### 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:

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- (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

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- (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

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- (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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>            |
|------------|------------|---------------|------------------------|
| 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          | 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

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(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

| <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 |

#### 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 |

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

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- (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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>            |
|------------|------------|---------------|------------------------|
| 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          | 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.

### **SIA 702-714**

- (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.

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### SIA 702-714 (Continued)

- (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.

### SIA 716-999

- (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.

### SIA 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

| <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 |

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### 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 |

- (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:

#### SIA 702-714

- (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

#### SIA 716-999

- (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

#### SIA ALL

- (c) L (R) ENG EEC, M1818

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### C. Circuit Breakers

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

#### CAPT Electrical System Panel, P18-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>             |
|------------|------------|---------------|-------------------------|
| A          | 1          | C00458        | ENGINE 1 IGNITION RIGHT |

#### 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. 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.

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- (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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>             |
|------------|------------|---------------|-------------------------|
| A          | 1          | C00458        | ENGINE 1 IGNITION RIGHT |

### 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 |

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- (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.

### SIA 702-714

- (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.

### SIA 716-999

- (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.

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SIA 716-999 (Continued)

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

**SIA 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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| 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.

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- (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

| <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    |

### 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:

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- 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

| <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    |

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

Open this access panel:

| <u>Number</u> | <u>Name/Location</u>             |
|---------------|----------------------------------|
| 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 | Display Electronic Unit |                   |
|------------------------|-------------------------|-------------------|
| <b>S858</b>            | <b>1</b>                |                   |
|                        | <b>D3973E</b>           | <b>RESISTANCE</b> |
| 2 .....                | A7                      | LESS THAN 10 OHMS |

| Engine Ignition Switch | Display Electronic Unit |                   |
|------------------------|-------------------------|-------------------|
| <b>S858</b>            | <b>2</b>                |                   |
|                        | <b>D3975E</b>           | <b>RESISTANCE</b> |
| 2 .....                | A7                      | LESS THAN 10 OHMS |

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D633A103-SIA

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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|                                                         |                                                         |                                        |
|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------|
| <b>Engine Ignition Switch</b><br><b>S858</b><br>8 ..... | <b>Display Electronic Unit 1</b><br><b>D3973A</b><br>A7 | <b>RESISTANCE</b><br>LESS THAN 10 OHMS |
|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------|

|                                                         |                                                         |                                        |
|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------|
| <b>Engine Ignition Switch</b><br><b>S858</b><br>8 ..... | <b>Display Electronic Unit 2</b><br><b>D3935A</b><br>A7 | <b>RESISTANCE</b><br>LESS THAN 10 OHMS |
|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------|

|                                                             |                                           |                                        |
|-------------------------------------------------------------|-------------------------------------------|----------------------------------------|
| <b>Engine Ignition Switch</b><br><br><b>S858</b><br>3 ..... | <b>Airplane Ground</b><br>Airplane Ground | <b>RESISTANCE</b><br>LESS THAN 10 OHMS |
|-------------------------------------------------------------|-------------------------------------------|----------------------------------------|

|                                                             |                                           |                                        |
|-------------------------------------------------------------|-------------------------------------------|----------------------------------------|
| <b>Engine Ignition Switch</b><br><br><b>S858</b><br>7 ..... | <b>Airplane Ground</b><br>Airplane Ground | <b>RESISTANCE</b><br>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.

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### 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

| <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) Do this task: EEC TEST, AMM TASK 73-21-00-700-804-F00.
- (3) Close this access panel:

| <u>Number</u> | <u>Name/Location</u>             |
|---------------|----------------------------------|
| 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

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- (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

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

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- (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**

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>            |
|------------|------------|---------------|------------------------|
| 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          | 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

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- (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:

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- 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.

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### 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.

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- (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.

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- (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.

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#### 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.

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- (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

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

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- (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

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>             |
|------------|------------|---------------|-------------------------|
| A          | 1          | C00458        | ENGINE 1 IGNITION RIGHT |

#### 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. 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.

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- (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.

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### 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:

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- 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.

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- (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

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### SIA 702-714 (Continued)

- 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

### SIA 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** —————

EFFECTIVITY  
SIA ALL

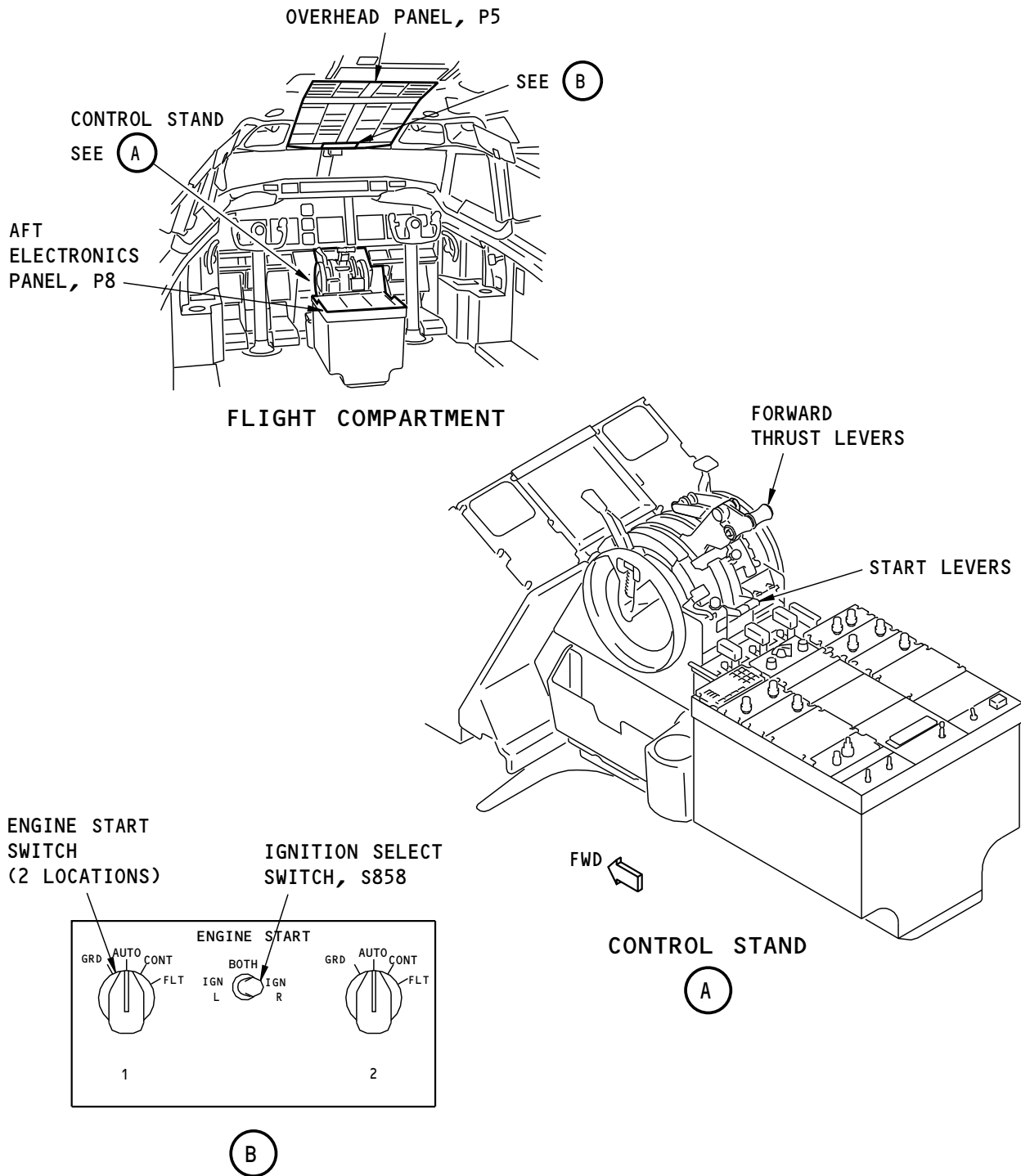
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H94897 S0006745931\_V1

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

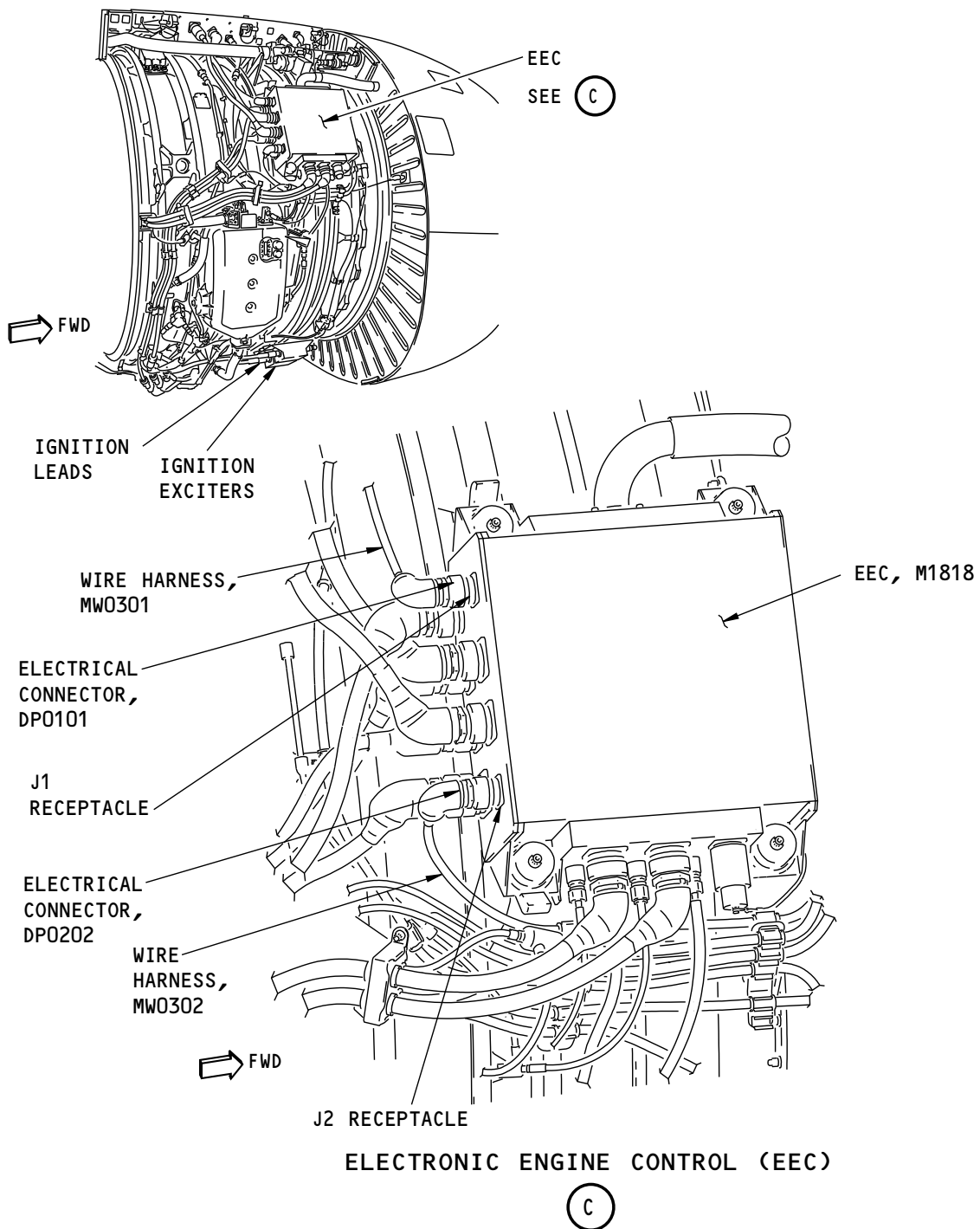
EFFECTIVITY  
SIA ALL

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H66035 S0006745932\_V1

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

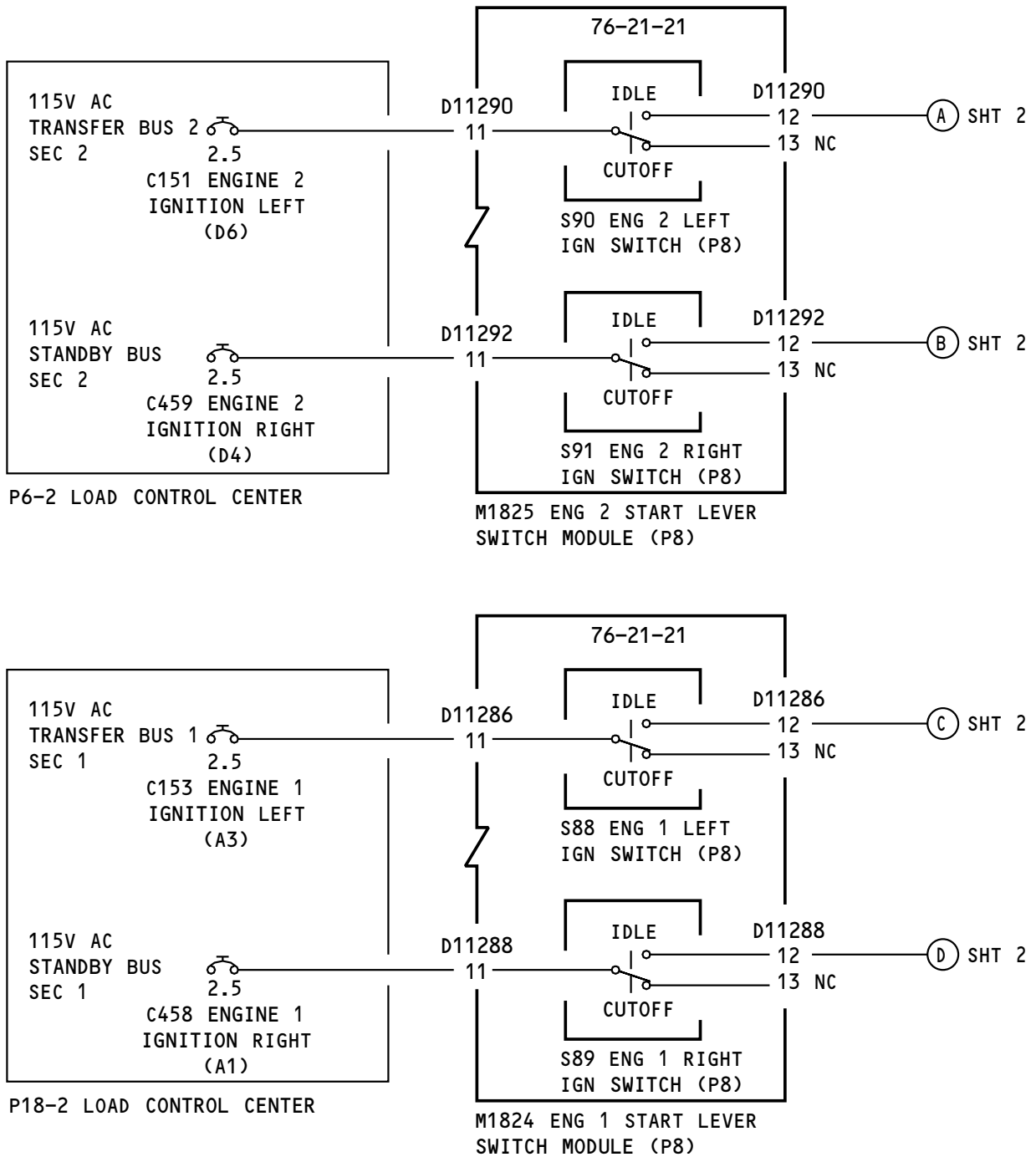
EFFECTIVITY  
 SIA ALL

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H66499 S0006745933\_V1

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

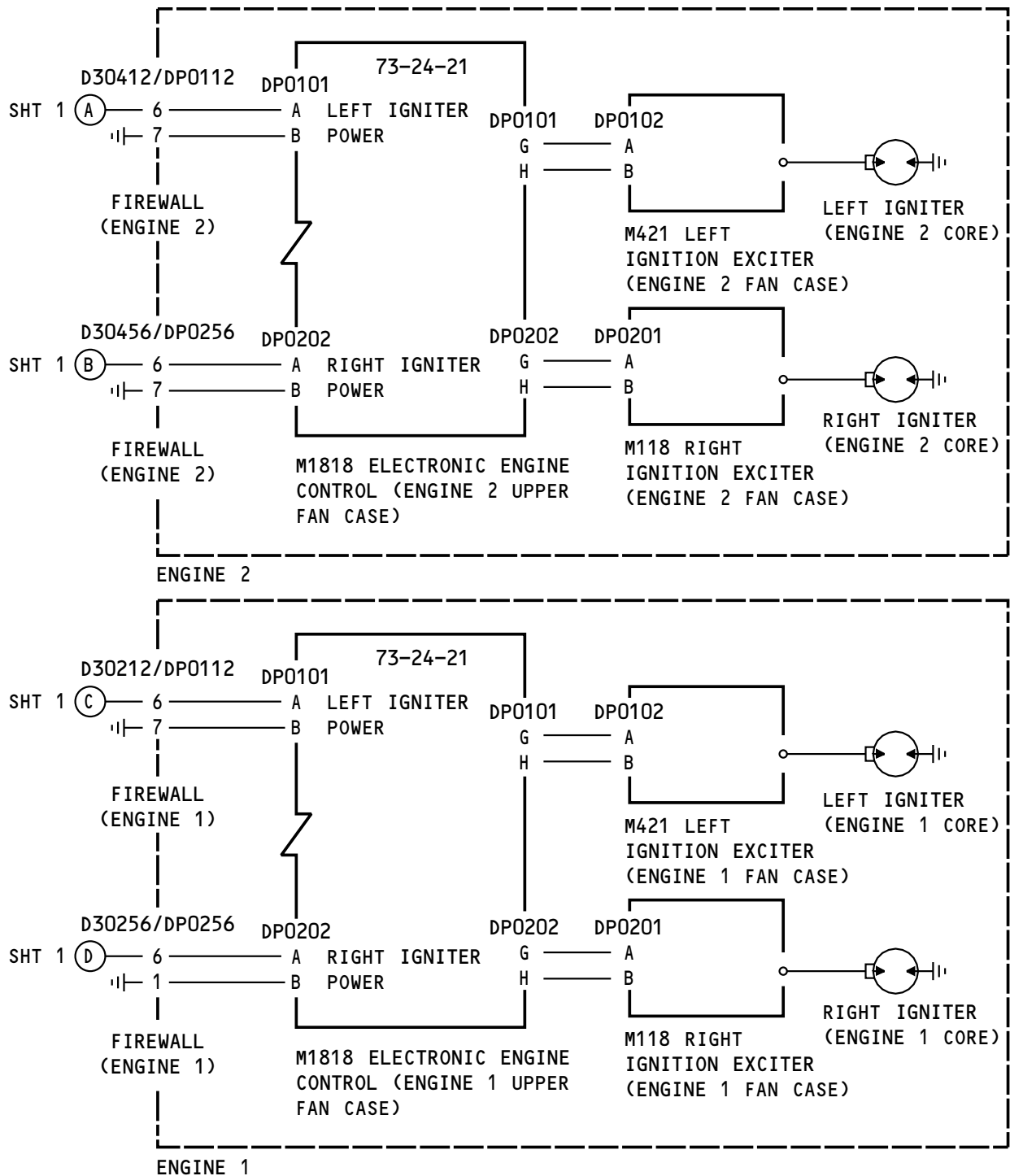
EFFECTIVITY  
SIA 702-714

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H66828 S0006745934\_V1

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

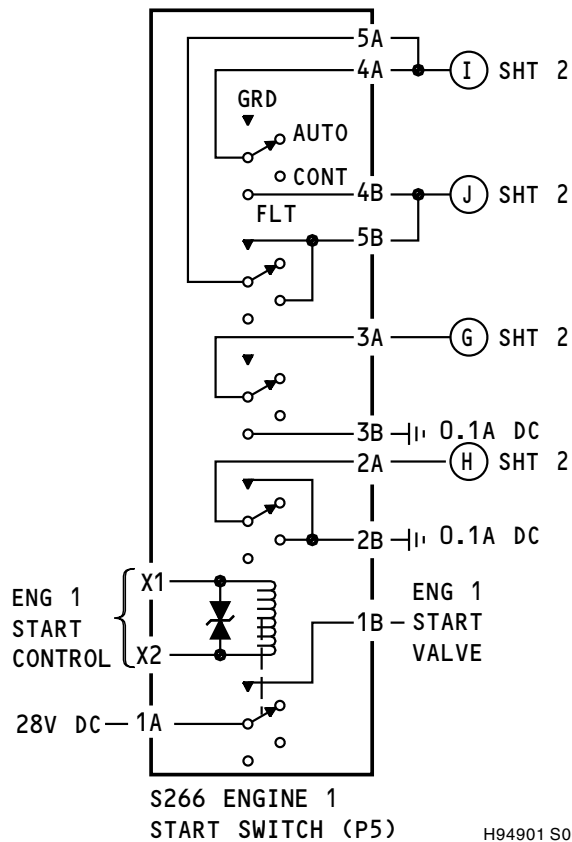
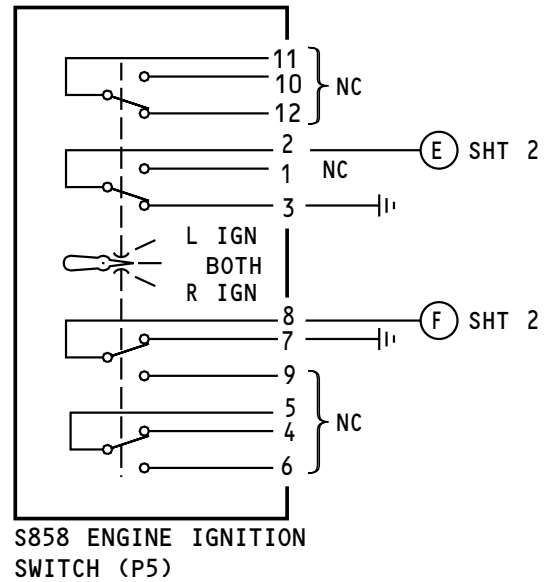
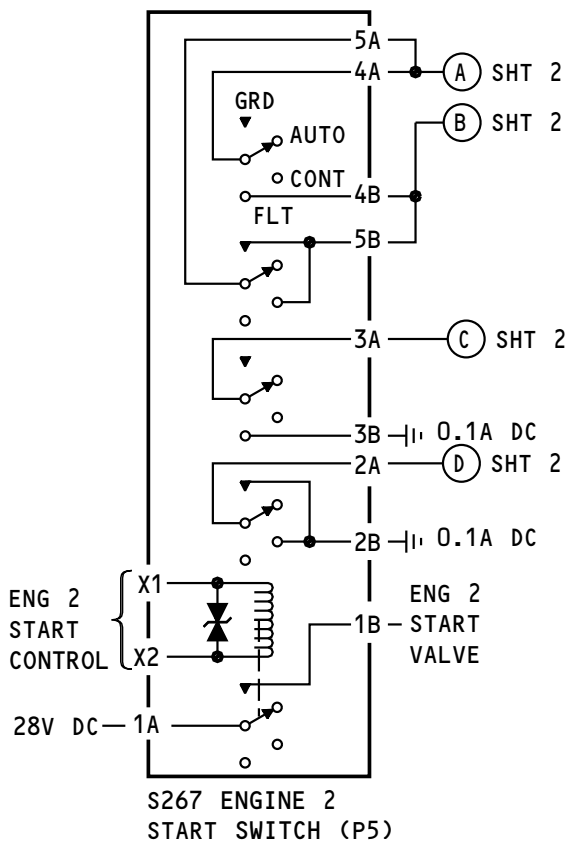
EFFECTIVITY  
 SIA 702-714

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H94901 S0006745937\_V1

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

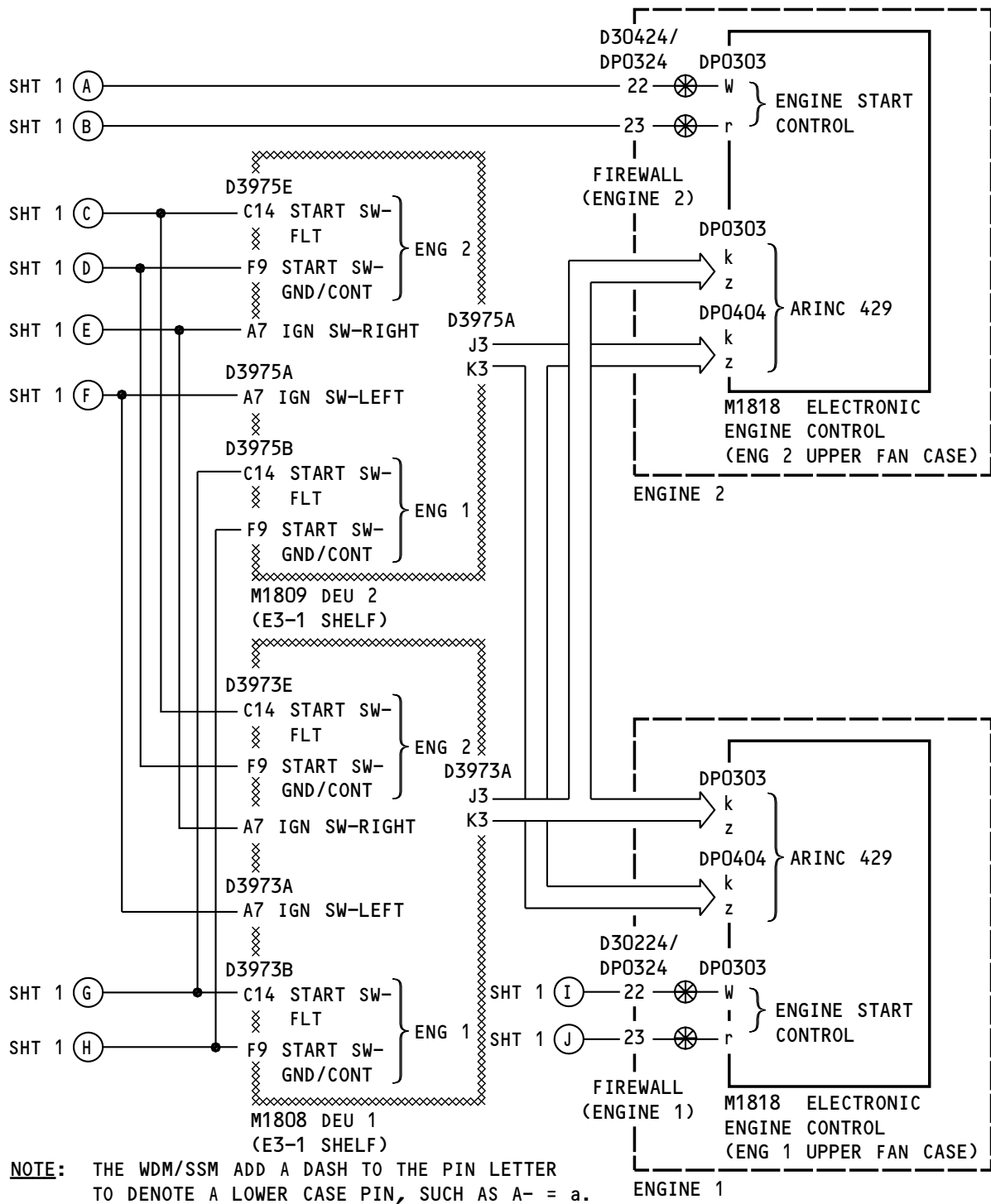
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H94904 S0006745938\_V1

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

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