

**CHAPTER**

**26**

**FIRE PROTECTION**



737-600/700/800/900

## FAULT ISOLATION MANUAL

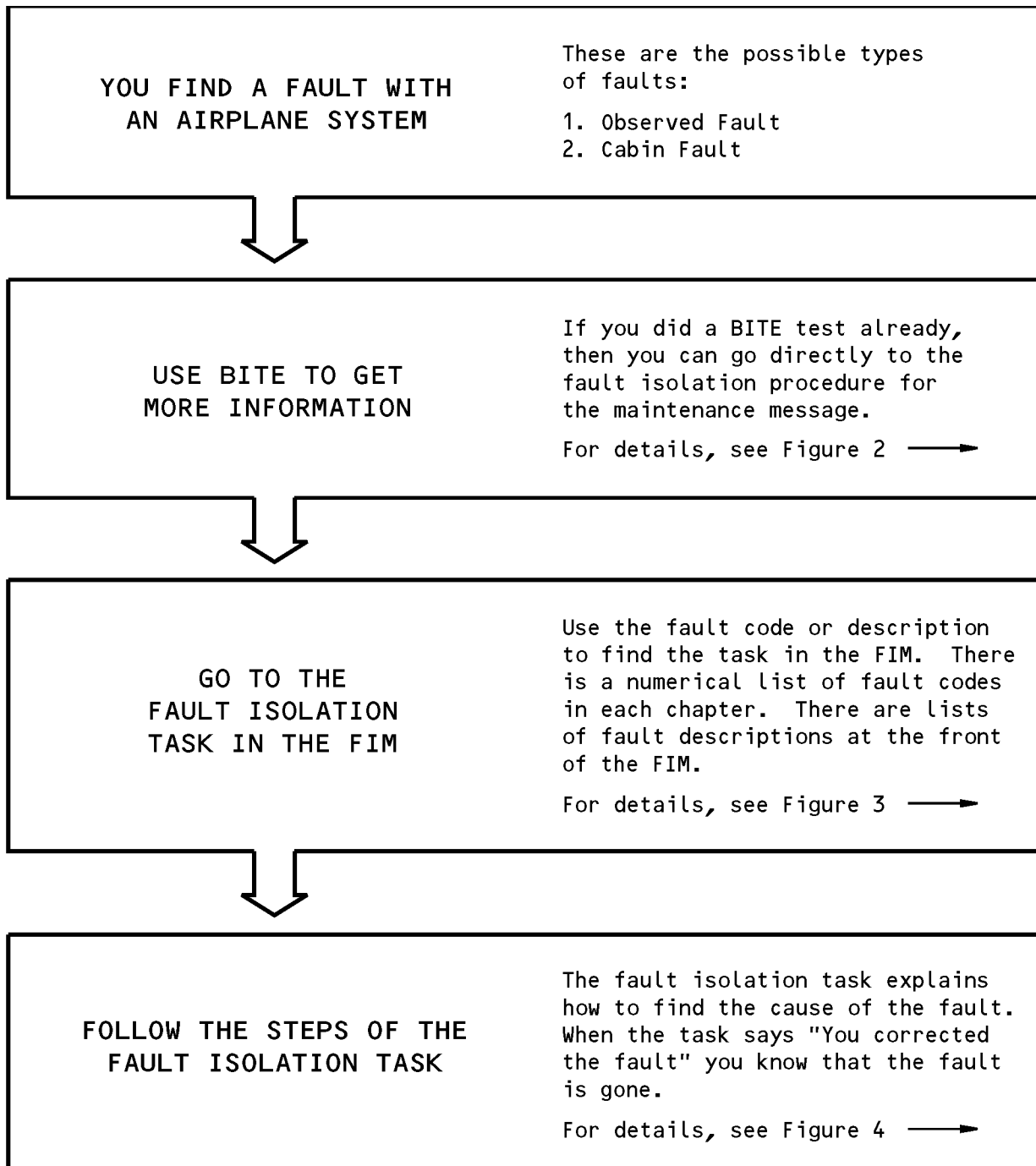
### CHAPTER 26 FIRE PROTECTION

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## 26-EFFECTIVE PAGES

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



Basic Fault Isolation Process  
Figure 1

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## 26-HOW TO USE THE FIM

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

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

A maintenance message can be any of these:

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

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

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

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

Getting Fault Information from BITE  
Figure 2

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## FAULT ISOLATION MANUAL

IF YOU HAVE:

THEN DO THIS TO FIND THE TASK IN THE FIM:

FAULT CODE

1. The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code. If the fault code starts with a letter, then go to the Cabin Fault Code Index at the front of the FIM.
2. Find the task number on the same line as the fault code. Go to the task in the FIM and do the steps in the task (see Figure 4).

OBSERVED FAULT  
DESCRIPTION

1. Go to the Observed Fault List at the front of the FIM and find the best description for the fault.
2. Find the task number on the same line as the fault description. Go to the task in the FIM and do the steps of the task (see Figure 4).

CABIN FAULT  
DESCRIPTION

1. Go to the Cabin Fault List at the front of the FIM and find the best description for the fault.
2. Find the task number on the same line as the fault description. Go to the task in the FIM and do the steps of the task (see Figure 4).

MAINTENANCE  
MESSAGE  
(FROM BITE)

1. Go to the Maintenance Message Index in the chapter for the LRU (the front of each Index gives you the chapter number for all LRUs). Find the maintenance message in the Index.
2. Find the task number on the same line as the maintenance message. Go to the task in the FIM and do the steps in the task (see Figure 4).

Finding the Fault Isolation Task in the FIM  
Figure 3

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## 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

- Do the steps of the task in the specified order. The "If ... then" statements that you see will guide you along the correct path.
- When you are at the endpoint of the path, the step says "...you corrected the fault." Complete the step and exit the procedure.

Doing the Fault Isolation Task  
Figure 4

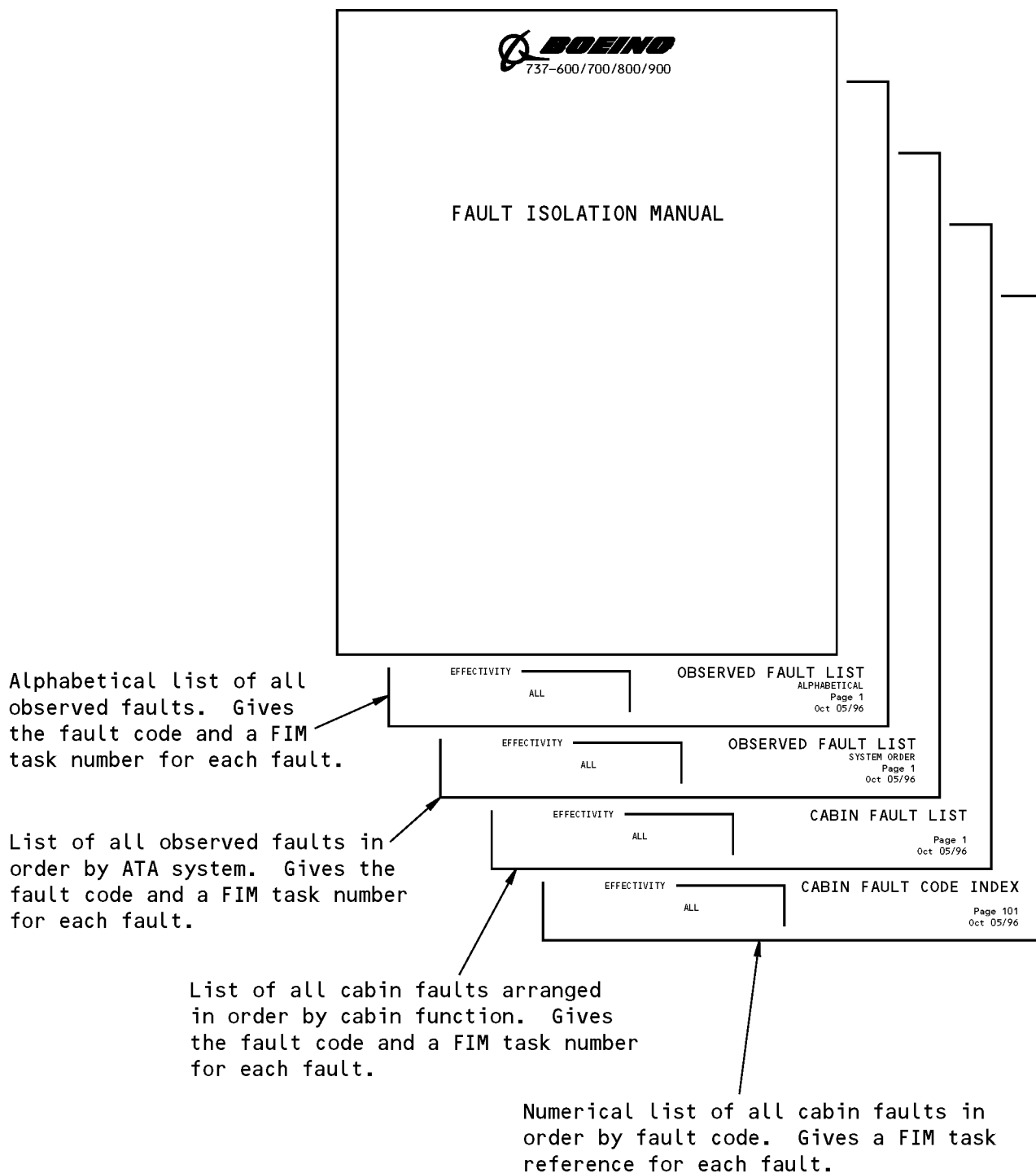
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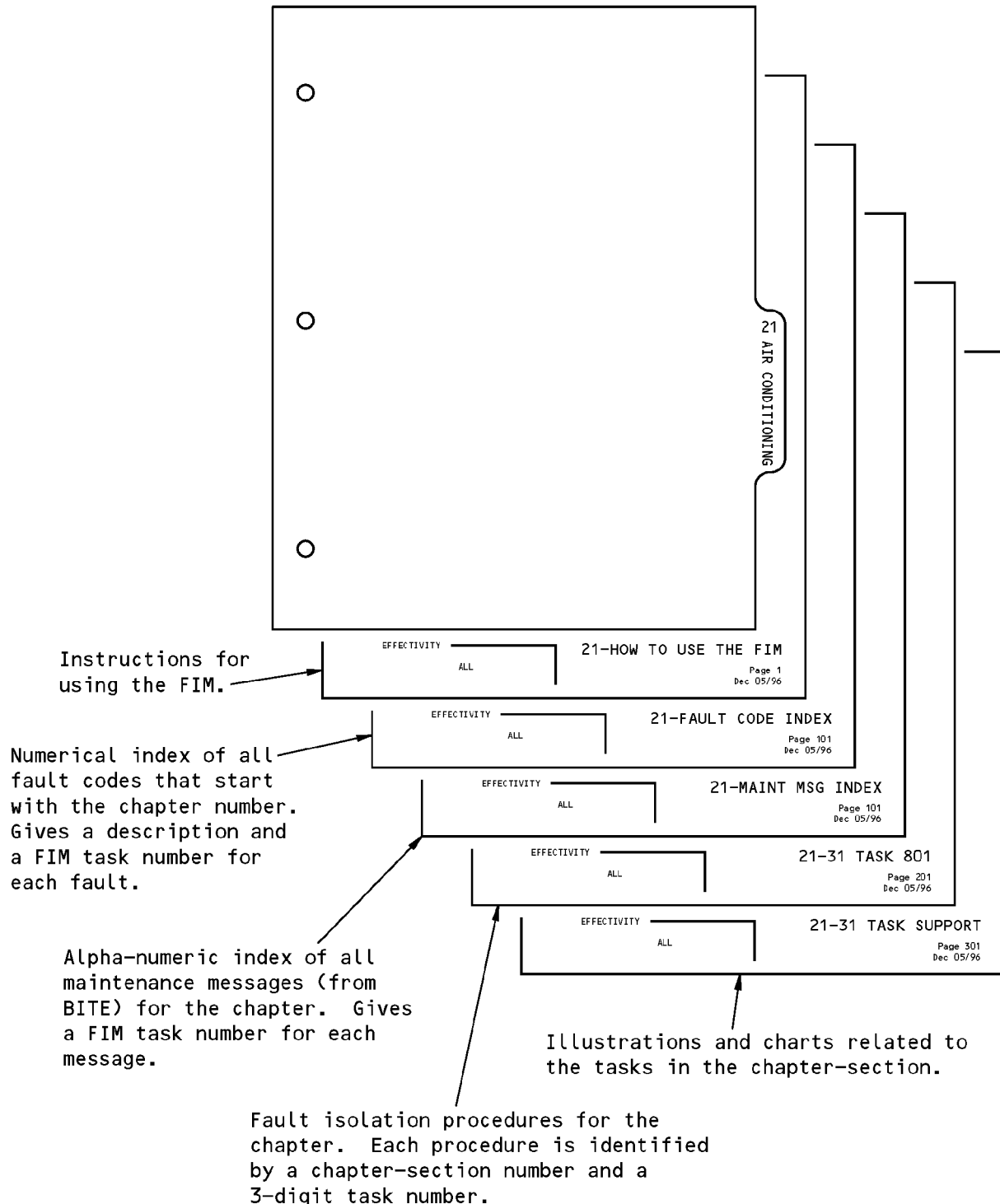
Subjects at Front of FIM  
 Figure 5

|             |  |
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Subjects in Each FIM Chapter  
 Figure 6

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## FAULT ISOLATION MANUAL

| FAULT CODE | FAULT DESCRIPTION                                                                                                            | GO TO FIM TASK |
|------------|------------------------------------------------------------------------------------------------------------------------------|----------------|
| 261 010 51 | ENG 1 OVERHEAT light: light on (false alarm).                                                                                | 26-10 TASK 801 |
| 261 010 52 | ENG 2 OVERHEAT light: light on (false alarm).                                                                                | 26-10 TASK 801 |
| 261 020 51 | Engine 1 fire false alarm.                                                                                                   | 26-10 TASK 801 |
| 261 020 52 | Engine 2 fire false alarm.                                                                                                   | 26-10 TASK 801 |
| 261 030 51 | OVHT/FIRE TEST: test failed, warning lights and alarm do not operate - engine 1.                                             | 26-10 TASK 801 |
| 261 030 52 | OVHT/FIRE TEST: test failed, warning lights and alarm do not operate - engine 2.                                             | 26-10 TASK 801 |
| 261 040 51 | FAULT light for the fire detection system on (P8 control stand) - engine 1.                                                  | 26-10 TASK 801 |
| 261 040 52 | FAULT light for the fire detection system on (P8 control stand) - engine 2.                                                  | 26-10 TASK 801 |
| 261 050 00 | APU DET INOP light: light on.                                                                                                | 26-10 TASK 801 |
| 261 060 00 | APU: fire false alarm.                                                                                                       | 26-10 TASK 801 |
| 261 070 00 | OVHT/FIRE TEST: test failed, warning lights and alarm do not operate - APU.                                                  | 26-10 TASK 801 |
| 261 090 00 | WHEEL WELL light: light on.                                                                                                  | 26-18 TASK 801 |
| 261 100 00 | OVHT/FIRE TEST: test failed, warning lights and alarm do not operate - wheel well.                                           | 26-18 TASK 801 |
| 261 110 00 | WING-BODY OVERHEAT light: light on.                                                                                          | 26-18 TASK 801 |
| 261 120 41 | WING-BODY OVERHEAT light: light does not come on when OVHT/TEST switch is pushed - left.                                     | 26-18 TASK 801 |
| 261 120 42 | WING-BODY OVERHEAT light: light does not come on when OVHT/TEST switch is pushed - right.                                    | 26-18 TASK 801 |
| 261 120 48 | WING-BODY OVERHEAT light: light does not come on when OVHT/TEST switch is pushed - left and right.                           | 26-18 TASK 801 |
| 261 200 44 | Cargo fire test: test failed, FWD cargo fire light does not come on, DETECTOR FAULT light is off.                            | 26-16 TASK 806 |
| 261 200 45 | Cargo fire test: test failed, AFT cargo fire light does not come on, DETECTOR FAULT light is off.                            | 26-16 TASK 806 |
| 261 205 44 | Cargo fire test: test failed, FWD cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at A. | 26-16 TASK 804 |
| 261 205 45 | Cargo fire test: test failed, AFT cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at A. | 26-16 TASK 804 |
| 261 210 44 | Cargo fire test: test failed, FWD cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at B. | 26-16 TASK 804 |

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## FAULT ISOLATION MANUAL

| FAULT CODE | FAULT DESCRIPTION                                                                                                               | GO TO FIM TASK |
|------------|---------------------------------------------------------------------------------------------------------------------------------|----------------|
| 261 210 45 | Cargo fire test: test failed, AFT cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at B.    | 26-16 TASK 804 |
| 261 215 44 | Cargo fire test: test failed, FWD cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at NORM. | 26-16 TASK 804 |
| 261 215 45 | Cargo fire test: test failed, AFT cargo fire light does not come on, DETECTOR FAULT light comes on - DET SELECT switch at NORM. | 26-16 TASK 804 |
| 261 220 00 | Cargo fire test: test failed, warning lights and alarm do not operate.                                                          | 26-16 TASK 807 |
| 261 225 00 | Cargo fire detection: MAIN cargo fire light on (false alarm).                                                                   | 26-16 TASK 801 |
| 261 225 44 | Cargo fire detection: FWD cargo fire light on (false alarm).                                                                    | 26-16 TASK 801 |
| 261 225 45 | Cargo fire detection: AFT cargo fire light on (false alarm).                                                                    | 26-16 TASK 801 |
| 262 010 00 | Engine fire extinguishing: indication not normal when the EXT TEST switch is moved to 1.                                        | 26-20 TASK 801 |
| 262 020 00 | Engine fire extinguishing: indication not normal when the EXT TEST switch is moved to 2.                                        | 26-20 TASK 801 |
| 262 030 00 | Engine fire extinguishing: left bottle does not release extinguishant when the fire handle is turned.                           | 26-20 TASK 803 |
| 262 040 00 | Engine fire extinguishing: right bottle does not release extinguishant when the fire handle is turned.                          | 26-20 TASK 803 |
| 262 050 00 | L BOTTLE DISCHARGED light: light on for the engine fire extinguishing.                                                          | 26-20 TASK 802 |
| 262 060 00 | R BOTTLE DISCHARGED light: light on for the engine fire extinguishing.                                                          | 26-20 TASK 802 |
| 262 070 00 | APU BOTTLE DISCHARGED light for the APU fire extinguishing system: light on.                                                    | 26-20 TASK 802 |
| 262 080 00 | APU fire extinguishing: indication not normal when the EXT TEST switch is moved to 1 or 2.                                      | 26-20 TASK 801 |
| 262 090 00 | Fire extinguisher, flight compartment: seal broken or missing.                                                                  | 26-99 TASK 801 |
| 262 100 00 | Fire extinguisher, flight compartment: used.                                                                                    | 26-99 TASK 801 |
| 262 110 00 | Fire extinguisher, flight compartment: missing.                                                                                 | 26-99 TASK 801 |
| 262 120 00 | APU fire extinguishing: bottle does not release extinguishant when the fire handle is turned.                                   | 26-20 TASK 803 |
| 262 130 00 | APU fire extinguishing: bottle does not release extinguishant when activated at the remote APU fire control panel.              | 26-20 TASK 804 |
| 262 200 00 | Cargo fire extinguishing: bottle does not release extinguishant when DISCH switch is pushed.                                    | 26-23 TASK 803 |

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## FAULT ISOLATION MANUAL

| FAULT CODE | FAULT DESCRIPTION                                                  | GO TO FIM TASK |
|------------|--------------------------------------------------------------------|----------------|
| 262 205 00 | Cargo fire extinguishing: DISCH light on, DISCH switch not pushed. | 26-23 TASK 802 |
| 262 210 44 | Cargo fire test: test failed, EXT FWD light does not come on.      | 26-23 TASK 812 |
| 262 210 45 | Cargo fire test: test failed, EXT AFT light does not come on.      | 26-23 TASK 812 |

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## FAULT ISOLATION MANUAL

| <u>LRU/SYSTEM</u>                                             | <u>SHORT NAME</u> | <u>CHAPTER</u> |
|---------------------------------------------------------------|-------------------|----------------|
| Air Data Inertial Reference System                            | ADIRS             | 34             |
| Air Traffic Controller Transponder - 1 (Left)                 | ATC XPDR - 1 (L)  | 34             |
| Air Traffic Controller Transponder - 2 (Right)                | ATC XPDR - 2 (R)  | 34             |
| Airborne Vibration Monitor System Signal Conditioner          | AVM SIG COND      | 77             |
| Antiskid Control Unit                                         | ANTISKID          | 32             |
| Automatic Direction Finder Receiver - 1                       | ADF RECVR - 1     | 34             |
| Autothrottle System                                           | A/T               | 22             |
| Auxiliary Power Unit                                          | APU               | 49             |
| Auxiliary Power Unit Generator Control Unit                   | APU GCU           | 24             |
| Bus Power Control Unit                                        | BPCU              | 24             |
| Cabin Pressure Controller                                     | CAB PRESS CON     | 21             |
| Cabin Temperature Controller                                  | CAB TEMP CONT     | 21             |
| Cargo Electronic Unit - Forward                               | CEU - FWD         | 26             |
| Cargo Electronic Unit - Lower                                 | CEU - LOWER       | 26             |
| Cargo Electronic Unit - Main Aft                              | CEU - MAIN AFT    | 26             |
| Cargo Electronic Unit - Main Forward                          | CEU - MAIN FWD    | 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                                         | ENG ACCY UNIT     | 78             |
| Engine and Auxiliary Power Unit Fire Detection Control Module | ENG/APU FIRE      | 26             |
| Flap/Slat Electronics Unit                                    | FSEU              | 27             |
| Flight Data Acquisition Unit                                  | FDAU              | 31             |
| Flight Management Computer System                             | FMCS              | 34             |
| Fuel Quantity Indicating System                               | FQIS              | 28             |
| Generator Control Unit - 1                                    | GCU - 1           | 24             |
| Generator Control Unit - 2                                    | GCU - 2           | 24             |
| Ground Proximity Computer                                     | GROUND PROX       | 34             |
| Head Up Display                                               | HUD               | 34             |

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| <u>LRU/SYSTEM</u>                                     | <u>SHORT NAME</u> | <u>CHAPTER</u> |
|-------------------------------------------------------|-------------------|----------------|
| High Frequency Transceiver                            | HF XCVR           | 23             |
| Low Limit (35 Degree F) Controller - Left             | 35 DEG CONT L     | 21             |
| Low Limit (35 Degree F) Controller - Right            | 35 DEG CONT R     | 21             |
| Multi-Mode Receiver                                   | MMR               | 34             |
| Pack/Zone Temperature Controller - Left               | PACK/ZN CON - L   | 21             |
| Pack/Zone Temperature Controller - Right              | PACK/ZN CON - R   | 21             |
| Proximity Switch Electronics Unit                     | PSEU              | 32             |
| Radio Altimeter Receiver/Transmitter                  | RADIO ALTIMTR     | 34             |
| Stall Management Yaw Damper Computer - 1              | SMYD - 1          | 27             |
| Stall Management Yaw Damper Computer - 2              | SMYD - 2          | 27             |
| Traffic Alert and Collision Avoidance System Computer | TCAS COMPUTER     | 34             |
| VHF Omnidirectional Ranging Marker Beacon Receiver    | VOR/MKR RCVR      | 34             |
| Very High Frequency Transceiver                       | VHF XCVR          | 23             |
| Waste Tank Logic Control Module                       | WASTE TANK        | 38             |
| Weather Radar Receiver/Transmitter                    | WEATHER RADAR     | 34             |
| Window Heat Control Unit - Left Forward               | WHCU - L FWD      | 30             |
| Window Heat Control Unit - Left Side                  | WHCU - L SIDE     | 30             |
| Window Heat Control Unit - Right Forward              | WHCU - R FWD      | 30             |
| Window Heat Control Unit - Right Side                 | WHCU - R SIDE     | 30             |

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## FAULT ISOLATION MANUAL

| LRU/SYSTEM     | MAINTENANCE MESSAGE       | GO TO FIM TASK |
|----------------|---------------------------|----------------|
| CEU - FWD      | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD      | A1 (stays on)             | 26-16 TASK 803 |
| CEU - FWD      | A1 and A2 (stay on)       | 26-16 TASK 803 |
| CEU - FWD      | A2 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD      | A2 (stays on)             | 26-16 TASK 803 |
| CEU - FWD      | B1 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD      | B1 (stays on)             | 26-16 TASK 803 |
| CEU - FWD      | B1 and B2 (stay on)       | 26-16 TASK 803 |
| CEU - FWD      | B2 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD      | B2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | A1 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | A1 and A2 (stay on)       | 26-16 TASK 803 |
| CEU - LOWER    | A1, A2, and A3 (stay on)  | 26-16 TASK 803 |
| CEU - LOWER    | A2 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | A2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | A3 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | A3 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | B1 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | B1 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | B1 and B2 (stay on)       | 26-16 TASK 803 |
| CEU - LOWER    | B1, B2, and B3 (stay on)  | 26-16 TASK 803 |
| CEU - LOWER    | B2 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | B2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER    | B3 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER    | B3 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN AFT | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN AFT | A1 (stays on)             | 26-16 TASK 803 |

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| LRU/SYSTEM     | MAINTENANCE MESSAGE          | GO TO FIM TASK |
|----------------|------------------------------|----------------|
| CEU - MAIN AFT | A1 and A2 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A1, A2, A3, and A4 (stay on) | 26-16 TASK 803 |
| CEU - MAIN AFT | A1, A2, and A3 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | A2 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A2 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A2 and A3 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A2, A3, and A4 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | A3 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A3 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A3 and A4 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A4 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A4 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B1 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B1 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B1 and B2 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | B1, B2, B3, and B4 (stay on) | 26-16 TASK 803 |
| CEU - MAIN AFT | B1, B2, and B3 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | B2 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B2 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B2 and B3 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | B2, B3, and B4 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | B3 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B3 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B3 and B4 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | B4 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B4 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN FWD | A1 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN FWD | A1 (stays on)                | 26-16 TASK 803 |

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| LRU/SYSTEM     | MAINTENANCE MESSAGE                           | GO TO FIM TASK |
|----------------|-----------------------------------------------|----------------|
| CEU - MAIN FWD | A1 and A2 (stay on)                           | 26-16 TASK 803 |
| CEU - MAIN FWD | A1, A2, and A3 (stay on)                      | 26-16 TASK 803 |
| CEU - MAIN FWD | A2 (off during self-test)                     | 26-16 TASK 805 |
| CEU - MAIN FWD | A2 (stays on)                                 | 26-16 TASK 803 |
| CEU - MAIN FWD | A2 and A3 (stay on)                           | 26-16 TASK 803 |
| CEU - MAIN FWD | A3 (off during self-test)                     | 26-16 TASK 805 |
| CEU - MAIN FWD | A3 (stays on)                                 | 26-16 TASK 803 |
| CEU - MAIN FWD | B1 (off during self-test)                     | 26-16 TASK 805 |
| CEU - MAIN FWD | B1 (stays on)                                 | 26-16 TASK 803 |
| CEU - MAIN FWD | B1 and B2 (stay on)                           | 26-16 TASK 803 |
| CEU - MAIN FWD | B1, B2, and B3 (stay on)                      | 26-16 TASK 803 |
| CEU - MAIN FWD | B2 (off during self-test)                     | 26-16 TASK 805 |
| CEU - MAIN FWD | B2 (stays on)                                 | 26-16 TASK 803 |
| CEU - MAIN FWD | B3 (off during self-test)                     | 26-16 TASK 805 |
| CEU - MAIN FWD | B3 (stays on)                                 | 26-16 TASK 803 |
| ENG/APU FIRE   | APU - LOOP POWER                              | 26-10 TASK 803 |
| ENG/APU FIRE   | APU - LOW DET. RESISTANCE CLEAN CONNECTIONS   | 26-10 TASK 808 |
| ENG/APU FIRE   | APU - LOWER DETECTOR FAULT                    | 26-10 TASK 802 |
| ENG/APU FIRE   | APU - TAILPIPE DETECTOR FAULT                 | 26-10 TASK 802 |
| ENG/APU FIRE   | APU - UPPER DETECTOR FAULT                    | 26-10 TASK 802 |
| ENG/APU FIRE   | APU - WIRING OPEN OR DETECTOR(S) FAULT        | 26-10 TASK 809 |
| ENG/APU FIRE   | APU - WIRING SHORT TO GND                     | 26-10 TASK 809 |
| ENG/APU FIRE   | ENGINE 1 - LOOP A - CORE LEFT DETECTOR FAULT  | 26-10 TASK 805 |
| ENG/APU FIRE   | ENGINE 1 - LOOP A - CORE RIGHT DETECTOR FAULT | 26-10 TASK 805 |
| ENG/APU FIRE   | ENGINE 1 - LOOP A - FAN LOWER DETECTOR FAULT  | 26-10 TASK 805 |
| ENG/APU FIRE   | ENGINE 1 - LOOP A - FAN UPPER DETECTOR FAULT  | 26-10 TASK 805 |
| ENG/APU FIRE   | ENGINE 1 - LOOP A - LOOP POWER                | 26-10 TASK 803 |

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|--------------|-----------------------------------------------------------|----------------|
| ENG/APU FIRE | ENGINE 1 - LOOP A - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |

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| LRU/SYSTEM    | MAINTENANCE MESSAGE                                  | GO TO FIM TASK |
|---------------|------------------------------------------------------|----------------|
| ENG/APU FIRE  | ENGINE 2 - LOOP B - WIRING OPEN OR DETECTOR(S) FAULT | 26-10 TASK 805 |
| ENG/APU FIRE  | ENGINE 2 - LOOP B - WIRING SHORT TO GND              | 26-10 TASK 805 |
| WING/BODY OHT | 00 - CONTROL OR POWER SUPPLY FAILURE                 | 26-18 TASK 803 |
| WING/BODY OHT | 01 - 115VAC OR POWER SUPPLY CARD FAILURE             | 26-18 TASK 803 |
| WING/BODY OHT | 02 - 115VAC OR POWER SUPPLY CARD FAILURE             | 26-18 TASK 803 |
| WING/BODY OHT | 03 - CONTROL CARD FAILURE                            | 26-18 TASK 803 |
| WING/BODY OHT | 04 - CONTROL CARD FAILURE                            | 26-18 TASK 803 |
| WING/BODY OHT | 05 - CONTROL CARD FAILURE                            | 26-18 TASK 803 |
| WING/BODY OHT | 10 - LEFT WING LE - SHORT LOOP                       | 26-18 TASK 802 |
| WING/BODY OHT | 12 - LEFT WING LE - OPEN LOOP                        | 26-18 TASK 802 |
| WING/BODY OHT | 14 - LEFT WING LE - ALARM                            | 26-18 TASK 802 |
| WING/BODY OHT | 20 - LEFT AC PACK BAY - SHORT LOOP                   | 26-18 TASK 802 |
| WING/BODY OHT | 22 - LEFT AC PACK BAY - OPEN LOOP                    | 26-18 TASK 802 |
| WING/BODY OHT | 24 - LEFT AC PACK BAY - ALARM                        | 26-18 TASK 802 |
| WING/BODY OHT | 30 - KEELBEAM - SHORT LOOP                           | 26-18 TASK 802 |
| WING/BODY OHT | 32 - KEELBEAM - OPEN LOOP                            | 26-18 TASK 802 |
| WING/BODY OHT | 34 - KEELBEAM - ALARM                                | 26-18 TASK 802 |
| WING/BODY OHT | 40 - AFT CARGO SECT. - SHORT LOOP                    | 26-18 TASK 802 |
| WING/BODY OHT | 42 - AFT CARGO SECT. - OPEN LOOP                     | 26-18 TASK 802 |
| WING/BODY OHT | 44 - AFT CARGO SECT. - ALARM                         | 26-18 TASK 802 |
| WING/BODY OHT | 60 - RIGHT WING LE AND AC PACK BAY - SHORT LOOP      | 26-18 TASK 802 |
| WING/BODY OHT | 62 - RIGHT WING LE AND AC PACK BAY - OPEN LOOP       | 26-18 TASK 802 |
| WING/BODY OHT | 64 - RIGHT WING LE AND AC PACK BAY - ALARM           | 26-18 TASK 802 |
| WING/BODY OHT | 84 - WHEEL WELL FIRE - ALARM                         | 26-18 TASK 802 |
| WING/BODY OHT | 98 - LOCAL TEST - NOT COMPLETE                       | 26-18 TASK 803 |

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## FAULT ISOLATION MANUAL

### 801. Engine/APU Fire Detection Control Module BITE Procedure

#### A. General

- (1) The engine & APU fire detection control module, M279 is located on the E2-2 shelf in the electronic equipment (EE) compartment. The engine & APU fire detection control module will be referred to as the control module throughout this procedure. Access the front panel of the control module to do the BITE test.
- (2) The front of the control module contains five amber fault area lights, a FAULT/INOP TEST switch, and three red fault display lights. The control module has these fault lights:
  - (a) Engine 1 Loop A fault area light
  - (b) Engine 1 Loop B fault area light
  - (c) Engine 2 Loop A fault area light
  - (d) Engine 2 Loop B fault area light
  - (e) APU fault area light
  - (f) Three Fault Display Lights (red) which indicate the type of fault and the approximate location of the fault, if it is known.
- (3) The amber fault area lights indicate which loop has a fault. The red fault display lights tell the type of fault and location, if known. If there is a fault, the applicable fault area lights will stay on until the fault is corrected. For each combination of fault display lights, there is a related maintenance message.
- (4) If more than one of the amber fault area lights come on, then there are multiple faults. In this case, the control module employs a priority sequence. The red fault display lights indicate the fault for the first loop in the sequence. When that fault is corrected, the corresponding amber light goes off, and the red fault display lights change to indicate the fault for the next loop in the sequence. The priority sequence follows:
  - (a) Engine 1 Loop A
  - (b) Engine 1 Loop B
  - (c) Engine 2 Loop A
  - (d) Engine 2 Loop B
  - (e) APU
- (5) To do the BITE test, push and hold the FAULT/INOP TEST switch for five seconds. If all of the fault lights come on when you do the test, and all of the fault lights go off when you release the switch, the test passes. If fault lights stay on after you release the switch, there is a fault.

#### B. BITE Procedure

- (1) Do these steps to do the BITE procedure for the control module:
  - (a) Push and hold the FAULT/INOP TEST switch on the control module for five seconds.
  - (b) On the control module on the E2-2 shelf, make sure these lights come on:
    - 1) ENGINE 1 LOOP A (amber)
    - 2) ENGINE 1 LOOP B (amber)
    - 3) ENGINE 2 LOOP A (amber)
    - 4) ENGINE 2 LOOP B (amber)
    - 5) APU (amber)
    - 6) The three FAULT DISPLAY lights (red).
  - (c) Release the FAULT/INOP TEST switch.

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- (d) On the control module on the E2-2 shelf, make sure these lights go off:
- 1) ENGINE 1 LOOP A (amber)
  - 2) ENGINE 1 LOOP B (amber)
  - 3) ENGINE 2 LOOP A (amber)
  - 4) ENGINE 2 LOOP B (amber)
  - 5) APU (amber)
  - 6) The three FAULT DISPLAY lights (red).
- (e) If the lights on the control module go off, then the BITE test passed.
- (f) If lights on the control module stay on, then the BITE test fails and there is a fault.
- (g) Do these steps to find the applicable maintenance message if there is a fault:
- 1) Examine the amber lights in the FAULT AREA on the control module.  
**NOTE:** The amber lights indicate if the fault is in the APU or one of the engines. If the fault is in the engine, the light indicates whether it is engine 1 or 2, and whether it is loop A or B. If more than one of the lights are on, then there are multiple faults.
  - 2) Examine the red lights in the FAULT DISPLAY area on the control module.  
**NOTE:** The red lights indicate if the fault is a wiring problem or a detector problem. If it is a detector problem, the lights indicate which detector has the problem.
  - 3) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message for the fault indicated by the FAULT AREA light and the FAULT DISPLAY lights.  
**NOTE:** For example, if the ENGINE 1 LOOP A amber light is ON and the three red FAULT DISPLAY lights are ON-OFF-OFF, then the applicable maintenance message is "ENGINE 1 LOOP A - FAN LOWER".
- (h) If the message FAN UPPER FAULT is shown for the APU, then do these steps:
- NOTE:** The FAN UPPER FAULT display relates to the unexpected failure mode in which one of the heat detectors shows a fault because of high resistance.
- 1) Measure the resistance of each APU detector.

| LOCATION | EQUIPMENT NUMBER | RESISTANCE (OHMS) |
|----------|------------------|-------------------|
| UPPER    | M1755            | 2985 (+/- 297)    |
| LOWER    | M1756            | 2485 (+/- 112)    |
| TAILPIPE | M1925            | 3945 (+/- 177)    |

- a) If the resistance of the detector is not in the range given, then do these steps:  
    < 1 > Replace the detector.  
    These are the tasks:  
        APU Overheat Detector Element Removal, AMM TASK 26-15-01-000-801  
        APU Overheat Detector Element Installation, AMM TASK 26-15-01-400-801
- 2) If the replacement of any detector is not required, then do these steps:
  - a) Replace the control module, M279.  
        These are the tasks:

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Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801,  
Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801.

— END OF TASK —

| LRU/SYSTEM   | MAINTENANCE MESSAGE                                       | GO TO FIM TASK |
|--------------|-----------------------------------------------------------|----------------|
| ENG/APU FIRE | APU - LOOP POWER                                          | 26-10 TASK 803 |
| ENG/APU FIRE | APU - LOW DET. RESISTANCE CLEAN CONNECTIONS               | 26-10 TASK 808 |
| ENG/APU FIRE | APU - LOWER DETECTOR FAULT                                | 26-10 TASK 802 |
| ENG/APU FIRE | APU - TAILPIPE DETECTOR FAULT                             | 26-10 TASK 802 |
| ENG/APU FIRE | APU - UPPER DETECTOR FAULT                                | 26-10 TASK 802 |
| ENG/APU FIRE | APU - WIRING OPEN OR DETECTOR(S) FAULT                    | 26-10 TASK 809 |
| ENG/APU FIRE | APU - WIRING SHORT TO GND                                 | 26-10 TASK 809 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP A - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 1 - LOOP B - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |

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| LRU/SYSTEM   | MAINTENANCE MESSAGE                                       | GO TO FIM TASK |
|--------------|-----------------------------------------------------------|----------------|
| ENG/APU FIRE | ENGINE 2 - LOOP A - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP A - WIRING SHORT TO GND                   | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - CORE LEFT DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - CORE RIGHT DETECTOR FAULT             | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - FAN LOWER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - FAN UPPER DETECTOR FAULT              | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - LOOP POWER                            | 26-10 TASK 803 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - LOW DET. RESISTANCE CLEAN CONNECTIONS | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - WIRING OPEN OR DETECTOR(S) FAULT      | 26-10 TASK 805 |
| ENG/APU FIRE | ENGINE 2 - LOOP B - WIRING SHORT TO GND                   | 26-10 TASK 805 |

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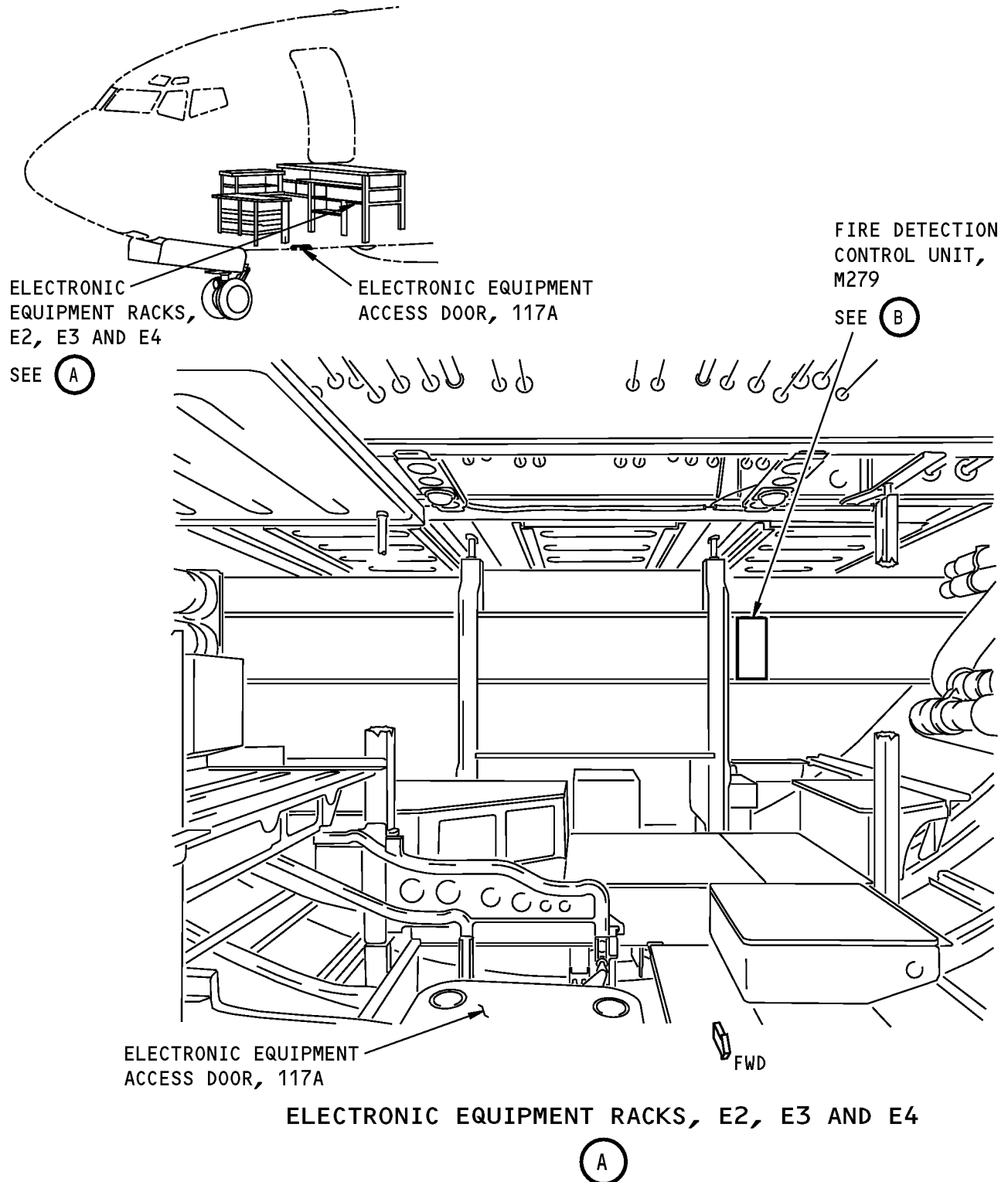
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Engine and APU Fire Detection Control Unit, M279

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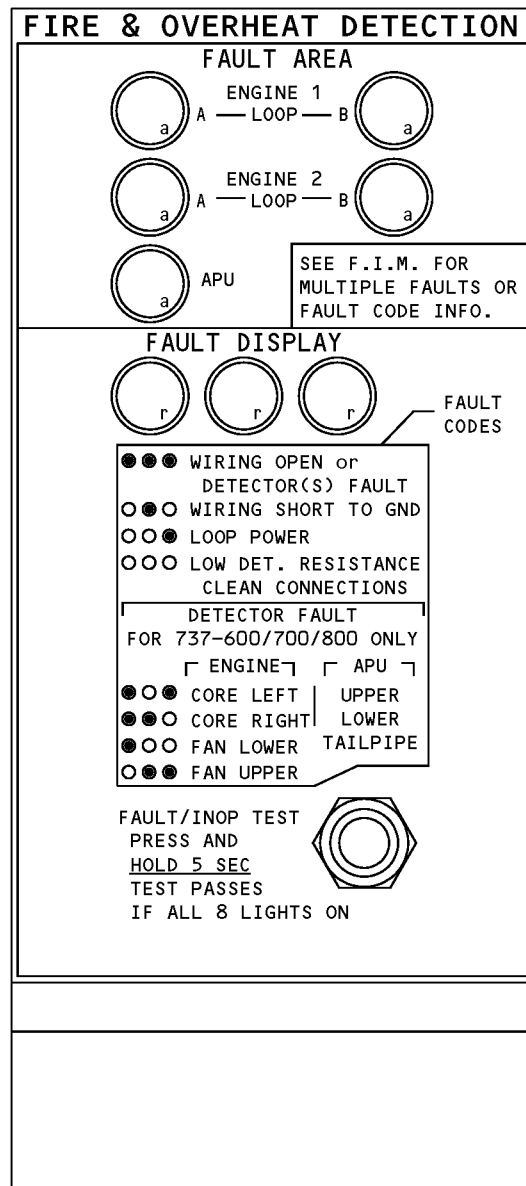
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**FIRE DETECTION CONTROL UNIT, M279**

(B)

Engine and APU Fire Detection Control Unit, M279  
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## FAULT ISOLATION MANUAL

### 802. APU - Overheat Detector - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
  - (a) APU - UPPER
  - (b) APU - LOWER
  - (c) APU - TAILPIPE
- (2) These messages occur when the control module, M279 detects a fault with an APU fire detector. The detectors are listed in the table below.

| DESCRIPTION                             | EQUIPMENT NUMBER |
|-----------------------------------------|------------------|
| APU UPPER OVERHEAT DETECTOR ASSEMBLY    | M1755            |
| APU LOWER OVERHEAT DETECTOR ASSEMBLY    | M1756            |
| APU TAILPIPE OVERHEAT DETECTOR ASSEMBLY | M1925            |

#### B. Possible Causes

- (1) Fire detector Element
- (2) Control module, M279.

#### C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |

#### D. Related Data

- (1) (SSM 26-00-01)
- (2) (SSM 26-11-31)
- (3) (WDM 26-11-31)

#### E. Initial Evaluation

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
  - (a) If a maintenance message shows, then do the Fault Isolation Procedure below.
  - (b) If the maintenance message does not show, then there was an intermittent fault.

#### F. Fault Isolation Procedure

- (1) Prepare the airplane for fault isolation.
  - (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |
| B          | 19         | C01344        | APU FIRE SW POWER             |

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## FAULT ISOLATION MANUAL

F/O Electrical System Panel, P6-4

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>         |
|------------|------------|---------------|---------------------|
| A          | 14         | C00033        | AUX POWER UNIT CONT |

- (b) To access the upper or lower APU detector, open this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

- (c) To access the APU tailpipe overheat detector, open this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 318BR         | Tailcone Access Door |

- (2) Replace the detector element called out in the maintenance message. These are the tasks:

- APU Overheat Detector Element Removal, AMM TASK 26-15-01-000-801
- APU Overheat Detector Element Installation, AMM TASK 26-15-01-400-801

(a) If the replacement test passes, then you corrected the fault.

(b) If the replacement test fails, then continue.

- (3) Replace the control module, M279. These are the tasks:

- Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801
- Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801

(a) If the replacement test passes, then you corrected the fault.

- (4) Return the airplane to its usual condition.

Close this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

————— **END OF TASK** —————

### 803. Engine and APU - Loop Power - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:

- (a) ENGINE 1 LOOP A - LOOP POWER
- (b) ENGINE 1 LOOP B - LOOP POWER
- (c) ENGINE 2 LOOP A - LOOP POWER
- (d) ENGINE 2 LOOP B - LOOP POWER
- (e) APU - LOOP POWER

- (2) These faults occur when the loop power to the control module, M279 is interrupted.

#### B. Possible Causes

- (1) Fire Control Panel, P8-1
- (2) Control module, M279.

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### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU   |
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

### D. Related Data

- (1) (SSM 26-00-01)
- (2) (SSM 26-11-11)
- (3) (SSM 26-11-21)
- (4) (SSM 26-11-31)
- (5) (WDM 26-11-11)
- (6) (WDM 26-11-21)
- (7) (WDM 26-11-31)

### E. Initial Evaluation

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
- (a) If a maintenance message shows, then do the Fault Isolation Procedure below.
  - (b) If the maintenance message does not show, then there was an intermittent fault.

### F. Fault Isolation Procedure

- (1) Do a check for power at the control module, M279.
- (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU   |
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

- (b) Do this task:: AMM PAGEBLOCK 20-10-07/201 to remove the E/E Box.
- (c) Remove the electrical connector from the control module.

|          |       |
|----------|-------|
| ENGINE 1 | D1002 |
| ENGINE 2 | D998  |
| APU      | D1000 |

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU   |
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

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- (e) Do a check for 28 vdc between the pins on the following connector:

|          |       |       |                |       |                |
|----------|-------|-------|----------------|-------|----------------|
| ENGINE 1 | D1002 | pin 1 | pin 5          | pin 6 | pin 2 (ground) |
| ENGINE 2 | D998  | pin 1 | pin 5          | pin 6 | pin 2 (ground) |
| APU      | D1000 | pin 1 | pin 2 (ground) |       |                |

- (f) If there is not 28 vdc, then replace the Fire Control Panel, P8-1. These are the tasks:
- Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801
  - Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801
- 1) If the replacement test passes, then you corrected the fault.
- (g) If there is 28 vdc, replace the control module, M279. These are the tasks:
- Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801
  - Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801
- 1) If the replacement test passes, then you corrected the fault.
- (2) Return the airplane to its usual condition.
- (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

| Row | Col | Number | Name                            |
|-----|-----|--------|---------------------------------|
| A   | 22  | C00407 | FIRE PROTECTION DETECTION ENG 2 |
| A   | 23  | C00403 | FIRE PROTECTION DETECTION APU   |
| A   | 24  | C00405 | FIRE PROTECTION DETECTION ENG 1 |

- (b) Connect the electrical connector from the control module.

|          |       |
|----------|-------|
| ENGINE 1 | D1002 |
| ENGINE 2 | D998  |
| APU      | D1000 |

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

F/O Electrical System Panel, P6-2

| Row | Col | Number | Name                            |
|-----|-----|--------|---------------------------------|
| A   | 22  | C00407 | FIRE PROTECTION DETECTION ENG 2 |
| A   | 23  | C00403 | FIRE PROTECTION DETECTION APU   |
| A   | 24  | C00405 | FIRE PROTECTION DETECTION ENG 1 |

————— **END OF TASK** —————

### 805. Engine - Wiring Harness/Fire Detector - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
- ENGINE 1 LOOP A - CORE LEFT
  - ENGINE 1 LOOP B - CORE LEFT
  - ENGINE 2 LOOP A - CORE LEFT
  - ENGINE 2 LOOP B - CORE LEFT

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## 26-10 TASKS 803-805

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- (e) ENGINE 1 LOOP A - CORE RIGHT
  - (f) ENGINE 1 LOOP B - CORE RIGHT
  - (g) ENGINE 2 LOOP A - CORE RIGHT
  - (h) ENGINE 2 LOOP B - CORE RIGHT
  - (i) ENGINE 1 LOOP A - FAN LOWER
  - (j) ENGINE 1 LOOP B - FAN LOWER
  - (k) ENGINE 2 LOOP A - FAN LOWER
  - (l) ENGINE 2 LOOP B - FAN LOWER
  - (m) ENGINE 1 LOOP A - FAN UPPER
  - (n) ENGINE 1 LOOP B - FAN UPPER
  - (o) ENGINE 2 LOOP A - FAN UPPER
  - (p) ENGINE 2 LOOP B - FAN UPPER
  - (q) ENGINE 1 LOOP A - WIRING OPEN/DETECTOR FAULT
  - (r) ENGINE 1 LOOP B - WIRING OPEN/DETECTOR FAULT
  - (s) ENGINE 2 LOOP A - WIRING OPEN/DETECTOR FAULT
  - (t) ENGINE 2 LOOP B - WIRING OPEN/DETECTOR FAULT
  - (u) ENGINE 1 LOOP A - WIRING SHORT TO GROUND
  - (v) ENGINE 1 LOOP B - WIRING SHORT TO GROUND
  - (w) ENGINE 2 LOOP A - WIRING SHORT TO GROUND
  - (x) ENGINE 2 LOOP B - WIRING SHORT TO GROUND
- (2) These faults occur when the fire detection control module, M279 detects a fault with an engine fire detector element. Loop A and B elements for each detector assembly have the same equipment number.

NOTE: For example, a CORE RIGHT fault indication can be one of these faults:

- Right core detector
- Upper and lower fan detectors
- Wire bundle between the right and left core detector
- Wire bundle between the right core detector and control module

| DETECTOR ASSEMBLY                        | EQUIPMENT NUMBER |
|------------------------------------------|------------------|
| ENGINE FAN UPPER FIRE DETECTOR ASSEMBLY  | M1757            |
| ENGINE FAN LOWER FIRE DETECTOR ASSEMBLY  | M1758            |
| ENGINE CORE LEFT FIRE DETECTOR ASSEMBLY  | M1759            |
| ENGINE CORE RIGHT FIRE DETECTOR ASSEMBLY | M1760            |

### B. Possible Causes

- (1) Core detector harness, MW0325 or MW0326.
- (2) Fan detector harness, MW0315 or MW0316.
- (3) Fire detector element, M1757, M1758, M1759, or M1760

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- (4) Fire detection control module, M279.

### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

### D. Related Data

- (1) (SSM 26-00-01)
- (2) (SSM 26-11-11)
- (3) (SSM 26-11-21)
- (4) (WDM 26-11-11)
- (5) (WDM 26-11-21)

### E. Initial Evaluation

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
  - (a) If a maintenance message shows, then do the fault isolation procedure.
  - (b) If the maintenance message does not show, then there was an intermittent fault.

### F. Fault Isolation Procedure

- (1) Prepare the airplane for fault isolation.

**WARNING:** DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSE CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) For engine 1, open this circuit breaker and attach safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

- (b) For engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |

- (c) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                                     |
|------------|------------|---------------|-------------------------------------------------|
| A          | 21         | C00396        | FIRE PROTECTION DETECTION MASTER WARN &<br>CONT |

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- (2) Remove the M279 fire detection control module from the E2-2 shelf.

**NOTE:** A wire harness or fire detector fault could be intermittent because of the engine temperature. Do the subsequent two steps in 20 minutes or less after the engines stop. Do the test again 30 minutes and again 40 minutes after the engines stop. If the resistance is out of limits during the test, continue fault isolation.

- (3) Make sure that the resistance is between 797 and 901 ohms for the applicable engine and fire detection loop with the fault in Table 1.

**Table 1**

| ENGINE | LOOP | CONNECTOR/PIN |              |
|--------|------|---------------|--------------|
|        |      | FROM          | TO           |
| 1      | A    | D1002, pin 25 | D1002, pin 2 |
| 1      | B    | D1002, pin 12 | D1002, pin 2 |
| 2      | A    | D998, pin 25  | D998, pin 2  |
| 2      | B    | D998, pin 12  | D998, pin 2  |

- (4) Make sure that the resistance is less than 3 ohms for the applicable engine and fire detection loop with the fault in Table 2.

**Table 2**

| ENGINE | LOOP | CONNECTOR/PIN |               |
|--------|------|---------------|---------------|
|        |      | FROM          | TO            |
| 1      | A    | D1002, pin 24 | D1002, pin 25 |
| 1      | B    | D1002, pin 10 | D1002, pin 12 |
| 2      | A    | D998, pin 24  | D998, pin 25  |
| 2      | B    | D998, pin 10  | D998, pin 12  |

- (5) If one or both of these subsequent conditions are found, there is a detector fault.
- The measured resistance in Table 1 is not in the limits.
  - The measured resistance in Table 2 is more than 3 ohms.
- (a) Disconnect the terminal lug at one end of the detector loop.
- (b) Measure the resistance of the detector between the terminal lug and ground in Table 3.

**Table 3**

| LOCATION   | EQUIPMENT NUMBER | RESISTANCE (OHMS) |
|------------|------------------|-------------------|
| Upper Fan  | M1757            | 5921 (+/- 297)    |
| Lower Fan  | M1758            | 3931 (+/- 197)    |
| Left Core  | M1759            | 3011 (+/- 151)    |
| Right Core | M1760            | 2471 (+/- 124)    |

- (c) If the resistance of the detector is not in the limits, then do this step:
- 1) Replace the detector.

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These are the tasks:

Engine Fire Detector Element Removal, AMM TASK 26-11-01-000-801,

Engine Fire Detector Element Installation, AMM TASK 26-11-01-400-801.

**NOTE:** If a detector resistance is not in tolerance by many hundred ohms, the control module can incorrectly identify a loop as a defective one.

- (6) Do this task: Open the Thrust Reverser (Selection), AMM TASK 78-31-00-010-801-F00.
- (7) If the resistance for engine 1 or engine 2, loop A in Table 2 is more than the limit, a wire harness is defective. Do this procedure:
  - (a) Measure the resistance of the wire harness MW0325.
    - 1) Disconnect the connector DJ2501.
    - 2) Move the wires that attach to the fire detector while you measure the resistance between pins 1 and 2 of connector DJ2501.
    - 3) If the resistance is more than 3 ohms, replace the wire harness MW0325: Core Fire Detection Harnesses Removal, AMM TASK 26-11-02-000-802 and Core Fire Detection Harness Installation, AMM TASK 26-11-02-400-802.
    - 4) If the resistance is less than 3 ohms, then continue.
  - (b) Measure the resistance of the wire harness MW0315.
    - 1) Disconnect the wire harness connectors DP1501 and DP1552.
    - 2) Connect a jumper between pins 1 and 2 of connector DP1501.
    - 3) Move the wires that attach to the fire detector while you measure the resistance between pin 1 and pin 2 of connector DP1552.
    - 4) If the resistance is more than 3 ohms, replace the wire harness MW0315: Fan Fire Detection Harness Removal, AMM TASK 26-11-02-000-801 and Fan Fire Detection Harness Installation, AMM TASK 26-11-02-400-801.
- (8) If the resistance for engine 1 or engine 2, loop B in SUBTASK 26-10-00-810-003 is more than the limit, a wire harness is defective. Do this procedure:
  - (a) Measure the resistance of the wire harness MW0326.
    - 1) Disconnect the connector DJ2601.
    - 2) Move the wires that attach to the fire detector while you measure the resistance between pins 1 and 2 of connector DJ2601.
    - 3) If the resistance is more than 3 ohms, replace the wire harness MW0326: Core Fire Detection Harnesses Removal, AMM TASK 26-11-02-000-802 and Core Fire Detection Harness Installation, AMM TASK 26-11-02-400-802.
    - 4) If the resistance is less than 3 ohms, then continue.
  - (b) Measure the resistance of the wire harness MW0316.
    - 1) Disconnect the wire harness connectors DP1601 and DP1620.
    - 2) Connect a jumper between pins 1 and 2 of connector DP1601.
    - 3) Move the wires that attach to the fire detector while you measure the resistance between pin 3 and pin 4 of connector DP1620.
    - 4) If the resistance is more than 3 ohms, replace the wire harness MW0316: Fan Fire Detection Harness Removal, AMM TASK 26-11-02-000-801 and Fan Fire Detection Harness Installation, AMM TASK 26-11-02-400-801.
    - 5) If the resistance is less than 3 ohms, then continue.

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- (9) Replace the control module, M279. These are the tasks.
- Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801,
  - Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801
- (10) Put the airplane in its usual condition.

**WARNING:** OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Do this task: Close the Thrust Reverser (Selection), AMM TASK 78-31-00-010-804-F00.
- (b) Put the M279 fire detection control module back the E2-2 shelf.
- (c) For engine 1, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

- (d) For engine 2, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |

————— **END OF TASK** —————

### 810. Engine - Low Detector Resistance - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
- (a) ENGINE 1 LOOP A - LOW DET RESISTANCE CLEAN CONNECTIONS
  - (b) ENGINE 1 LOOP B - LOW DET RESISTANCE CLEAN CONNECTIONS
  - (c) ENGINE 2 LOOP A - LOW DET RESISTANCE CLEAN CONNECTIONS
  - (d) ENGINE 2 LOOP B - LOW DET RESISTANCE CLEAN CONNECTIONS
- (2) These faults occur when the fire detection control module, M279 detects a fault with an engine fire detector element. Loop A and B elements for each detector assembly have the same equipment number.

| DETECTOR ASSEMBLY                        | EQUIPMENT NUMBER |
|------------------------------------------|------------------|
| ENGINE FAN UPPER FIRE DETECTOR ASSEMBLY  | M1757            |
| ENGINE FAN LOWER FIRE DETECTOR ASSEMBLY  | M1758            |
| ENGINE CORE LEFT FIRE DETECTOR ASSEMBLY  | M1759            |
| ENGINE CORE RIGHT FIRE DETECTOR ASSEMBLY | M1760            |

#### B. Possible Causes

- (1) Fire detector element, M1757, M1758, M1759, or M1760
- (2) Fire detection control module, M279.

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### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

### D. Related Data

- (1) (SSM 26-00-01)
- (2) (SSM 26-11-21)
- (3) (WDM 26-11-11)
- (4) (WDM 26-11-21)

### E. Initial Evaluation

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.

### F. Fault Isolation Procedure

- (1) Prepare the airplane for fault isolation.

**WARNING:** DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSE CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do this task: Open the Thrust Reverser (Selection), AMM TASK 78-31-00-010-801-F00.
- (b) For engine 1, open this circuit breaker and attach safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

- (c) For engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |

- (d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                                  |
|------------|------------|---------------|----------------------------------------------|
| A          | 21         | C00396        | FIRE PROTECTION DETECTION MASTER WARN & CONT |

- (2) Examine the connectors of the wiring in the indicated loop for contamination, wear, or damage.
  - (a) Repair the wiring as required.
    - 1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
- (3) If wire harness repair is not required, there is a detector fault.
  - (a) Measure the resistance of the detector.

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| LOCATION   | EQUIPMENT NUMBER | RESISTANCE (OHMS) |
|------------|------------------|-------------------|
| Upper Fan  | M1757            | 5921 (+/- 297)    |
| Lower Fan  | M1758            | 3931 (+/- 197)    |
| Left Core  | M1759            | 3011 (+/- 151)    |
| Right Core | M1760            | 2471 (+/- 124)    |

- (b) If the resistance of the detector is not in the range given, then do these steps:

- 1) Replace the detector.

These are the tasks:

Engine Fire Detector Element Removal, AMM TASK 26-11-01-000-801,

Engine Fire Detector Element Installation, AMM TASK 26-11-01-400-801.

- (4) Put the airplane in its usual condition.

**WARNING:** OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Do this task: Close the Thrust Reverser (Selection), AMM TASK 78-31-00-010-804-F00.

- (b) For engine 1, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 24         | C00405        | FIRE PROTECTION DETECTION ENG 1 |

- (c) For engine 2, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                     |
|------------|------------|---------------|---------------------------------|
| A          | 22         | C00407        | FIRE PROTECTION DETECTION ENG 2 |

————— **END OF TASK** —————

### 808. APU - Low Detector Resistance - Fault Isolation

#### A. Description

- (1) This task is for this maintenance message:
- (a) APU - LOW DET RESISTANCE
- (2) This fault occurs when the control module, M279 detects a low resistance on the overheat detection loop. Usually this indication is caused by the failure of the control module, M279. The detector elements are listed in the table below.

| DESCRIPTION                             | EQUIPMENT NUMBER |
|-----------------------------------------|------------------|
| APU UPPER OVERHEAT DETECTOR ASSEMBLY    | M1755            |
| APU LOWER OVERHEAT DETECTOR ASSEMBLY    | M1756            |
| APU TAILPIPE OVERHEAT DETECTOR ASSEMBLY | M1925            |

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**B. Possible Causes**

- (1) Control Module, M279
- (2) Dirty or damaged electrical connectors

**C. Circuit Breakers**

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |

**D. Related Data**

- (1) (SSM 26-00-01)
- (2) (SSM 26-11-31)
- (3) (WDM 26-11-31)

**E. Initial Evaluation**

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
  - (a) If a maintenance message shows, then do the Fault Isolation Procedure below.
  - (b) If the maintenance message does not show, then there was an intermittent fault.

**F. Fault Isolation Procedure**

- (1) Prepare the airplane for connector inspection.
  - (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |
| B          | 19         | C01344        | APU FIRE SW POWER             |

F/O Electrical System Panel, P6-4

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>         |
|------------|------------|---------------|---------------------|
| A          | 14         | C00033        | AUX POWER UNIT CONT |

- (b) To access the upper or lower APU detector, open this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

- (c) To access the APU tailpipe overheat detector, open this access panel:  
316DR

- (2) Examine the connectors of the wiring in the APU overheat detection loop for contamination, wear, or damage.
  - (a) Repair the wiring as required.
    - 1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.
  - (3) If wire harness repair is not required, there is a detector fault.

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## 26-10 TASK 808

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## FAULT ISOLATION MANUAL

- (a) Measure the resistance of the detector.

| LOCATION | EQUIPMENT NUMBER | RESISTANCE (OHMS) |
|----------|------------------|-------------------|
| UPPER    | M1755            | 2985 ( + /- 297)  |
| LOWER    | M1756            | 2485 ( + /- 112)  |
| TAILPIPE | M1925            | 3945 ( + /- 177)  |

- (b) If the resistance of the detector is not in the range given, then do these steps:

- 1) Replace the detector.

These are the tasks:

APU Overheat Detector Element Removal, AMM TASK 26-15-01-000-801

APU Overheat Detector Element Installation, AMM TASK 26-15-01-400-801

- (4) If the replacement of any detector is not required, then do these steps:

- (a) Replace the control module, M279.

These are the tasks:

Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801,

Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801.

- (5) Return the airplane to its usual condition.

Close this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

————— END OF TASK —————

### 809. APU - Wiring/Detector(s) - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
- (a) APU - WIRING OPEN/DETECTOR FAULT
  - (b) APU - WIRING SHORT TO GROUND
- (2) These faults occur when the control module, M279 detects a fault with the wiring between a detector and the control module. The Wiring Open or Detector(s) fault can occur because of the failure of two or more detectors in the same loop. The detectors are listed in the table below.

| DESCRIPTION                             | EQUIPMENT NUMBER |
|-----------------------------------------|------------------|
| APU UPPER OVERHEAT DETECTOR ASSEMBLY    | M1755            |
| APU LOWER OVERHEAT DETECTOR ASSEMBLY    | M1756            |
| APU TAILPIPE OVERHEAT DETECTOR ASSEMBLY | M1925            |

#### B. Possible Causes

- (1) Wiring
- (2) Fire detector elements

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## 26-10 TASKS 808-809

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### C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |

### D. Related Data

- (1) (SSM 26-00-01)  
(2) (SSM 26-11-31)  
(3) (WDM 26-11-31)

### E. Initial Evaluation

- (1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.  
(a) If a maintenance message shows, then do the Fault Isolation Procedure below.  
(b) If the maintenance message does not show, then there was an intermittent fault.

### F. Fault Isolation Procedure

- (1) Prepare the airplane for fault isolation.  
(a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                   |
|------------|------------|---------------|-------------------------------|
| A          | 23         | C00403        | FIRE PROTECTION DETECTION APU |
| B          | 19         | C01344        | APU FIRE SW POWER             |

F/O Electrical System Panel, P6-4

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>         |
|------------|------------|---------------|---------------------|
| A          | 14         | C00033        | AUX POWER UNIT CONT |

- (b) To access the upper or lower APU detector, open this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

- (c) Remove the APU. To remove it, do this task: APU Power Plant Removal, AMM TASK 49-11-00-000-801.

- (d) To access the APU tailpipe overheat detector, open this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 318BR         | Tailcone Access Door |

- (e) To access the APU tailpipe overheat detector, open this access panel:316DR

- (2) Examine the wiring for the loop called out in the maintenance message.

- (a) Repair or replace the damaged wiring.

- 1) Do this task: Engine/APU Fire Detection Control Module BITE Procedure, 26-10 TASK 801.  
a) If the maintenance message does not show, then you corrected the fault.  
b) If the maintenance message shows, then continue.

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## 26-10 TASK 809

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- (3) Replace the control module, M279.

These are the tasks:

Engine and APU Fire Detection Module Removal, AMM TASK 26-10-01-000-801,  
Engine and APU Fire Detection Module Installation, AMM TASK 26-10-01-400-801.

- (a) If the replacement test passes, then you corrected the fault.

- (4) Return the airplane to its usual condition.

- (a) Close this access panel: 316DR

- (b) Do this task: APU Power Plant Installation, AMM TASK 49-11-00-400-801.

- (c) Close this access panel:

| <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------|
| 315A          | APU Cowl Door        |

————— **END OF TASK** —————

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## 26-10 TASK 809

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## FAULT ISOLATION MANUAL

### 801. Smoke Detector Does not Turn Off - Fault Isolation

#### A. Fault Isolation Procedure

NOTE: If the cabin pressure increases, an alarm can come on when there is no smoke.

(1) Push the alarm interrupt switch on the smoke detector with an applicable tool.

(a) If the alarm indications stop, then you corrected the fault.

(b) If the alarm indications do not stop, then continue.

(2) For the lavatory smoke detector, these are the tasks:

Lavatory Smoke Detector Removal, AMM TASK 26-14-01-000-801,

Lavatory Smoke Detector Installation, AMM TASK 26-14-01-400-801.

(a) If the alarm indications stop, then you corrected the fault.

————— **END OF TASK** —————

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## 26-14 TASK 801

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## FAULT ISOLATION MANUAL

### 801. Cargo Electronic Unit (CEU) BITE Procedure

#### A. General

- (1) The cargo electronic units (CEUs) are located behind access panels in the ceiling of the forward and aft cargo compartments. M2236 monitors detectors in the forward compartment, and M2237 is in the aft compartment. Get access to the front panel of the CEU to do the BITE test.
- (2) The front of the control module has 16 fault lights, a PRESS-TO-TEST switch, and a LAMP TEST switch. The LAMP TEST switch makes sure all the fault lights will come on. The PRESS-TO-TEST switch sends a signal to do a test of all the detectors in the compartment. If a smoke detector fails, or a smoke detector detects smoke, then the light for that detector will come on.
  - (a) Not all the lights on the CEU are used. If there are four detectors in the cargo bay, only four lights will be used. If there are six detectors in the cargo bay, only six lights will be used.
  - (b) The letter and number associated with each light is referred to as a maintenance message.
  - (c) The letters on the CEU correspond to the position of the detectors on the left or right of the cargo bay.
  - (d) The numbers on the CEU correspond with the position of the detector from forward to aft.
  - (e) For example, the forward detector on the left of the cargo bay corresponds to light A1 on the CEU. The second detector on the right corresponds to light B2 on the CEU.
- (3) To do the BITE test, push the LAMP TEST switch to do a check of all the lights. Then push the PRESS-TO-TEST switch. If the lights comes on, the test passes. If a light goes off, the corresponding detector fails.

#### B. BITE Procedure

- (1) Do these steps to do the BITE procedure for the CEU:
  - (a) To get access to the CEU front panel, remove the screws securing the protective cover to the cargo bay ceiling.
  - (b) Make sure all the lights on the CEU are off.
    - 1) If any lights are on, refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

**NOTE:** Find the maintenance message that describes the light or lights that are on and is followed by "(stays on)" or "(stay on)".
  - (c) Push and hold the LAMP TEST switch on the CEU.
    - 1) Make sure all the lights on the CEU come on.
  - (d) Release the LAMP TEST switch.
    - 1) Make sure all the lights on the CEU go off.
  - (e) Push and hold the PRESS-TO-TEST switch on the CEU for 5 seconds.
    - 1) If all the lights on the CEU come on, then continue.
    - 2) If one or more of the lights on the CEU do not come on, then the BITE test fails and there is a fault.
  - (f) Release the PRESS-TO-TEST switch.
    - 1) If the lights on the CEU go off, then the BITE test passed.
    - 2) If one or more of the lights on the CEU stays on, then the BITE test fails and there is a fault.

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## 26-16 TASK 801

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## FAULT ISOLATION MANUAL

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

————— END OF TASK —————

| LRU/SYSTEM  | MAINTENANCE MESSAGE       | GO TO FIM TASK |
|-------------|---------------------------|----------------|
| CEU - FWD   | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD   | A1 (stays on)             | 26-16 TASK 803 |
| CEU - FWD   | A1 and A2 (stay on)       | 26-16 TASK 803 |
| CEU - FWD   | A2 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD   | A2 (stays on)             | 26-16 TASK 803 |
| CEU - FWD   | B1 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD   | B1 (stays on)             | 26-16 TASK 803 |
| CEU - FWD   | B1 and B2 (stay on)       | 26-16 TASK 803 |
| CEU - FWD   | B2 (off during self-test) | 26-16 TASK 805 |
| CEU - FWD   | B2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER | A1 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | A1 and A2 (stay on)       | 26-16 TASK 803 |
| CEU - LOWER | A1, A2, and A3 (stay on)  | 26-16 TASK 803 |
| CEU - LOWER | A2 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER | A2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | A3 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER | A3 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | B1 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER | B1 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | B1 and B2 (stay on)       | 26-16 TASK 803 |
| CEU - LOWER | B1, B2, and B3 (stay on)  | 26-16 TASK 803 |
| CEU - LOWER | B2 (off during self-test) | 26-16 TASK 805 |
| CEU - LOWER | B2 (stays on)             | 26-16 TASK 803 |
| CEU - LOWER | B3 (off during self-test) | 26-16 TASK 805 |

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## 26-16 TASK 801

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| LRU/SYSTEM     | MAINTENANCE MESSAGE          | GO TO FIM TASK |
|----------------|------------------------------|----------------|
| CEU - LOWER    | B3 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A1 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A1 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A1 and A2 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A1, A2, A3, and A4 (stay on) | 26-16 TASK 803 |
| CEU - MAIN AFT | A1, A2, and A3 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | A2 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A2 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A2 and A3 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A2, A3, and A4 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | A3 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A3 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | A3 and A4 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | A4 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | A4 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B1 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B1 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B1 and B2 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | B1, B2, B3, and B4 (stay on) | 26-16 TASK 803 |
| CEU - MAIN AFT | B1, B2, and B3 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | B2 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B2 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B2 and B3 (stay on)          | 26-16 TASK 803 |
| CEU - MAIN AFT | B2, B3, and B4 (stay on)     | 26-16 TASK 803 |
| CEU - MAIN AFT | B3 (off during self-test)    | 26-16 TASK 805 |
| CEU - MAIN AFT | B3 (stays on)                | 26-16 TASK 803 |
| CEU - MAIN AFT | B3 and B4 (stay on)          | 26-16 TASK 803 |

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| LRU/SYSTEM     | MAINTENANCE MESSAGE       | GO TO FIM TASK |
|----------------|---------------------------|----------------|
| CEU - MAIN AFT | B4 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN AFT | B4 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | A1 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | A1 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | A1 and A2 (stay on)       | 26-16 TASK 803 |
| CEU - MAIN FWD | A1, A2, and A3 (stay on)  | 26-16 TASK 803 |
| CEU - MAIN FWD | A2 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | A2 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | A2 and A3 (stay on)       | 26-16 TASK 803 |
| CEU - MAIN FWD | A3 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | A3 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | B1 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | B1 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | B1 and B2 (stay on)       | 26-16 TASK 803 |
| CEU - MAIN FWD | B1, B2, and B3 (stay on)  | 26-16 TASK 803 |
| CEU - MAIN FWD | B2 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | B2 (stays on)             | 26-16 TASK 803 |
| CEU - MAIN FWD | B3 (off during self-test) | 26-16 TASK 805 |
| CEU - MAIN FWD | B3 (stays on)             | 26-16 TASK 803 |

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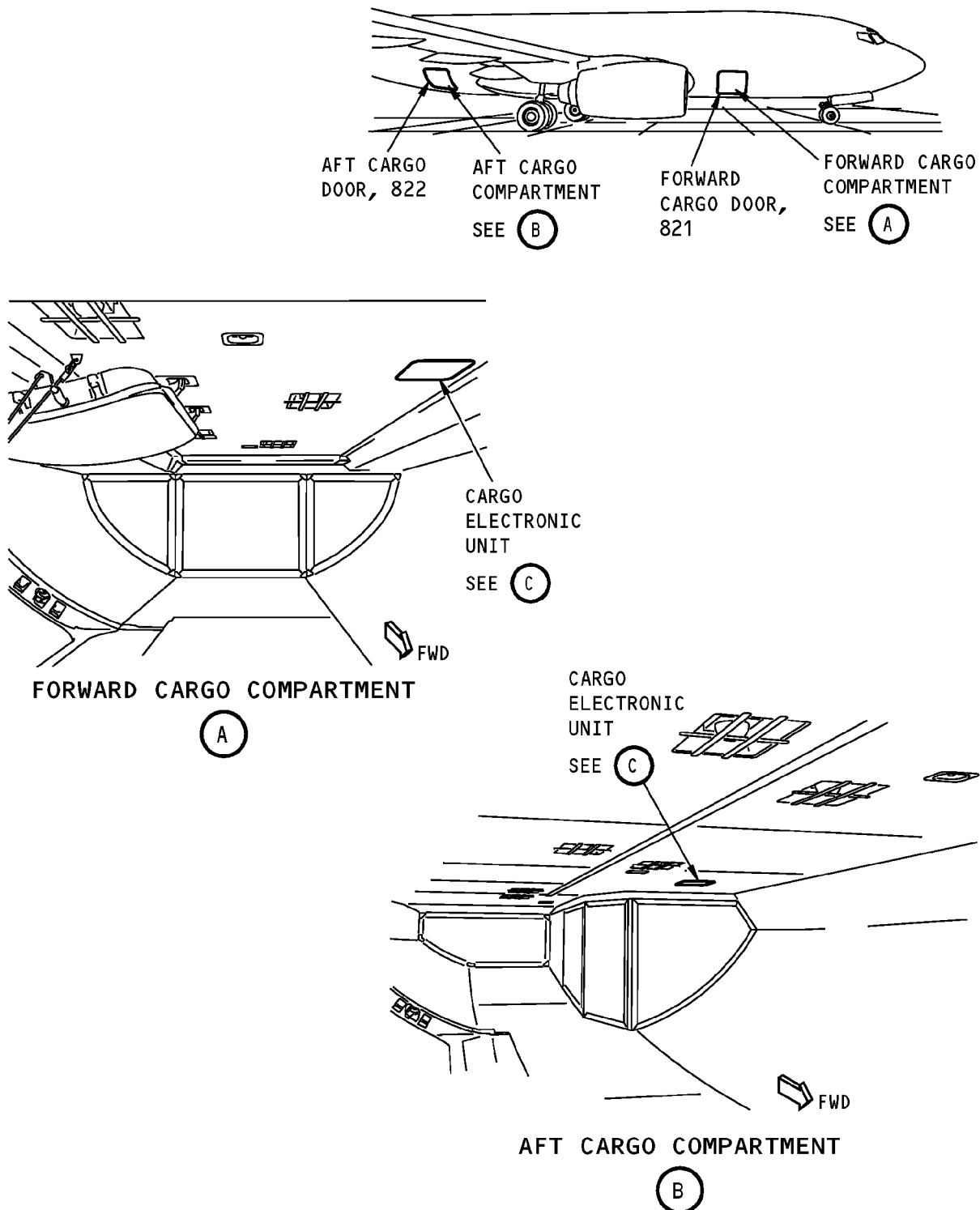
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Cargo Electronic Unit Installation  
Figure 201 (Sheet 1 of 3)/ 26-16-00-990-802

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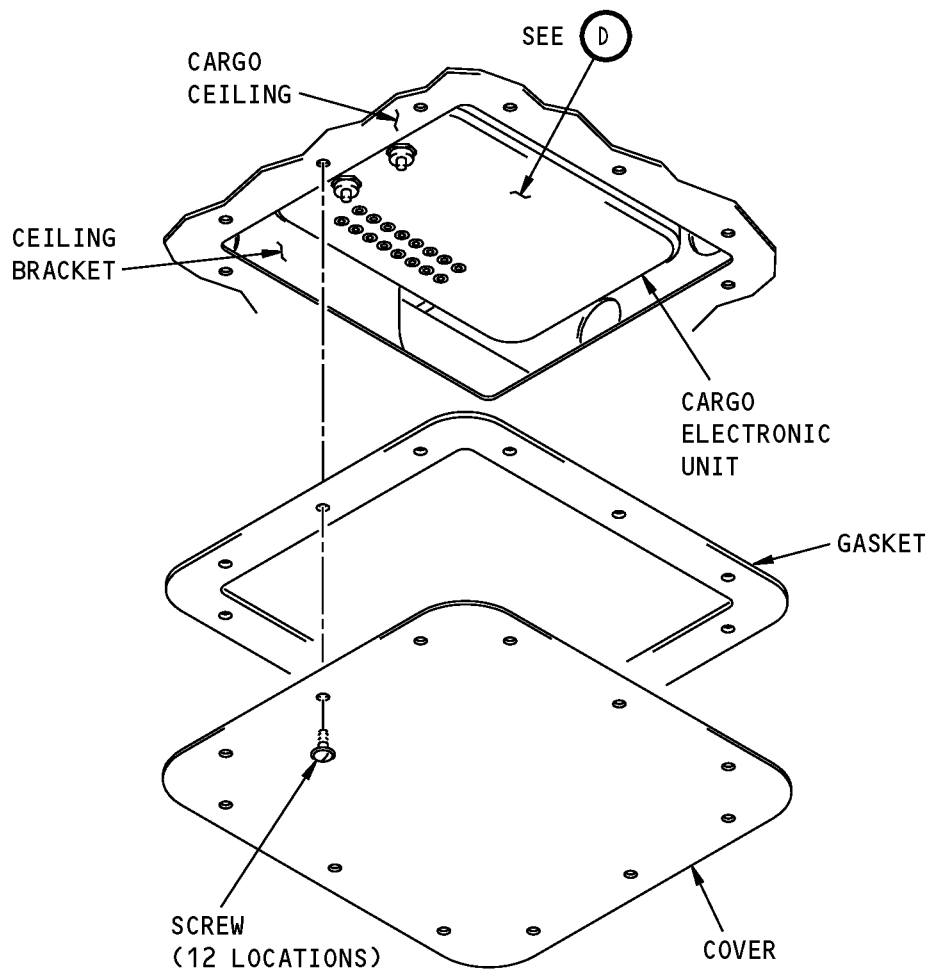
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**CARGO ELECTRONIC UNIT**  
**(EXAMPLE)**

(C)

Cargo Electronic Unit Installation  
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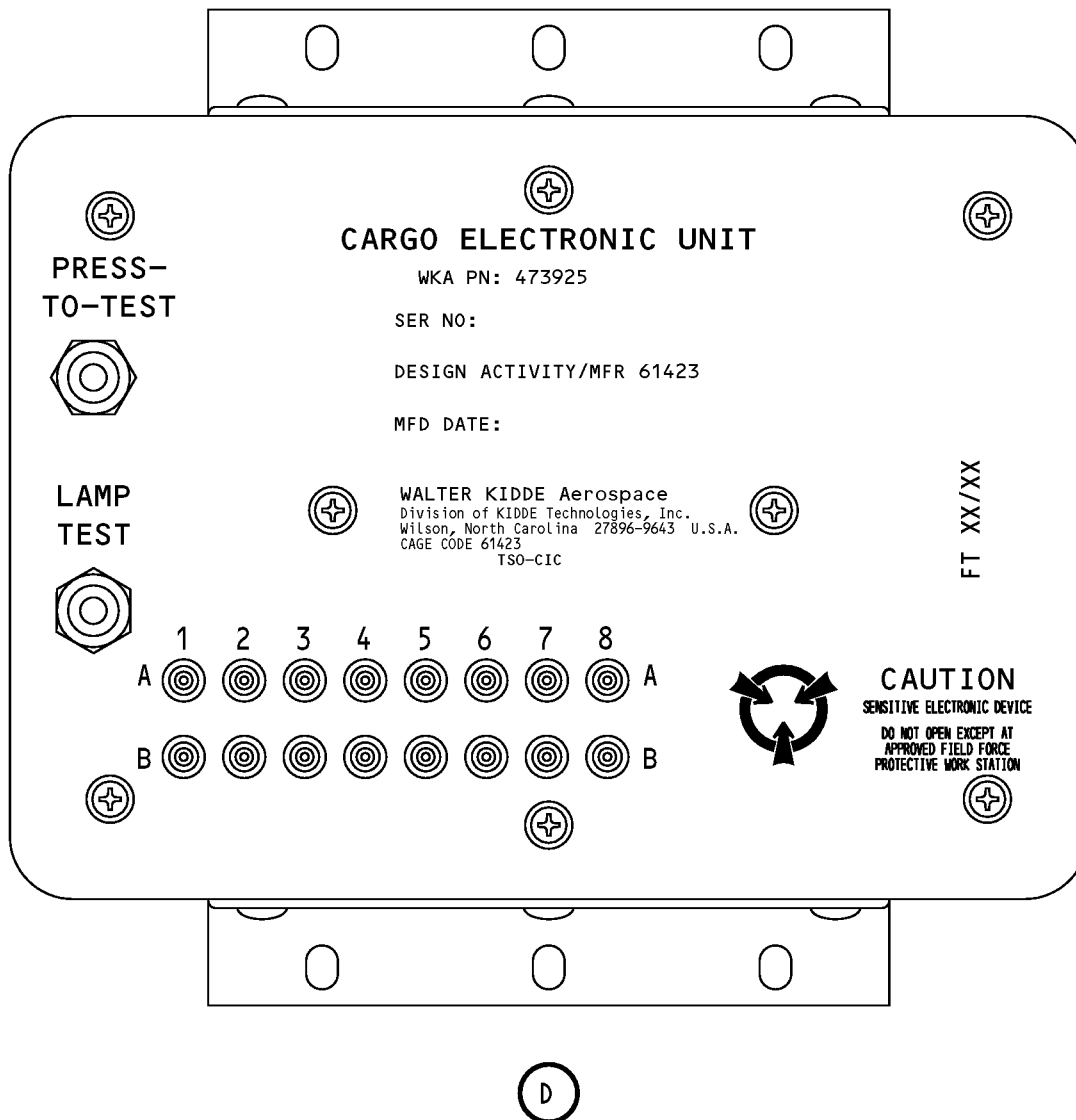
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## FAULT ISOLATION MANUAL

### 802. DETECTOR FAULT Light Stays On After TEST Switch is Pushed - Fault Isolation

#### A. Description

- (1) This task is for when the DETECTOR FAULT light on the CARGO FIRE panel stays on after the TEST switch is pushed.
- (2) If the DETECTOR FAULT light stays on after the TEST switch was pushed, then there is a power failure to one or more of the smoke detectors in the cargo bay.
- (3) The DETECTOR FAULT light can come on because of the failure of a smoke detector.

#### B. Possible Causes

- (1) Smoke detector
- (2) CEU, M2236 (forward) or M2237 (aft)
- (3) Wiring

#### C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| C          | 16         | C01523        | CARGO FIRE FORWARD DET B |
| C          | 17         | C01522        | CARGO FIRE FORWARD DET A |

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>          |
|------------|------------|---------------|----------------------|
| C          | 18         | C01525        | CARGO FIRE AFT DET B |
| C          | 19         | C01524        | CARGO FIRE AFT DET A |

#### D. Initial Evaluation

- (1) Do these steps to find which loop has the fault.
  - (a) Move the FWD DET SELECT switch on the CARGO FIRE panel to A.
  - (b) Push and release the TEST switch.
    - 1) If the DETECTOR FAULT light goes off, then the fault is on loop B in the forward cargo bay.
  - (c) Move the FWD DET SELECT switch on the CARGO FIRE panel to B.
  - (d) Push and release the TEST switch.
    - 1) If the DETECTOR FAULT light goes off, then the fault is on loop A in the forward cargo bay.
  - (e) Move the FWD DET SELECT switch on the CARGO FIRE panel to NORM.
  - (f) Move the AFT DET SELECT switch on the CARGO FIRE panel to A.
  - (g) Push and release the TEST switch.
    - 1) If the DETECTOR FAULT light goes off, then the fault is on loop B in the aft cargo bay.
  - (h) Move the AFT DET SELECT switch on the CARGO FIRE panel to B.
  - (i) Push and release the TEST switch.
    - 1) If the DETECTOR FAULT light goes off, then the fault is on loop A in the aft cargo bay.

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## 26-16 TASK 802

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- (j) Move the AFT DET SELECT switch on the CARGO FIRE panel to NORM.
- (2) Do the Fault Isolation Procedure below.
- E. Fault Isolation Procedure
  - (1) Do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.  
for the applicable CEU.
    - (a) If the CEU BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
      - 1) Do this task: Cargo Bay Smoke Detection - Operational Test, AMM TASK 26-16-00-710-801.
      - 2) If the operational test is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

### 803. Detector Power Problem - Fault Isolation

- A. Description
  - (1) This task is for these CEU maintenance messages:
    - (a) A1 (stays on)
    - (b) A1 and A2 (stay on)
    - (c) A1, A2, and A3 (stay on)
    - (d) A2 (stays on)
    - (e) A3 (stays on)
    - (f) B1 (stays on)
    - (g) B1 and B2 (stay on)
    - (h) B1, B2, and B3 (stay on)
    - (i) B2 (stays on)
    - (j) B3 (stays on)
  - (2) If any CEU fault lights are on or stay on after the PRESS-TO-TEST switch was pushed, then there is a power failure to one or more of the smoke detectors in the cargo bay.
  - (3) This fault can occur because of the failure a smoke detector. The detector elements are listed in the table below.

**Table 201**

| DETECTOR ASSEMBLY | EQUIPMENT NUMBER |
|-------------------|------------------|
| A1 FORWARD CARGO  | M2238            |
| A2 FORWARD CARGO  | M2239            |
| B1 FORWARD CARGO  | M2240            |
| B2 FORWARD CARGO  | M2241            |
| A1 AFT CARGO      | M2242            |
| A2 AFT CARGO      | M2243            |
| A3 AFT CARGO      | M2244            |
| B1 AFT CARGO      | M2245            |

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**DETECTOR ASSEMBLY**

**EQUIPMENT NUMBER**

B2 AFT CARGO

M2246

B3 AFT CARGO

M2247

**B. Possible Causes**

- (1) Smoke detector
- (2) CEU, M2236 (forward) or M2237 (aft)
- (3) Wiring

**C. Circuit Breakers**

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| C          | 16         | C01523        | CARGO FIRE FORWARD DET B |
| C          | 17         | C01522        | CARGO FIRE FORWARD DET A |

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>          |
|------------|------------|---------------|----------------------|
| C          | 18         | C01525        | CARGO FIRE AFT DET B |
| C          | 19         | C01524        | CARGO FIRE AFT DET A |

**D. Related Data**

- (1) (SSM 26-16-21)
- (2) (SSM 26-16-22)
- (3) (WDM 26-16-21)
- (4) (WDM 26-16-22)

**E. Initial Evaluation**

- (1) For the applicable CEU, do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.
  - (a) If all of the lights on one loop on the CEU stay on, then do the Fault Isolation Procedure - All Lights on One Loop on the CEU Stay On below.
  - (b) If one of the lights on the CEU stays, then do the Fault Isolation Procedure - One Light on the CEU Stays On below.
  - (c) If none of the lights on the CEU stay on when the PRESS-TO-TEST switch is released, then there was an intermittent fault.

**F. Fault Isolation Procedure - All Lights on One Loop on the CEU Stay On**

- (1) Do this check for 28 VDC at the CEU:
  - (a) Disconnect connector D12762 from the forward CEU or D12774 from the aft CEU.
  - (b) Do a check for 28 VDC between pin 5 and pin 4 (ground) and between pin 31 and pin 4 (ground) of the applicable cargo connector.

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- (c) If there is 28 VDC between pin 5 and pin 4 and between pin 31 and pin 4 of the connector, then do these steps:
- 1) Replace the CEU, M2236 (forward) or M2237 (aft).  
These are the tasks:  
Cargo Electronic Unit Removal, AMM TASK 26-16-02-000-801,  
Cargo Electronic Unit Installation, AMM TASK 26-16-02-400-801.
  - 2) If the CEU installation test is satisfactory, then you corrected the fault.
- (d) If there is not 28 VDC between pin 5 and pin 4 and between pin 31 and pin 4 of the connector, then continue.
- (2) Do this check of the wiring:
- (a) Do a check of the wiring between these pins of connector D12762 (forward) or D12774 (aft) for the CEU and the circuit breaker:

### CARGO COMPARTMENT

|         | CEU<br>CONNECTOR | CIRCUIT<br>BREAKER |
|---------|------------------|--------------------|
| FORWARD | <b>D12762</b>    | <b>C1522</b>       |
|         | pin 5 -----      | term L             |
|         | <b>D12762</b>    | <b>C1523</b>       |
|         | pin 31 -----     | term L             |
| AFT     | <b>D12774</b>    | <b>C1524</b>       |
|         | pin 5 -----      | term L             |
|         | <b>D12774</b>    | <b>C1525</b>       |
|         | pin 31 -----     | term L             |

- (b) Repair the wiring problem that you find.
  - (c) Re-connect connector D12762 to the forward CEU or D12774 to the aft CEU.
  - (d) Do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.
    - 1) If the CEU BITE tests passes, then you corrected the fault.
- G. Fault Isolation Procedure - One Light on the CEU Stays On
- (1) Do this check for 28 VDC at the CEU:
    - (a) Disconnect connector D12764 from the forward CEU, or D12776 from the aft CEU.
    - (b) Do a check for 28 VDC between the applicable pair of pins:

**Table 202**

| CARGO<br>COMPARTMENT | MAINTENANCE<br>MESSAGE | CONNECTOR | HI PIN | GROUND PIN |
|----------------------|------------------------|-----------|--------|------------|
| FORWARD              | A1                     | D12764    | 37     | 16         |
|                      | A2                     | D12764    | 26     | 22         |
|                      | B1                     | D12764    | 13     | 11         |
|                      | B2                     | D12764    | 8      | 18         |

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|     |    |        |    |    |
|-----|----|--------|----|----|
| AFT | A1 | D12776 | 37 | 16 |
|     | A2 | D12776 | 26 | 22 |
|     | A3 | D12776 | 27 | 38 |
|     | B1 | D12776 | 13 | 11 |
|     | B2 | D12776 | 8  | 18 |
|     | B3 | D12776 | 25 | 9  |

- (c) If there is not 28 VDC between the applicable pair of pins, then do these steps:
- 1) Replace the CEU, M2236 (forward) or M2237 (aft).  
 These are the tasks:  
 Cargo Electronic Unit Removal, AMM TASK 26-16-02-000-801,  
 Cargo Electronic Unit Installation, AMM TASK 26-16-02-400-801.
    - a) If the CEU installation test is satisfactory, then you corrected the fault.
  - (d) If there is 28 VDC between the applicable pair of pins, then reconnect the connector to the CEU and continue.
- (2) Do this check for 28 VDC at the detector:
- (a) Disconnect the connector from the applicable detector.
  - (b) Do a check for 28 VDC between pin 4 and pin 5 (ground) on the connector.
  - (c) If there is 28 VDC between pin 4 and pin 5 on the connector, then do these steps:
    - 1) Replace the detector.  
 These are the tasks:  
 Cargo Bay Detector Removal, AMM TASK 26-16-01-000-801,  
 Cargo Bay Smoke Detector Installation, AMM TASK 26-16-01-400-801.
      - a) If the installation test for the detector is satisfactory, then you corrected the fault.
    - (d) If there is not 28 VDC between pin 4 and pin 5 on the connector, then continue.
  - (3) Do this check of the wiring:
    - (a) Do a check of the wiring between these pins of the connector for the detector and the connector for the CEU:

**CARGO COMPARTMENT - DETECTOR**

|                     | <b>DETECTOR<br/>CONNECTOR</b> | <b>CEU<br/>CONNECTOR</b> |
|---------------------|-------------------------------|--------------------------|
| <b>FORWARD - A1</b> | <b>D12766</b>                 | <b>D12764</b>            |
|                     | pin 4 -----                   | pin 37                   |
| <b>FORWARD - A2</b> | <b>D12768</b>                 | <b>D12764</b>            |
|                     | pin 4 -----                   | pin 26                   |
| <b>FORWARD - B1</b> | <b>D12770</b>                 | <b>D12764</b>            |
|                     | pin 4 -----                   | pin 13                   |

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|                     |                              |                         |
|---------------------|------------------------------|-------------------------|
| <b>FORWARD - B2</b> | <b>D12772</b><br>pin 4 ----- | <b>D12764</b><br>pin 8  |
| <b>AFT - A1</b>     | <b>D12778</b><br>pin 4 ----- | <b>D12776</b><br>pin 37 |
| <b>AFT - A2</b>     | <b>D12780</b><br>pin 4 ----- | <b>D12776</b><br>pin 26 |
| <b>AFT - A3</b>     | <b>D12782</b><br>pin 4 ----- | <b>D12776</b><br>pin 27 |
| <b>AFT - B1</b>     | <b>D12784</b><br>pin 4 ----- | <b>D12776</b><br>pin 13 |
| <b>AFT - B2</b>     | <b>D12786</b><br>pin 4 ----- | <b>D12776</b><br>pin 8  |
| <b>AFT - B3</b>     | <b>D12788</b><br>pin 4 ----- | <b>D12776</b><br>pin 25 |

- (b) Repair the wiring problem that you find.
- (c) Re-connect connector D12764 to the forward CEU, or D12776 to the aft CEU.
- (d) Re-connect the connector to the detector.
- (e) Do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.
  - 1) If the CEU BITE tests passes, then you corrected the fault.

### END OF TASK

#### 804. DETECTOR FAULT Light Comes On When TEST Switch is Pushed - Fault Isolation

##### A. Description

- (1) If the DETECTOR FAULT light comes on, when the TEST switch is pushed, and goes out when the switch is released, then there is a failure with one of the smoke detectors in the cargo bay. The fire indicator (lower half of ARMED switch) for the cargo bay with the failed detector will stay off.

##### B. Possible Causes

- (1) Smoke detector

##### C. Initial Evaluation

- (1) Push the TEST switch on the CARGO FIRE panel.
  - (a) If the DETECTOR FAULT light stays off, then there was an intermittent fault.
  - (b) If the DETECTOR FAULT light comes on when the TEST switch is pushed, then do the Fault Isolation Procedure below.

**NOTE:** The fire indicator (lower half of the ARMED switch) will stay off for the cargo compartment that has the failed detector.

##### D. Fault Isolation Procedure

- (1) Do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.  
for the applicable CEU.

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- (a) If the CEU BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
  - 1) Do this task: Cargo Bay Smoke Detection - Operational Test, AMM TASK 26-16-00-710-801.
  - 2) If the operational test is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

### 805. Detector Fault - Fault Isolation

#### A. Description

- (1) This task is for these CEU maintenance messages:
  - (a) A1 (off during self-test)
  - (b) A2 (off during self-test)
  - (c) A3 (off during self-test)
  - (d) B1 (off during self-test)
  - (e) B2 (off during self-test)
  - (f) B3 (off during self-test)
- (2) If one of the CEU fault lights stay off when you push the PRESS-TO-TEST switch (during the self-test), then there is a failure with one of the smoke detectors.
- (3) This fault can occur because of the failure of a smoke detector. The detector elements are listed in the table below.

| DETECTOR ASSEMBLY | EQUIPMENT NUMBER |
|-------------------|------------------|
| A1 FORWARD CARGO  | M2238            |
| A2 FORWARD CARGO  | M2239            |
| B1 FORWARD CARGO  | M2240            |
| B2 FORWARD CARGO  | M2241            |
| A1 AFT CARGO      | M2242            |
| A2 AFT CARGO      | M2243            |
| A3 AFT CARGO      | M2244            |
| B1 AFT CARGO      | M2245            |
| B2 AFT CARGO      | M2246            |
| B3 AFT CARGO      | M2247            |

#### B. Possible Causes

- (1) Smoke detector

#### C. Related Data

- (1) (SSM 26-16-21)
- (2) (SSM 26-16-22)
- (3) (WDM 26-16-21)
- (4) (WDM 26-16-22)

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### D. Initial Evaluation

- (1) For the applicable CEU, do this task: Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801.
  - (a) If one of the lights on the CEU stay off when you push the PRESS-TO-TEST switch, then do the Fault Isolation Procedure below.
  - (b) If all of the lights on the CEU come on when you push the PRESS-TO-TEST switch, then there was an intermittent fault.

### E. Fault Isolation Procedure

- (1) Replace the applicable cargo detector.

These are the tasks:

Cargo Bay Detector Removal, AMM TASK 26-16-01-000-801,

Cargo Bay Smoke Detector Installation, AMM TASK 26-16-01-400-801.

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

————— **END OF TASK** —————

## 806. Cargo Fire Warning Light Does Not Come On When TEST Switch is Pushed - Fault Isolation

### A. Description

- (1) Different Indicator Combinations,

If the red FWD and AFT fire lights do not come on when the TEST switch is pushed, then there is a failure in the fire detection system. These are the likely causes for different indicator combinations: Table 203

**Table 203 LIKELY CAUSES OF TEST INDICATIONS**

#### TEST INDICATIONS

#### LIKELY CAUSE

|                                                                        |                         |
|------------------------------------------------------------------------|-------------------------|
| One of the fire lights stays off and the DETECTOR FAULT light comes on | Detector                |
| Both fire lights stay off                                              | CARGO FIRE panel        |
| One of the fire lights stay off and DETECTOR FAULT light stays off     | CEU or CARGO FIRE panel |

- (2) The DETECTOR FAULT light can occur because of the failure a smoke detector. The detector elements are listed in the table below.

**Table 204**

#### DETECTOR ASSEMBLY

#### EQUIPMENT NUMBER

|                  |       |
|------------------|-------|
| A1 FORWARD CARGO | M2238 |
| A2 FORWARD CARGO | M2239 |
| B1 FORWARD CARGO | M2240 |
| B2 FORWARD CARGO | M2241 |
| A1 AFT CARGO     | M2242 |
| A2 AFT CARGO     | M2243 |
| A3 AFT CARGO     | M2244 |
| B1 AFT CARGO     | M2245 |

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## 26-16 TASKS 805-806

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**DETECTOR ASSEMBLY**

**EQUIPMENT NUMBER**

B2 AFT CARGO

M2246

B3 AFT CARGO

M2247

**B. Possible Causes**

- (1) Smoke detector
- (2) CEU, M2236 (Forward) or M2237 (Aft)
- (3) Cargo fire panel
- (4) Wiring

**C. Circuit Breakers**

- (1) These are the primary circuit breakers related to the fault with the cargo bay fire indicators:

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| C          | 16         | C01523        | CARGO FIRE FORWARD DET B |
| C          | 17         | C01522        | CARGO FIRE FORWARD DET A |
| C          | 18         | C01525        | CARGO FIRE AFT DET B     |
| C          | 19         | C01524        | CARGO FIRE AFT DET A     |

**D. Related Data**

- (1) (SSM 26-16-21)
- (2) (SSM 26-16-22)
- (3) (WDM 26-16-21)
- (4) (WDM 26-16-22)

**E. Initial Evaluation**

- (1) Set the DIM/BRT/TEST switch on the captain's instrument panel, P1 to TEST.
  - (a) Make sure the EXT FWD and AFT, the ARM FWD and AFT, the DETECTOR FAULT and the DISCH lights on the CARGO FIRE panel come on.
  - (b) If any lights do not come on, then replace the faulty light. To replace it, do this task: Lighted Pushbutton Switch - Lamp Replacement, AMM TASK 33-18-00-960-803.
- (2) If the DETECTOR FAULT light comes on when the TEST switch is pushed, then, do this task: Detector Fault - Fault Isolation, 26-16 TASK 805
- (3) If the fire lights on the CARGO FIRE panel stay off when the TEST switch is pushed, then do the Fault Isolation Procedure - All Fire Lights Off.
- (4) If one fire light on the CARGO FIRE panel stays off when the TEST switch is pushed, then do the Fault Isolation Procedure - One Fire Light Off.

**F. Fault Isolation Procedure - All Fire Lights Off**

- (1) Replace the CARGO FIRE panel. These are the tasks:
  - Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801
  - Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801

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- (a) If the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed, then you have corrected the fault.

### G. Fault Isolation Procedure - One Fire Light Off

- (1) Replace the applicable CEU. These are the tasks:
- Cargo Electronic Unit Removal, AMM TASK 26-16-02-000-801
  - Cargo Electronic Unit Installation, AMM TASK 26-16-02-400-801
- (a) If the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed, then you have corrected the fault.
- (b) If one of the fire lights on the CARGO FIRE panel stay off when the TEST switch is pushed, then continue.
- (2) Do this check of the wiring between the CEU and the CARGO FIRE panel:
- (a) Remove the CARGO FIRE panel. To remove it, do this task: Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801.
- (b) Disconnect connector D12762 (forward) or D12774 (aft) from the applicable CEU.
- (c) Do a wiring check between these pins of connector D12760 for the CARGO FIRE module and the connector for the applicable CEU:

#### CARGO COMPARTMENT

|                | CARGO FIRE<br>MODULE<br>CONNECTOR | CEU<br>CONNECTOR |
|----------------|-----------------------------------|------------------|
| <b>FORWARD</b> | <b>D12760</b>                     | <b>D12762</b>    |
|                | pin 32 -----                      | pin 23           |
|                | pin 15 -----                      | pin 24           |
|                | pin 14 -----                      | pin 26           |
|                | pin 30 -----                      | pin 28           |
|                | pin 31 -----                      | pin 9            |
|                | pin 54 -----                      | pin 11           |
| <b>AFT</b>     | <b>D12760</b>                     | <b>D12774</b>    |
|                | pin 20 -----                      | pin 23           |
|                | pin 21 -----                      | pin 24           |
|                | pin 22 -----                      | pin 26           |
|                | pin 8 -----                       | pin 29           |
|                | pin 37 -----                      | pin 9            |
|                | pin 38 -----                      | pin 11           |

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
  - 2) Re-install the CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.
  - 3) Re-connect connector D12762 (forward) or D12774 (aft) to the CEU.
  - 4) Make sure the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed.
    - a) If the fire lights come on when the TEST switch is pushed, then you have corrected the fault.
- (e) If you do not find a problem with the wiring, then re-connect connector D12762 (forward) or D12774 (aft) to the CEU and continue.

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- (3) Install a new CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.

- (a) If the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed, then you have corrected the fault.

————— END OF TASK —————

### 807. External Fire Warnings Do Not Come On When TEST Switch is Pushed - Fault Isolation

#### A. Description

- (1) The external fire warnings include the captain's and first officer's FIRE WARN lights and the flight compartment fire bell. If the external fire warnings do not come on when the TEST switch on the CARGO FIRE panel is pushed, then there is a failure in the fire detection system.

#### B. Possible Causes

- (1) Cargo fire panel  
(2) Wiring

#### C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault with the cargo bay fire indicators::

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>              |
|------------|------------|---------------|--------------------------|
| C          | 16         | C01523        | CARGO FIRE FORWARD DET B |
| C          | 17         | C01522        | CARGO FIRE FORWARD DET A |
| C          | 18         | C01525        | CARGO FIRE AFT DET B     |
| C          | 19         | C01524        | CARGO FIRE AFT DET A     |

#### D. Related Data

- (1) (SSM 26-16-21)  
(2) (SSM 26-16-22)  
(3) (WDM 26-16-21)  
(4) (WDM 26-16-22)

#### E. Initial Evaluation

- (1) Push the TEST switch on the CARGO FIRE panel.
- (a) If the external fire warnings come on, then there was an intermittent fault.
- (b) If all the external fire warnings stay off, then do the Fault Isolation Procedure - No External Fire Warnings below.
- (c) If the FIRE WARN lights stay off, but the fire bell comes on, then do the Fault Isolation Procedure - No FIRE WARN Lights below.
- (d) If the fire bell stays off, but the FIRE WARN lights come on, then do the Fault Isolation Procedure - No Fire Bell below.

#### F. Fault Isolation Procedure - No External Fire Warnings

- (1) Replace the CARGO FIRE panel.

These are the tasks:

Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801,

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Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.

- (a) If the external fire warnings come on when the TEST switch on the CARGO FIRE panel is pushed, then you corrected the fault.

### G. Fault Isolation Procedure - No FIRE WARN Lights

- (1) Do this check of the wiring:

- (a) Remove the CARGO FIRE panel. To remove it, do this task: Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801.
- (b) Disconnect connector D1344 from the annunciation and dimming module, M469 (P9).
- (c) Do a wiring check between these pins of connector D12760 for the CARGO FIRE panel and connector D1344:

|               |              |
|---------------|--------------|
| <b>D12760</b> | <b>D1344</b> |
| pin 56 -----  | pin 3        |

- (d) If you find a problem with the wiring, then do these steps:
  - 1) Repair the wiring.
  - 2) Re-install the CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.
  - 3) Re-connect connector D1344 to the annunciation and dimming module, M279.
  - 4) Make sure the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed.
    - a) If both the fire lights come on when the TEST switch is pushed, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then re-connect connector D1344 to the annunciation and dimming module, M279 and continue.

- (2) Install a new CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.

- (a) If the external fire warnings come on when the TEST switch on the CARGO FIRE panel is pushed, then you corrected the fault.

### H. Fault Isolation Procedure - No Fire Bell

- (1) Do this check of the wiring:

- (a) Remove the CARGO FIRE panel. To remove it, do this task: Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801.
- (b) Disconnect connector D940 from the aural warning module, M315.
- (c) Do a wiring check between these pins of connector D12760 for the CARGO FIRE panel and connector D940:

|               |             |
|---------------|-------------|
| <b>D12760</b> | <b>D940</b> |
| pin 49 -----  | pin 12      |

- (d) If you find a problem with the wiring, then do these steps:
  - 1) Repair the wiring.
  - 2) Re-install the CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.
  - 3) Re-connect connector D940 to the aural warning module, M315.
  - 4) Make sure the fire lights on the CARGO FIRE panel come on when the TEST switch is pushed.

EFFECTIVITY  
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## 26-16 TASK 807

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## **FAULT ISOLATION MANUAL**

- a) If both the fire lights come on when the TEST switch is pushed, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then re-connect connector D940 to the aural warning module, M315 and continue.
- (2) Install a new CARGO FIRE panel. To install it, do this task: Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.
  - (a) If the external fire warnings come on when the TEST switch on the CARGO FIRE panel is pushed, then you corrected the fault.

**END OF TASK**

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## FAULT ISOLATION MANUAL

### 801. Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure

#### A. General

- (1) The wheel well fire, wing & body overheat detection control module, M237 is located on the E1-4 shelf in the electronic equipment (EE) compartment. The wheel well fire, wing & body overheat detection control module will be referred to as the control module throughout this procedure. Access the front of panel of the control module to do the BITE test.
- (2) The front of the control module contains a MAINT ADV light, a two digit FAULT & ALARM CODE display, and four test buttons.
  - (a) The MAINT ADV light identifies that there is fault data stored in memory. The light will stay on until corrective action is taken, and the memory is cleared.
  - (b) The FAULT & ALARM CODE display indicates the status of the system.
  - (c) The MEM READ switch is used to display the data stored in memory.
  - (d) The MEM CLEAR switch is used to clear the displayed memory data. This data can only be cleared if the original fault is corrected, and there are no additional faults in the same zone.
  - (e) The LOC TEST switch initiates the local test procedure.
  - (f) The DISP TEST switch checks the display.
- (3) Several procedures can be performed with the detection module. These are:
  - (a) Local Test Procedure
  - (b) Memory Read Procedure
  - (c) Memory Clear Procedure
  - (d) Alarm History Memory Read Procedure
  - (e) Alarm History Memory Clear Procedure

#### B. BITE Procedure

- (1) Do these steps to do the local test procedure for the control module:
  - (a) Push and hold the LOC TEST switch on the control module.
    - 1) The FAULT AND ALARM display shows code 90 while the self-test is running and shows code 99 when the test is complete.
  - (b) If an alarm/fault condition is found, the display will show a fault code.
    - 1) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message for the fault indicated by the FAULT AND ALARM display.
- (2) Do these steps to do the memory read procedure.
  - (a) Push the MEM READ switch on the control module.
    - 1) The FAULT AND ALARM display shows the latest fault code.

**NOTE:** As many as 10 alarm/fault codes can be kept in non-volatile memory. Code 97 shows that all codes have been read.
  - (b) Push the MEM READ switch again until all the alarm/fault codes have been read, and code 97 shows.
  - (c) Push the MEM READ switch again so the display shows no data.
- (3) Do these steps to do the memory clear procedure.
  - (a) Push the DISP TEST switch on the control module.
    - 1) The FAULT AND ALARM display shows code 88 and then the display is blank.
  - (b) Push the LOC TEST switch on the control module.

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- 1) The FAULT AND ALARM display shows 90, then 99.
  - (c) Push the MEM READ switch on the control module until the display shows the code to be removed.
  - (d) Push the MEM CLEAR switch on the control module.  
NOTE: Alarm/fault codes can not be removed until the condition is corrected.
  - (e) Push the MEM READ or MEM CLEAR switch again until all the alarm/fault codes have been read, and code 97 shows.
  - (f) Push the MEM READ or MEM CLEAR switch again so the display shows no data.
- (4) Do these steps to do the alarm history memory read procedure.
- (a) Push the LOC TEST switch on the control module.
    - 1) The FAULT AND ALARM display shows 90, then 99.
  - (b) Push the MEM READ switch on the control module until the FAULT AND ALARM display shows code 97.
  - (c) Push and hold the DISP TEST switch.
  - (d) Push and hold the MEM READ switch.
  - (e) Release the DISP TEST switch.
  - (f) Release the MEM READ switch.
    - 1) The FAULT AND ALARM shows the last alarm/fault history code.
  - (g) Push the MEM READ switch again until all the alarm/fault codes have been read, and code 97 shows.
  - (h) Push the MEM READ switch again so the display shows no data.
- (5) Do these steps to do the alarm history memory clear procedure.
- (a) Push the LOC TEST switch on the control module.
    - 1) The FAULT AND ALARM display shows 90, then 99.
  - (b) Push the MEM READ switch on the control module until the FAULT AND ALARM display shows code 97.
  - (c) Push and hold the LOC TEST switch.
  - (d) Push and hold the MEM READ switch.
  - (e) Release the LOC TEST switch.
  - (f) Release the MEM READ switch.
    - 1) The FAULT AND ALARM display shows code 96 for 5 seconds.
  - (g) Push the MEM CLEAR switch while the FAULT AND ALARM display shows 96.
    - 1) The FAULT AND ALARM display shows the first alarm code.
  - (h) Push the MEM CLEAR switch on the control module.
    - 1) The FAULT AND ALARM display goes blank.
  - (i) Push the MEM READ switch to show the next alarm code.
  - (j) Push the MEM READ and MEM CLEAR switches as necessary until all the alarm/fault codes have been read, and code 97 shows.
  - (k) Push the MEM READ or MEM CLEAR switch again so the display shows no data.

————— **END OF TASK** —————

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| LRU/SYSTEM    | MAINTENANCE MESSAGE                             | GO TO FIM TASK |
|---------------|-------------------------------------------------|----------------|
| WING/BODY OHT | 00 - CONTROL OR POWER SUPPLY FAILURE            | 26-18 TASK 803 |
| WING/BODY OHT | 01 - 115VAC OR POWER SUPPLY CARD FAILURE        | 26-18 TASK 803 |
| WING/BODY OHT | 02 - 115VAC OR POWER SUPPLY CARD FAILURE        | 26-18 TASK 803 |
| WING/BODY OHT | 03 - CONTROL CARD FAILURE                       | 26-18 TASK 803 |
| WING/BODY OHT | 04 - CONTROL CARD FAILURE                       | 26-18 TASK 803 |
| WING/BODY OHT | 05 - CONTROL CARD FAILURE                       | 26-18 TASK 803 |
| WING/BODY OHT | 10 - LEFT WING LE - SHORT LOOP                  | 26-18 TASK 802 |
| WING/BODY OHT | 12 - LEFT WING LE - OPEN LOOP                   | 26-18 TASK 802 |
| WING/BODY OHT | 14 - LEFT WING LE - ALARM                       | 26-18 TASK 802 |
| WING/BODY OHT | 20 - LEFT AC PACK BAY - SHORT LOOP              | 26-18 TASK 802 |
| WING/BODY OHT | 22 - LEFT AC PACK BAY - OPEN LOOP               | 26-18 TASK 802 |
| WING/BODY OHT | 24 - LEFT AC PACK BAY - ALARM                   | 26-18 TASK 802 |
| WING/BODY OHT | 30 - KEELBEAM - SHORT LOOP                      | 26-18 TASK 802 |
| WING/BODY OHT | 32 - KEELBEAM - OPEN LOOP                       | 26-18 TASK 802 |
| WING/BODY OHT | 34 - KEELBEAM - ALARM                           | 26-18 TASK 802 |
| WING/BODY OHT | 40 - AFT CARGO SECT. - SHORT LOOP               | 26-18 TASK 802 |
| WING/BODY OHT | 42 - AFT CARGO SECT. - OPEN LOOP                | 26-18 TASK 802 |
| WING/BODY OHT | 44 - AFT CARGO SECT. - ALARM                    | 26-18 TASK 802 |
| WING/BODY OHT | 60 - RIGHT WING LE AND AC PACK BAY - SHORT LOOP | 26-18 TASK 802 |
| WING/BODY OHT | 62 - RIGHT WING LE AND AC PACK BAY - OPEN LOOP  | 26-18 TASK 802 |
| WING/BODY OHT | 64 - RIGHT WING LE AND AC PACK BAY - ALARM      | 26-18 TASK 802 |
| WING/BODY OHT | 84 - WHEEL WELL FIRE - ALARM                    | 26-18 TASK 802 |
| WING/BODY OHT | 98 - LOCAL TEST - NOT COMPLETE                  | 26-18 TASK 803 |

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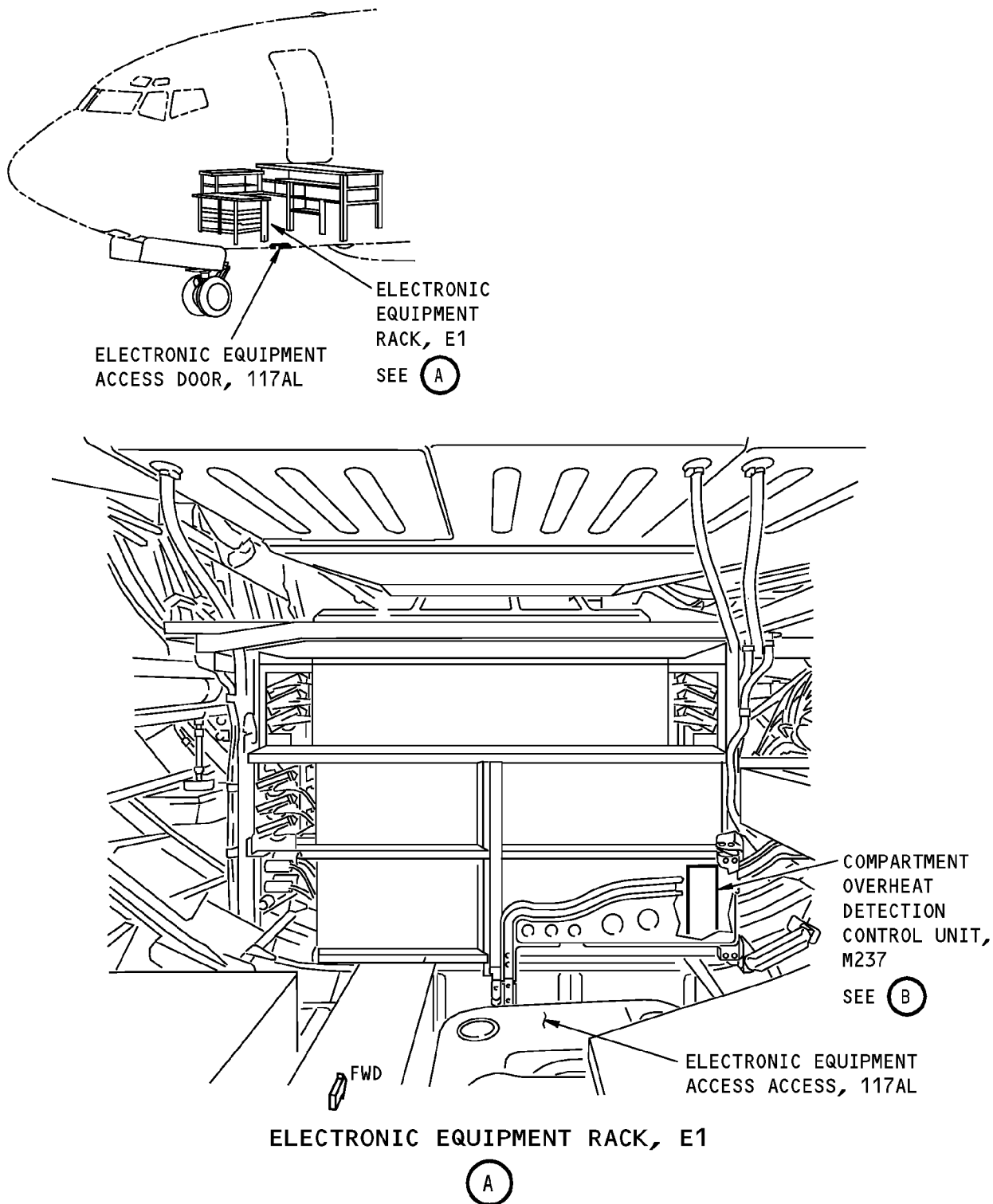
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WHEEL WELL FIRE, WING & BODY  
OVERHEAT DETECTION

REFER TO MAINT. MANUAL FOR COMPLETE  
EXPLANATION OF SYSTEM CHARACTERISTICS

88

**FAULT & ALARM CODE**

MAINT. ADV. LIGHT WILL BE  
ON DURING FAULTS AND  
ALARMS-OFF AFTER  
ERASURE

00 FAILURE IN CONTROL OR  
POWER SUPPLY CARDS  
01.02 115VAC FAILURE OR  
CONTROL CARD FAILURE  
03.04.05 FAILED CONTROL CARD

| STEP | TEST                                 | ACTION                                                                                  | RESPONSE                                                                                           |
|------|--------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1    | TEST<br>DISPLAY                      | DEPRESS "DISP TEST"                                                                     | CODE 88 AND THEN BLANK                                                                             |
| 2    | READ<br>ALARM<br>FAULT<br>MEMORY     | MOMENTARILY<br>DEPRESS<br>"MEM READ"*                                                   | FAULTS & ALARMS ARE<br>DISPLAYED THEN 97<br>(MEM READ COMPLETE)<br>& THEN BLANK                    |
| 3    | SYSTEM<br>TEST                       | MOMENTARILY DEPRESS<br>"LOC TEST"*                                                      | CODE 90 EXISTING FAULT<br>CODES & THEN 99                                                          |
| 4    | ERASE(1)<br>ALARM<br>FAULT<br>MEMORY | DEPRESS "MEM READ"*<br>UNTIL CODE TO BE<br>ERASED IS DISPLAYED<br>THEN PRESS "MEM CLR"* | ERASE CODE GOES BLANK<br>DEPRESS "MEM CLR" AGAIN<br>WHEN 97 IS DISPLAYED<br>AND DISPLAY WILL BLANK |
| 5    | ABORT                                | MOMENTARILY DEPRESS<br>"DISP TEST"                                                      | CODE 88 AND THEN BLANK                                                                             |

**MEM READ**

**MEM CLEAR**

**LOC TEST**

**DISP TEST**

NOTE:\*MOMENTARILY DEPRESS AGAIN TO  
CONTINUE READ  
\*\*EXISTING FAULTS & ALARMS  
CANNOT BE ERASED UNTIL CORRECTED

| ZONE/ SITUATION                  | ALARM<br>(2) | OPEN<br>LOOP | SHORT<br>LOOP |
|----------------------------------|--------------|--------------|---------------|
| LEFT WING LE                     | 14           | 12           | 10            |
| LEFT AC PACK BAY                 | 24           | 22           | 20            |
| KEEL BEAM                        | 34           | 32           | 30            |
| AFT CARGO SECT.                  | 44           | 42           | 40            |
| RIGHT WING LE AND<br>AC PACK BAY | 64           | 62           | 60            |
| WHEEL WELL FIRE                  | 84           | -            | -             |

| LOCAL<br>TEST | IN<br>PROGRESS | NOT<br>COMPLETE | COMPLETE |
|---------------|----------------|-----------------|----------|
|               | 90             | 98              | 99       |

(1) ALARMS BECOME  
ALARM HISTORY  
AFTER ERASURE

TO DISPLAY ALARM  
HISTORY DEPRESS  
"DISP TEST" AND  
"MEM READ"

TO CLEAR ALARM  
HISTORY SEE  
MAINT. MANUAL

(2) SHORT LOOP CODE  
DISPLAYED AFTER  
LOCAL TEST IS  
COMPLETED

**FENWAL**  
ASHLAND, MA 01721

CAT. NO.  
20-035008-300

SER. NO.

DATE CODE

BOEING PART NO.  
10-62187-1

**COMPARTMENT OVERHEAT DETECTION CONTROL UNIT, M237**

B

Compartment Overheat Detection Control Unit, M237  
 Figure 201 (Sheet 2 of 2)/ 26-18-00-990-803

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## FAULT ISOLATION MANUAL

### 802. Wheel Well Fire, Wing and Overheat Detectors - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
- (a) 12 - LEFT WING LE - OPEN LOOP
  - (b) 22 - LEFT AC PACK BAY - OPEN LOOP
  - (c) 32 - KEELBEAM - OPEN LOOP
  - (d) 42 - AFT CARGO SECT. - OPEN LOOP
  - (e) 62 - RIGHT WING LE AND AC PACK BAY - OPEN LOOP
  - (f) 10 - LEFT WING LE - SHORT LOOP
  - (g) 20 - LEFT AC PACK BAY - SHORT LOOP
  - (h) 30 - KEELBEAM - SHORT LOOP
  - (i) 40 - AFT CARGO SECT. - SHORT LOOP
  - (j) 60 - RIGHT WING LE AND AC PACK BAY - SHORT LOOP
  - (k) 14 - LEFT WING LE - ALARM
  - (l) 24 - LEFT AC PACK BAY - ALARM
  - (m) 34 - KEELBEAM - ALARM
  - (n) 44 - AFT CARGO SECT. - ALARM
  - (o) 64 - RIGHT WING LE AND AC PACK BAY - ALARM
  - (p) 84 - WHEEL WELL FIRE - ALARM
- (2) These faults occur when the control module, M237 detects a fault with a detector, or the wiring between a detector and the control module. The detectors are listed in the table below.

| DETECTOR                       | EQUIPMENT NUMBER |
|--------------------------------|------------------|
| LEFT WING OUTBOARD OVERHEAT    | M268             |
| RIGHT WING OUTBOARD OVERHEAT   | M269             |
| MAIN WHEEL WELL FIRE           | M270             |
| FWD KEELBEAM OVERHEAT          | M272             |
| AFT KEELBEAM OVERHEAT          | M273             |
| AFT OVERHEAT SECTION 47        | M275             |
| AFT OVERHEAT SECTION 48        | M276             |
| AFT OVERHEAT                   | M347             |
| AFT OVERHEAT SECTION 46        | M348             |
| LEFT FWD A/C PACK BAY OVERHEAT | M355             |
| RIGHT FWD A/C PACK OVERHEAT    | M356             |
| LEFT WING INBOARD OVERHEAT     | M370             |
| RIGHT WING INBOARD OVERHEAT    | M371             |
| AFT OVERHEAT                   | M1147            |
| LEFT FWD STRUT CAVITY OVERHEAT | M1761            |

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**FAULT ISOLATION MANUAL**

(Continued)

| DETECTOR                        | EQUIPMENT NUMBER |
|---------------------------------|------------------|
| LEFT AFT STRUT CAVITY OVERHEAT  | M1762            |
| RIGHT FWD STRUT CAVITY OVERHEAT | M1763            |
| RIGHT AFT STRUT CAVITY OVERHEAT | M1764            |
| LEFT MID A/C PACK OVERHEAT      | M1909            |
| RIGHT MID A/C PACK OVERHEAT     | M1910            |
| LEFT AFT A/C PACK OVERHEAT      | M1911            |
| RIGHT AFT A/C PACK OVERHEAT     | M1912            |

(3) This table lists the BITE codes provided by the control module and the related detectors in each loop.

| BITE CODE | FAULT DESCRIPTION                                   | POSSIBLE BAD DETECTORS OR RELATED WIRING     |
|-----------|-----------------------------------------------------|----------------------------------------------|
| 10        | LEFT WING LEADING EDGE SHORT                        | M268, M370, M1761, M1762                     |
| 12        | LEFT WING LEADING EDGE OPEN LOOP                    | M268, M370, M1761, M1762                     |
| 14        | LEFT WING LEADING EDGE ALARM                        | M268, M370, M1761, M1762                     |
| 20        | LEFT A/C PACK SHORT                                 | M355, M1909, M1911                           |
| 22        | LEFT A/C PACK OPEN LOOP                             | M355, M1909, M1911                           |
| 24        | LEFT A/C PACK ALARM                                 | M355, M1909, M1911                           |
| 30        | KEEL BEAM SHORT                                     | M272, M273                                   |
| 32        | KEEL BEAM OPEN LOOP                                 | M272, M273                                   |
| 34        | KEEL BEAM ALARM                                     | M272, M273                                   |
| 40        | AFT CARGO SECTION SHORT                             | M275, M276, M347, M348, M1147                |
| 42        | AFT CARGO SECTION OPEN LOOP                         | M275, M276, M347, M348, M1147                |
| 44        | AFT CARGO SECTION ALARM                             | M275, M276, M347, M348, M1147                |
| 60        | RIGHT WING LEADING EDGE OR RIGHT A/C PACK SHORT     | M269, M356, M371, M1763, M1764, M1910, M1912 |
| 62        | RIGHT WING LEADING EDGE OR RIGHT A/C PACK OPEN LOOP | M269, M356, M371, M1763, M1764, M1910, M1912 |
| 64        | RIGHT WING LEADING EDGE OR RIGHT A/C PACK ALARM     | M269, M356, M371, M1763, M1764, M1910, M1912 |
| 84        | WHEEL WELL FIRE ALARM                               | M270                                         |

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**B. Possible Causes**

- (1) Fire detector element
- (2) Control module, M237.
- (3) Wiring.

**C. Circuit Breakers**

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                                  |
|------------|------------|---------------|----------------------------------------------|
| A          | 19         | C00388        | FIRE PROTECTION DETECTION OVHT WW WING BODY  |
| A          | 21         | C00396        | FIRE PROTECTION DETECTION MASTER WARN & CONT |

F/O Electrical System Panel, P6-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                       |
|------------|------------|---------------|-----------------------------------|
| C          | 13         | C01277        | MASTER CAUTION ANNUNCIATOR CONT 3 |

**D. Related Data**

- (1) Component Location (Figure 301)
- (2) (SSM 26-00-05)
- (3) (SSM 26-12-11)
- (4) (WDM 26-12-11)

**E. Tools and Equipment**

- (1) LCR meter (Inductance, Capacitance, Resistance), COM-1741 refers to the 875B, 878, 878A, or 879 models of LCR meter made by B&K Precision Corporation, 22820 Savi Ranch Parkway Yorba Linda, CA 92887 U.S.A. or any equivalent LCR meter. The LCR meter must be capable of a frequency settling of 120Hz.

**F. Initial Evaluation**

- (1) Do this task: Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure, 26-18 TASK 801.
  - (a) If the maintenance message shows, then do the Fault Isolation Procedure below.
  - (b) If the maintenance message does not show, then there was an intermittent fault.

**G. Fault Isolation Procedure**

- (1) Examine the fire detector loop identified in the maintenance message, and the related wiring.

**NOTE:** The maintenance message identifies a detector loop which is made up of one or more detector elements.

- (a) If there is an obvious problem with the wiring, then repair the wiring.
  - 1) Do this task: Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure, 26-18 TASK 801.
    - a) If the maintenance message does not show, then you corrected the fault.
  - 2) If the replacement test fails, then continue.

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## 26-18 TASK 802

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## FAULT ISOLATION MANUAL

- (b) If there is an obvious problem with the detector element, then replace the element.

These are the tasks:

Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Removal, AMM TASK 26-18-02-000-801,

Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Installation, AMM TASK 26-18-02-400-801.

- 1) If the replacement test passes, then you corrected the fault.
- 2) If the replacement test fails, then continue.

- (c) If there is not an obvious problem with the element or the wiring, then continue.

- (2) Do a check of the detector loop identified in the maintenance message.

**NOTE:** The maintenance message identifies a detector loop which is made up of one or more detector elements.

- (a) Disconnect both ends of the loop.
- (b) Do a check for continuity between the terminal lugs at each end of the loop.

**NOTE:** This checks the center conductor continuity.

- (c) Make sure the resistance is at least 50,000 ohms between the center conductor (terminal lug) and structure ground.

**CAUTION:** DO NOT USE A DC OHMMETER OR A MULTIMETER FOR RESISTANCE CHECKS ON THE SENSOR LOOPS IN THE OVERHEAT DETECTION SYSTEM. THE SENSOR LEVEL SETTINGS CAN MOVE TO A HIGHER VALUE. THIS CAN CAUSE AN OVERHEAT CONDITION THAT WILL NOT BE DETECTED.

- 1) Use LCR meter (Inductance, Capacitance, Resistance), COM-1741 or equivalent for this purpose.
- 2) Set the frequency to 120Hz.
- (d) If the center conductor is not continuous, or if the insulation resistance is less than 50,000 ohms, then do a resistance check of each element in the loop. Compare the resistances with the values given in PAGEBLOCK 26-18-00/301.

If there is a problem with an element, replace the element.

These are the tasks:

Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Removal, AMM TASK 26-18-02-000-801,

Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Installation, AMM TASK 26-18-02-400-801.

- 1) If the replacement test passes, then you corrected the fault.

- (e) If the center conductor is continuous and the insulation resistance is at least 50,000 ohms, then continue.

- (3) Do a test of the elements in the loops Wing, Wheel Well and Lower Aft Body Overheat Sensing Element Test, AMM TASK 26-18-02-720-803

- (a) If there is a problem with an element, replace the element.

- (b) These are the tasks:

Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Removal, AMM TASK 26-18-02-000-801

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Wheel Well, Wing and Lower Aft Body Overheat Sensor Element Installation, AMM TASK 26-18-02-400-801

- 1) If the replacement test passes, then you corrected the fault.
- 2) If the replacement test fails, then continue.

- (4) Replace the control module, M237.

These are the tasks:

Compartment Overheat Detection Control Unit Removal, AMM TASK 26-18-01-000-801,

Compartment Overheat Detection Control Unit Installation, AMM TASK 26-18-01-400-801.

- (a) Do this task: Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure, 26-18 TASK 801.

- 1) If the BITE test passes, then you corrected the fault.

————— **END OF TASK** —————

### 803. Wheel Well, Wing and Body Overheat Detection Control Module - Fault Isolation

#### A. Description

- (1) This task is for these maintenance messages:
  - (a) 00 - CONTROL OR POWER SUPPLY FAILURE
  - (b) 01, 02 - 115VAC OR POWER SUPPLY CARD FAILURE
  - (c) 03, 04, 05 - CONTROL CARD FAILURE
  - (d) 98 - LOCAL TEST - NOT COMPLETE

#### B. Possible Causes

- (1) Control module, M237.

#### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                                  |
|------------|------------|---------------|----------------------------------------------|
| A          | 19         | C00388        | FIRE PROTECTION DETECTION OVHT WW WING BODY  |
| A          | 21         | C00396        | FIRE PROTECTION DETECTION MASTER WARN & CONT |

F/O Electrical System Panel, P6-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                       |
|------------|------------|---------------|-----------------------------------|
| C          | 13         | C01277        | MASTER CAUTION ANNUNCIATOR CONT 3 |

#### D. Related Data

- (1) (SSM 26-00-05)
- (2) (SSM 26-12-11)
- (3) (WDM 26-12-11)

#### E. Initial Evaluation

- (1) Do this task: Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure, 26-18 TASK 801.

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## 26-18 TASKS 802-803

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- (a) If the maintenance messages shows, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show, then there was an intermittent fault.

### F. Fault Isolation Procedure

- (1) Replace the control module, M237.

These are the tasks:

Compartment Overheat Detection Control Unit Removal, AMM TASK 26-18-01-000-801,

Compartment Overheat Detection Control Unit Installation, AMM TASK 26-18-01-400-801.

- (a) Do this task: Wheel Well Fire, Wing and Body Overheat Detection Control Module - BITE Procedure, 26-18 TASK 801.

- 1) If the BITE test passes, then you corrected the fault.

————— **END OF TASK** —————

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## 26-18 TASK 803

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## FAULT ISOLATION MANUAL

### 1. DUCT LEAK/OVERHEAT DETECTORS

Table 301 OVERHEAT DETECTOR ELEMENT RESISTANCE VALUES

| EQUIPMENT NUMBER | VENDOR PART NUMBER | MINIMUM RESISTANCE CORE-TO CORE GROUND (MEGHOMS) | MAXIMUM RESISTANCE CORE-TO-CORE (MILLIOHMS) |
|------------------|--------------------|--------------------------------------------------|---------------------------------------------|
| M268             | 35599-2-255        | 1.010                                            | 738                                         |
| M269             | 35599-2-255        | 1.010                                            | 738                                         |
| M270             | 04-90010-110D      | 0.91                                             | 660                                         |
|                  | 35610-4-400        | 0.909                                            | 815                                         |
|                  | 35614-4-400        | 0.877                                            | 843                                         |
| M272             | 35626-4-255        | 0.800                                            | 920                                         |
| M273             | 35555-4-255        | 1.818                                            | 430                                         |
| M275             | 35575-2-255        | 1.333                                            | 570                                         |
|                  | 35599-2-255        | 1.010                                            | 738                                         |
| M276             | 35555-4-255        | 1.818                                            | 430                                         |
| M347             | 35646-2-255        | 0.685                                            | 1067                                        |
| M348             | 35658-4-255        | 0.633                                            | 1151                                        |
|                  | 35678-4-255        | 0.562                                            | 1291                                        |
|                  | 35626-4-255        | 0.793                                            | 927                                         |
| M355             | 35594-4-255        | 1.064                                            | 703                                         |
| M356             | 35594-4-255        | 1.064                                            | 703                                         |
| M370             | 35574-4-255        | 1.351                                            | 563                                         |
| M371             | 35574-4-255        | 1.351                                            | 563                                         |
| M1147            | 35560-2-255        | 1.667                                            | 465                                         |
|                  | 35646-2-255        | 0.68                                             | 1067                                        |
|                  | 35675-2-255        | 0.571                                            | 1270                                        |
| M1761            | 35712-79           | 1.6                                              | 820                                         |
| M1762            | 35712-75           | 0.417                                            | 820                                         |
| M1763            | 35712-79           | 1.6                                              | 820                                         |
| M1764            | 35712-75           | 0.417                                            | 820                                         |
| M1909            | 35712-80           | 0.833                                            | 885                                         |
| M1910            | 35712-80           | 0.833                                            | 885                                         |
| M1911            | 35712-80           | 0.833                                            | 885                                         |
| M1912            | 35712-80           | 0.833                                            | 885                                         |

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## FAULT ISOLATION MANUAL

(Continued)

| EQUIPMENT<br>NUMBER | VENDOR PART<br>NUMBER | MINIMUM RESISTANCE<br>CORE-TO CORE GROUND<br>(MEGHOMS) | MAXIMUM RESISTANCE CORE-TO-<br>CORE (MILLIOHMS) |
|---------------------|-----------------------|--------------------------------------------------------|-------------------------------------------------|
| M2595               | 35599-2-255           | 1.01                                                   | 738                                             |

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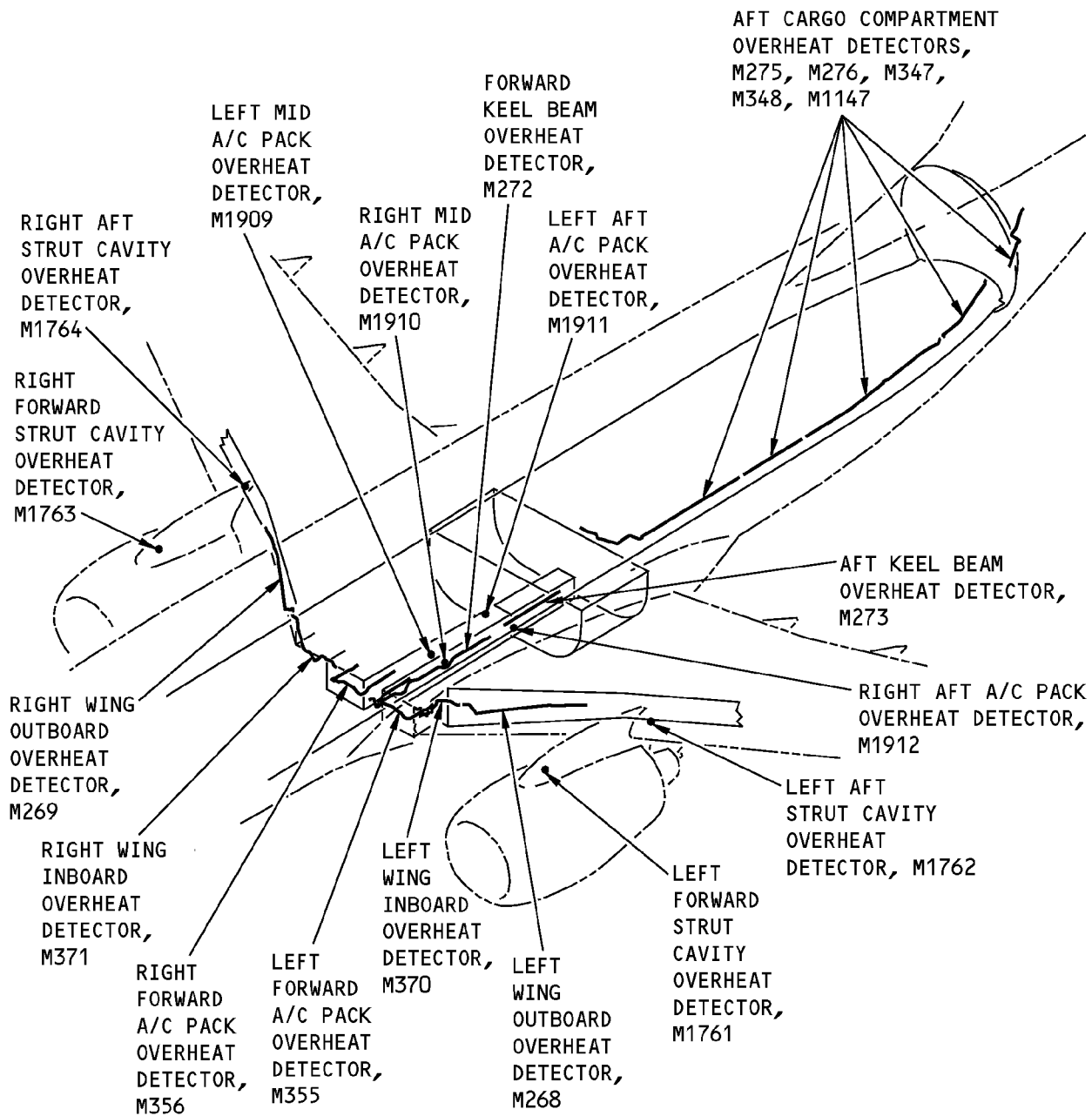
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## FAULT ISOLATION MANUAL



Fire/Overheat Detector Component Location  
Figure 301 (Sheet 1 of 2)/ 26-18-00-990-801

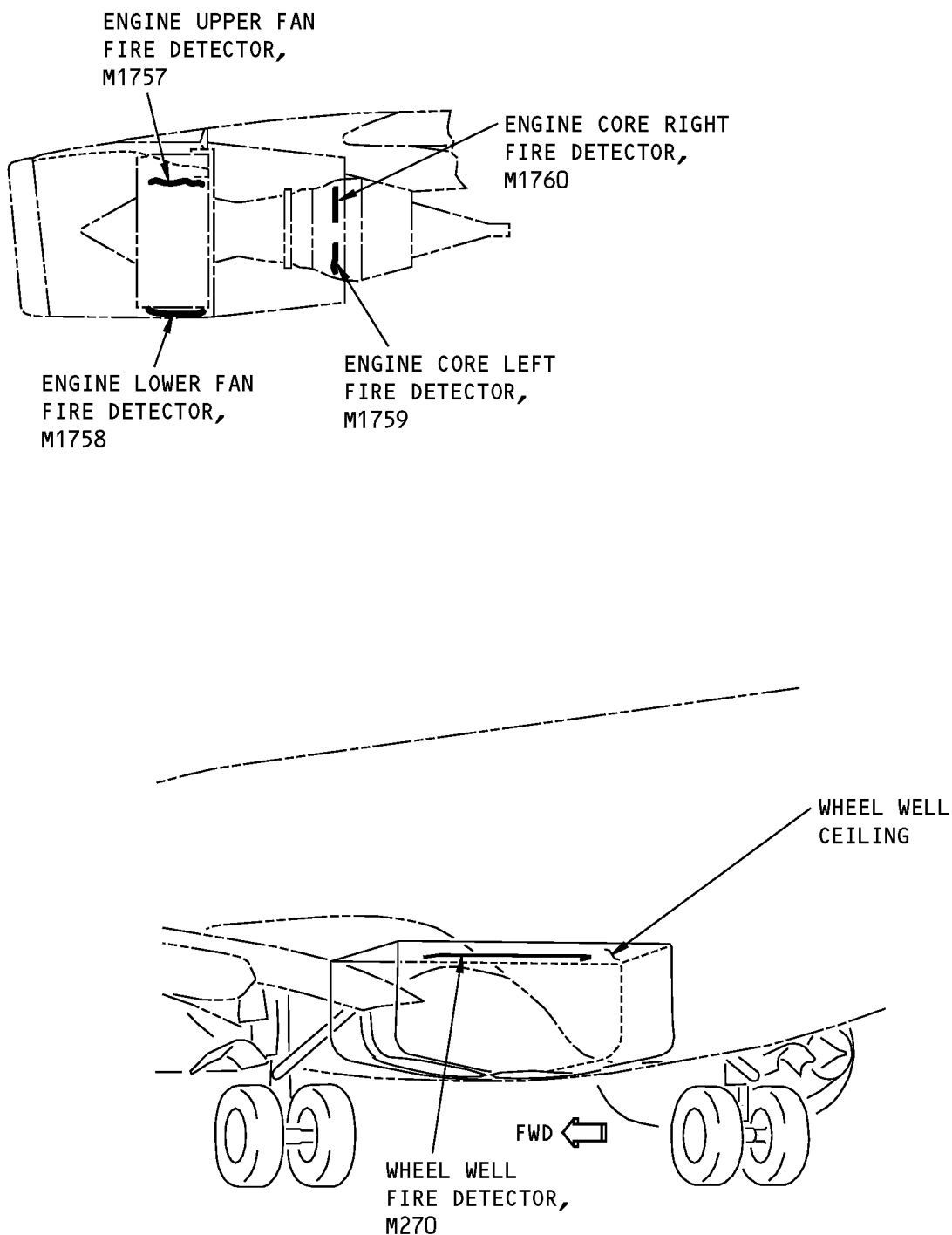
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Fire/Overheat Detector Component Location  
 Figure 301 (Sheet 2 of 2)/ 26-18-00-990-801

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## FAULT ISOLATION MANUAL

### 801. Squib Test Light - Fault Isolation

#### A. Description

- (1) This task is for the EXT TEST lights on the fire control panel, P8-1.
- (2) The EXT TEST lights come on when the EXT TEST switch is moved to the 1 or 2 position to show there is continuity through the squibs.
  - (a) If the L or R light does not come on when the EXT TEST switch is moved to 1, squib 1 on the L or R bottle does not have continuity.
  - (b) Likewise, if the L or R light does not come on when the EXT TEST switch is moved to 2, squib 2 on the L or R bottle does not have continuity.
  - (c) The APU light should come on with the EXT TEST switch in either position.

#### B. Possible Causes

- (1) Squib
- (2) Fire control panel, P8-1
- (3) Wiring

#### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                              |
|------------|------------|---------------|------------------------------------------|
| B          | 20         | C00297        | FIRE PROTECTION EXTINGUISHERS RIGHT      |
| B          | 21         | C00452        | FIRE PROTECTION EXTINGUISHERS APU        |
| B          | 22         | C00296        | FIRE PROTECTION EXTINGUISHERS LEFT       |
| B          | 23         | C01022        | FIRE PROTECTION EXTINGUISHERS ALTN RIGHT |
| B          | 24         | C01021        | FIRE PROTECTION EXTINGUISHERS ALTN LEFT  |

#### D. Related Data

- (1) (SSM 26-21-11)
- (2) (WDM 26-21-11)

#### E. Initial Evaluation

- (1) On the fire control panel, do this check of the squibs:
  - (a) Move the EXT TEST switch to 1.
    - 1) Make sure the L, R and APU lights come on.
  - (b) Move the EXT TEST switch to 2.
    - 1) Make sure the L, R and APU lights come on.
- (2) If the L or R light comes on with the EXT TEST switch in one position but not the other, do the Fault Isolation Procedure - L or R Light Does Not Come On below.
- (3) If the APU light comes on with the EXT TEST switch in one position but not the other, do the Fault Isolation Procedure - APU Light Does Not Come On below.
- (4) If one or more of the lights does not come on with the EXT TEST switch in either position, do the Fire Control Panel procedure, below.
- (5) If the steps above passed, then the fault was intermittent.

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## FAULT ISOLATION MANUAL

### F. Fault Isolation Procedure - L or R Light Does Not Come On

**NOTE:** You must do the steps in the Initial Evaluation before you do these steps.

- (1) Replace the squib indicated by the light that did not come on.

These are the tasks:

Engine Fire Extinguisher Bottle Squib Removal, AMM TASK 26-21-02-000-801,

Engine Fire Extinguisher Bottle Squib Installation, AMM TASK 26-21-02-400-801.

- (a) If the replacement test passed, then you corrected the fault.

- (b) If the replacement test failed, then continue.

- (2) Do this check of the wiring.

- (a) Remove the squib connector from the applicable squib.

- (b) Remove the applicable P8-1 connector from the fire control panel.

- (c) Do a check for continuity between the squib connector and the P8-1 connector.

- (d) Make sure pins 3 and 7 on the applicable squib connector go to ground.

#### Engine Fire Bottle Squib Wiring

| BOTTLE L,<br>SQUIB 1 | SQUIB<br>CONNECTOR<br>D582 | P8-1<br>CONNECTOR<br>D1078 |
|----------------------|----------------------------|----------------------------|
|                      | D1322                      | D1078                      |
|                      | pin 6 -----                | pin 22                     |
|                      | pin 4 -----                | pin 4                      |
|                      | D1322                      | D1078                      |
|                      | pin 6 -----                | pin 23                     |
|                      | pin 4 -----                | pin 30                     |
|                      | D584                       | D1080                      |
|                      | pin 6 -----                | pin 27                     |
|                      | pin 4 -----                | pin 11                     |
|                      | D1324                      | D1078                      |
|                      | pin 6 -----                | pin 26                     |
|                      | D1324                      | D1080                      |
|                      | pin 4 -----                | pin 30                     |

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

- 1) Repair the wiring.
- 2) Re-connect the squib connector to the squib.
- 3) Re-connect the P8-1 connector to the fire control panel.
- 4) Do the Repair Confirmation at the end of this task.

- (f) If there is no problem with the wiring, then continue.

- 1) Re-connect the squib connector to the squib.
- 2) Re-connect the P8-1 connector to the fire control panel.

- (3) Replace the fire control panel, P8-1

These are the tasks:

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Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801,  
Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.

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

### G. Fault Isolation Procedure - APU Light Does Not Come On.

**NOTE:** Do the steps in the Initial Evaluation before you do these steps.

(1) Replace the squib indicated by the light that did not come on.

These are the tasks:

APU Fire Extinguishing Bottle Squib Removal, AMM TASK 26-22-02-000-801,

APU Fire Extinguishing Bottle Squib Installation, AMM TASK 26-22-02-400-801.

(a) If the replacement test passed, then you corrected the fault.

(b) If the replacement test failed, then continue.

(2) Do this check of the wiring.

(a) Disconnect the squib connector, D594 from the squib.

(b) Disconnect the P8-1 connector, D1080 from the fire control panel.

(c) Do a check for continuity between the squib connector, D594 and the P8-1 connector, D1080.

(d) Make sure pin 3 squib connector D594 goes to ground.

(e) If there is a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-connect the squib connector, D594 to the squib.

3) Re-connect the P8-1 connector, D1080 to the fire control panel.

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

(f) If there is no problem with the wiring, then continue.

1) Re-connect the squib connector to the squib.

2) Re-connect the P8-1 connector to the fire control panel.

(3) Replace the fire control panel, P8-1

These are the tasks:

Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801,

Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.

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

### H. Fault Isolation Procedure - Fire Control Panel Problem.

**NOTE:** Do the steps in the Initial Evaluation before you do these steps.

(1) Replace the fire control panel, P8-1.

These are the tasks:

Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801,

Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.

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

### I. Repair Confirmation

(1) On the fire control panel, do this check of the squibs:

(a) Move the EXT TEST switch to 1.

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- 1) Make sure the L, R and APU lights come on.
- (b) Move the EXT TEST switch to 2.
  - 1) Make sure the L, R and APU lights come on.
- (2) If all of the lights come on at both switch positions, then you corrected the fault.

### END OF TASK

#### 802. Engine/APU Bottle Discharged Light - Fault Isolation

##### A. Description

- (1) This task is for the BOTTLE DISCHARGED lights on the fire control panel, P8-1.
- (2) The BOTTLE DISCHARGED lights come on when low pressure is detected in a fire bottle.

##### B. Possible Causes

- (1) Fire bottle
- (2) Fire control panel, P8-1
- (3) Wiring

##### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                              |
|------------|------------|---------------|------------------------------------------|
| B          | 20         | C00297        | FIRE PROTECTION EXTINGUISHERS RIGHT      |
| B          | 21         | C00452        | FIRE PROTECTION EXTINGUISHERS APU        |
| B          | 22         | C00296        | FIRE PROTECTION EXTINGUISHERS LEFT       |
| B          | 23         | C01022        | FIRE PROTECTION EXTINGUISHERS ALTN RIGHT |
| B          | 24         | C01021        | FIRE PROTECTION EXTINGUISHERS ALTN LEFT  |

##### D. Related Data

- (1) (SSM 26-21-11)
- (2) (WDM 26-21-11)

##### E. Initial Evaluation

- (1) On the fire control panel, make sure these lights are off:
  - (a) L BOTTLE DISCHARGED
  - (b) R BOTTLE DISCHARGED
  - (c) APU BOTTLE DISCHARGED
- (2) If one of the lights is on, then do the Fault Isolation Procedure below.
- (3) If none of the lights are not on, then there was an intermittent fault.

##### F. Fault Isolation Procedure

- (1) Remove the connector from the applicable pressure switch.
  - (a) If the light goes off, replace the fire bottle indicated by the light.
    - 1) For the L or R engine bottle light, these are the tasks:  
Engine Fire Extinguishing Bottle Removal, AMM TASK 26-21-01-000-801,

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## 26-20 TASKS 801-802

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Engine Fire Extinguishing Bottle Installation, AMM TASK 26-21-01-400-801.

- 2) For the APU bottle light, these are the tasks:

APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,

APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.

a) If the BOTTLE DISCHARGED light goes off, then you corrected the fault.

b) If the BOTTLE DISCHARGED light did not go off, then continue.

(b) If the light stays on, then continue.

- (2) Remove the applicable P8-1 connector from the fire control panel.

(a) If the light goes off, then do these steps:

1) Repair the wiring.

2) Re-connect the connector to the pressure switch.

3) Re-connect the P8-1 connector to the fire control panel.

4) If the BOTTLE DISCHARGED light goes out, then you corrected the fault.

(b) If the light stays on, then continue.

- (3) Replace the fire control panel, P8-1.

These are the tasks:

Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801,

Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.

(a) If the BOTTLE DISCHARGED light goes off, then you corrected the fault.

————— END OF TASK —————

### 803. Engine/APU Bottle Did Not Discharge When The Handle Was Turned - Fault Isolation

#### A. Description

(1) This task is for the fire extinguishing system when the fire handle is turned, but there is no indication that the fire bottle discharged.

(2) These are the situations that could cause this indication:

(a) The squib did not fire.

(b) The squib did fire but the bottle did not discharge.

(c) The bottle did discharge but there is no indication on the flight deck.

#### B. Possible Causes

(1) Wiring

(2) Squib

(3) Fire bottle

(4) Fire Control Panel, P8-1

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## 26-20 TASKS 802-803

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### C. Circuit Breakers

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

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                              |
|------------|------------|---------------|------------------------------------------|
| B          | 20         | C00297        | FIRE PROTECTION EXTINGUISHERS RIGHT      |
| B          | 21         | C00452        | FIRE PROTECTION EXTINGUISHERS APU        |
| B          | 22         | C00296        | FIRE PROTECTION EXTINGUISHERS LEFT       |
| B          | 23         | C01022        | FIRE PROTECTION EXTINGUISHERS ALTN RIGHT |
| B          | 24         | C01021        | FIRE PROTECTION EXTINGUISHERS ALTN LEFT  |

### D. Related Data

- (1) (SSM 26-21-11)  
(2) (WDM 26-21-11)

### E. Initial Evaluation

- (1) Examine the fire bottle.

#### **HAP ALL; AIRPLANES WITH ENGINE AND APU FIRE BOTTLES WITH GAUGE**

- (a) Make sure the pressure gauge shows approximately 800 psi.

#### **HAP ALL; AIRPLANES WITH ENGINE AND APU FIRE BOTTLES WITHOUT GAUGE**

- (b) Weigh the bottle.

**NOTE:** The purpose of weighing the bottle is to determine if the bottle is empty, or not. Therefore, the weight of the bottle can not vary more than 10% of the weight stamped on the bottle.

- 1) For engine bottles, these are the tasks:

Engine Fire Extinguishing Bottle Removal, AMM TASK 26-21-01-000-801,  
Engine Fire Extinguishing Bottle Installation, AMM TASK 26-21-01-400-801.

- 2) For APU bottles, these are the tasks:

APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,  
APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.

#### **HAP ALL**

- (c) If the bottle is full, then do the Fault Isolation Procedure - Bottle Did Not Discharge, below.  
(d) If the bottle is empty, then do the Fault Isolation Procedure - Bottle Discharged, below.

### F. Fault Isolation Procedure - Bottle Did Not Discharge

- (1) On the fire control panel, do this check of the squibs:
- (a) Move the EXT TEST switch to 1.
  - (b) Make sure the L, R and APU lights come on.
  - (c) Move the EXT TEST switch to 2.
  - (d) Make sure the L, R and APU lights come on.
  - (e) If the L, R and APU lights do not come on for both EXT TEST switch positions, then do the squib test light Fault Isolation Procedure, do this task: Squib Test Light - Fault Isolation, 26-20 TASK 801.
  - (f) If all the lights come on for both EXT TEST switch positions, then continue.

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- (2) Do these checks for 28 VDC at the engine and APU fire control panel:
- (a) Remove the engine and APU fire control panel, P8-1. To remove it, do this task: Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801.
  - (b) Close these circuit breakers:

F/O Electrical System Panel, P6-2

| Row | Col | Number | Name                                     |
|-----|-----|--------|------------------------------------------|
| B   | 20  | C00297 | FIRE PROTECTION EXTINGUISHERS RIGHT      |
| B   | 21  | C00452 | FIRE PROTECTION EXTINGUISHERS APU        |
| B   | 22  | C00296 | FIRE PROTECTION EXTINGUISHERS LEFT       |
| B   | 23  | C01022 | FIRE PROTECTION EXTINGUISHERS ALTN RIGHT |
| B   | 24  | C01021 | FIRE PROTECTION EXTINGUISHERS ALTN LEFT  |

- (c) Using multimeter, STD-1231, do a check for 28 VDC between pins 4, 8, 12, and 14 of connector D576 and structure ground.
- (d) Using multimeter, STD-1231, do a check for 28 VDC between pins 4, 8, 12 and 14 of connector D578 and structure ground.
- (e) Using multimeter, STD-1231, do a check for 28 VDC between pins 8 and 14 of connector D580 and structure ground.
  - 1) If there is not 28 VDC at all the pins above, then do these steps:
    - a) Repair the wiring between the applicable pin and circuit breaker.
    - b) Re-install the engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
    - c) If the installation test for the engine and APU fire control panel are satisfactory, then you corrected the fault.
  - 2) If there was 28 VDC at all of the pins above, then continue.
- (3) Install a new engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
  - (a) If the installation test for the engine and APU fire control panel is satisfactory, then you corrected the fault.

### G. Fault Isolation Procedure - Bottle Did Discharge

- (1) Do this check of the pressure switch wiring.
- (a) Remove the connector D586 (L bottle), D588 (R bottle), or D1176 (APU bottles) from the applicable pressure switch.
  - (b) Install a jumper between pins 1 and 2 on the pressure switch connector.
    - 1) If the corresponding BOTTLE DISCHARGE light on the fire control panel comes on, then remove the jumper and replace the fire bottle.
      - a) For engine bottles, these are the tasks:  
Engine Fire Extinguishing Bottle Removal, AMM TASK 26-21-01-000-801,  
Engine Fire Extinguishing Bottle Installation, AMM TASK 26-21-01-400-801.
      - b) For APU bottles, these are the tasks:  
APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,  
APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.
    - 2) If the corresponding BOTTLE DISCHARGE light on the fire control panel does not come on, then remove the jumper and continue.

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- (2) Do this check of the wiring:
- Remove the engine and APU fire control panel, P8-1. To remove it, do this task: Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801.
  - Do a check for an open circuit between these pins the applicable pressure switch connector and the connector at the P8-1 panel:

### BOTTLE

|     | PRESSURE<br>SWITCH<br>CONNECTOR | P8-1<br>CONNECTOR |
|-----|---------------------------------|-------------------|
| L   | D586<br>pin 2 -----             | D1078<br>pin 9    |
| R   | D588<br>pin 2 -----             | D1080<br>pin 3    |
| APU | D1176<br>pin 2 -----            | D1080<br>pin 15   |

- If there is an open circuit, then do these steps:
  - Repair the wiring.
  - Re-install the engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
  - Install a jumper between pins 1 and 2 of the pressure switch connector.
    - If the BOTTLE DISCHARGED light on the fire control panel, P8-1 comes on, then you fixed the problem. Re-connect the connector to the pressure switch.
  - If there is continuity, then continue.
- Install a new engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
  - If the installation test for the engine and APU fire control panel is satisfactory, then you corrected the fault.

————— END OF TASK —————

### 804. APU Bottle Did Not Discharge When Activated At The Remote APU Fire Control Panel - Fault Isolation

#### A. Description

- This task is for the fire extinguishing system when the fire bottle is activated, but there is no indication that the fire bottle discharged.
- To activate the fire bottle from the remote APU fire control panel, pull down on the handle, then hold the discharge switch in the discharge position.
- These are the conditions that can cause this fault:
  - The squib did not operate.
  - The squib did operate but the bottle did not discharge.
  - The bottle did discharge but there is no indication in the flight compartment.

#### B. Possible Causes

- Wiring

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- (2) Squib, M1146
- (3) Fire bottle
- (4) Remote APU fire control panel, P28

**C. Circuit Breakers**

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-2

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>                       |
|------------|------------|---------------|-----------------------------------|
| B          | 21         | C00452        | FIRE PROTECTION EXTINGUISHERS APU |

**D. Related Data**

- (1) (SSM 26-21-11)
- (2) (WDM 26-21-11)

**E. Initial Evaluation**

- (1) Examine the fire bottle.

**HAP ALL; AIRPLANES WITH ENGINE AND APU FIRE BOTTLES WITH GAUGE**

- (a) Make sure the pressure gauge shows approximately 800 psi.
  - 1) These are the tasks:
    - APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,
    - APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.

**HAP ALL; AIRPLANES WITH ENGINE AND APU FIRE BOTTLES WITHOUT GAUGE**

- (b) Weigh the bottle.

NOTE: The purpose of weighing the bottle is to determine if the bottle is empty, or not. Therefore, the weight of the bottle can not vary more than 10% of the weight stamped on the bottle.

- 1) These are the tasks:
  - APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,
  - APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.

**HAP ALL**

- (c) If the bottle is full, then do the Fault Isolation Procedure - Bottle Did Not Discharge, below.
- (d) If the bottle is empty, then do the Fault Isolation Procedure - Bottle Discharged, below.

**F. Fault Isolation Procedure - Bottle Did Not Discharge**

- (1) On the fire control panel, do this check of the squib:
  - (a) Move the EXT TEST switch to 1.
  - (b) Make sure the APU light comes on.

NOTE: The L, R lights also come on

- (c) Move the EXT TEST switch to 2.
- (d) Make sure the APU light comes on.

NOTE: The L, R lights also come on

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- (e) If the APU light does not come on for both EXT TEST switch positions, then do the squib test light Fault Isolation Procedure, do this task: Squib Test Light - Fault Isolation, 26-20 TASK 801.
- (f) If all the lights come on for both EXT TEST switch positions, then continue.
- (2) Do this check for 28 VDC at the remote APU fire control panel:
  - (a) Open this circuit breaker:
 

| Row | Col | Number | Name                              |
|-----|-----|--------|-----------------------------------|
| B   | 21  | C00452 | FIRE PROTECTION EXTINGUISHERS APU |
  - (b) Remove connector D48080 from the remote APU fire control panel, P28.
  - (c) Close this circuit breaker:
 

| Row | Col | Number | Name                              |
|-----|-----|--------|-----------------------------------|
| B   | 21  | C00452 | FIRE PROTECTION EXTINGUISHERS APU |
  - (d) Do a check for 28 VDC between pin 7 of connector D48080 and structure ground.
    - 1) If there is not 28 VDC at pin 7 of D48080, then do these steps:
      - a) Repair the wiring between the applicable pin and circuit breaker.
      - b) Re-install connector D48080 on the remote APU fire control panel, P28
      - c) Do this task: APU Fire Switch System Shutdown Test., AMM TASK 26-22-00-720-801.
      - d) Do this task: APU Fire Extinguishing Bottle Squib Circuit Test, AMM TASK 26-22-00-730-801.
      - e) If the tests for the remote APU fire control panel are satisfactory, then you corrected the fault.
    - 2) If there is 28 VDC at pin 7 of D48080, then continue.
- (3) These are the tasks:
  - Remote APU Control Panel Removal, AMM TASK 26-22-03-000-801,
  - Remote APU Control Panel Installation, AMM TASK 26-22-03-400-801.
- (a) If the installation test for the remote APU fire control panel is satisfactory, then you corrected the fault.

### G. Fault Isolation Procedure - Bottle Did Discharge

- (1) Do this check of the pressure switch wiring:
  - (a) Remove connector D1176 from the pressure switch.
  - (b) Install a jumper between pins 1 and 2 on connector D1176.
    - 1) If the corresponding APU BOTTLE DISCHARGE light on the fire control panel comes on, then do these steps:
      - a) Remove the jumper from connector D1176.
      - b) These are the tasks:
        - APU Fire Extinguishing Bottle Removal, AMM TASK 26-22-01-000-801,
        - APU Fire Extinguishing Bottle Installation, AMM TASK 26-22-01-400-801.

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- 2) If the corresponding BOTTLE DISCHARGE light on the fire control panel does not come on, then remove the jumper from connector D1176 and continue.
- (2) Do this check of the wiring:
- (a) Remove the engine and APU fire control panel, P8-1. To remove it, do this task: Engine and APU Fire Control Panel Removal, AMM TASK 26-00-01-000-801.
  - (b) Do a check for an open circuit between these pins of connector D1080, at the engine and APU fire control panel, and D1176 at the APU fire bottle pressure switch:
- | <b>D1080</b> | <b>D1176</b> |
|--------------|--------------|
| pin 15 ----- | pin 2        |
- (c) If there is an open circuit, then do these steps:
    - 1) Repair the wiring.
    - 2) Re-install the engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
    - 3) Install a jumper between pins 1 and 2 of the pressure switch connector, D1176.
    - 4) If the BOTTLE DISCHARGED light on the fire control panel, P8-1 comes on, then you corrected the fault. Do these steps to complete this task:
      - a) Remove the jumper from connector D1176.
      - b) Re-connect connector D1176 to the pressure switch.
  - (d) If there is continuity, then re-connect connector D1176 to the pressure switch and continue.
- (3) Install a new engine and APU fire control panel, P8-1. To install it, do this task: Engine and APU Fire Control Panel Installation, AMM TASK 26-00-01-400-801.
- (a) If the installation test for the engine and APU fire control panel is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

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### 801. Cargo Fire Control Panel BITE Procedure

#### A. General

- (1) There is currently no Cargo Fire Control Panel BITE procedure.

#### B. Procedure

- (1) There is currently no Cargo Fire Control Panel BITE procedure.

————— **END OF TASK** —————

### 802. Discharge Light - Fault Isolation

#### A. Description

- (1) This task is for the DISCH light on the CARGO FIRE panel.  
(2) The DISCH light comes on when low pressure is detected in a fire bottle.

#### B. Possible Causes

- (1) Fire bottle  
(a) Bottle 1 M2248

**HAP 048, 050, 053, 054**

- (b) Bottle 2 M2263

**HAP ALL**

- (2) CARGO FIRE panel P8-75

- (3) Wiring

#### C. Circuit Breakers

**HAP 001-013, 015-026, 028-047, 049, 051, 052, 101-999**

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP 048, 050, 053, 054**

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 16         | C01528        | CARGO FIRE EXT 2 |
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP ALL**

#### D. Related Data

- (1) (SSM 26-23-11)  
(2) (WDM 26-23-11)

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## 26-23 TASKS 801-802

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**E. Initial Evaluation**

- (1) On the CARGO FIRE panel, make sure the DISCH light is off.
- (2) If light is on, then do the Fault Isolation Procedure below.
- (3) If the light is off, then there was an intermittent fault.

**F. Fault Isolation Procedure**

- (1) Do this check of the fire bottle:
  - (a) Remove the connector from the applicable pressure switch on the fire bottle.
  - (b) If the light goes off, then replace the fire bottle.
    - 1) These are the tasks:  
 Cargo Fire Extinguisher Bottle Removal, AMM TASK 26-23-01-000-801-001,  
 Cargo Fire Extinguisher Bottle Installation, AMM TASK 26-23-01-000-802-001.
    - a) If the DISCH light goes off, then you corrected the fault.
  - (c) If the light stays on, then continue.
- (2) Do this check of the wiring:
  - (a) Remove the connector from the CARGO FIRE panel.
  - (b) If the light goes off, then do these steps:
    - 1) Repair the wiring.

| FIRE BOTTLE<br>PRESSURE<br>SWITCH<br>CONNECTOR | CARGO FIRE<br>PANEL<br>CONNECTOR |
|------------------------------------------------|----------------------------------|
| <b>D12792</b><br>pin 3 -----                   | <b>D12760</b><br>pin 28          |
| <b>D12816</b><br>pin 3 -----                   | <b>D12760</b><br>pin 28          |

- 2) Re-connect the connector to the pressure switch.
- 3) Re-connect the connector to the CARGO FIRE panel.
- 4) If the BOTTLE DISCHARGED light goes out, then you corrected the fault.
- (c) If the light stays on, then continue.
- (3) Replace the CARGO FIRE panel.
 

These are the tasks:

Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801,  
 Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.

  - (a) If the DISCH light goes off, then you corrected the fault.

**END OF TASK**

**803. Cargo Fire Bottle Did Not Discharge When The DISCH Switch Was Pushed - Fault Isolation**

**A. Description**

- (1) This task is for the fire extinguishing system when the DISCH switch on the CARGO FIRE panel is pushed, but there is no indication that the fire bottle discharged.

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HAP ALL

## 26-23 TASKS 802-803

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- (2) These are the situations that could cause this indication:
- (a) The squib did not fire.
  - (b) The squib did fire but the bottle did not discharge.
  - (c) The bottle did discharge but there is no indication on the flight deck.

**B. Possible Causes**

- (1) Wiring
- (2) Squib
  - (a) M2249 (bottle 1 forward)
  - (b) M2250 (bottle 1 aft)

**HAP 048, 050, 053, 054**

- (c) M2264 (bottle 2 forward)
- (d) M2265 (bottle 2 aft)

**HAP ALL**

- (3) Fire bottle
  - (a) Bottle 1 M2248

**HAP 048, 050, 053, 054**

- (b) Bottle 2 M2263

**HAP ALL**

- (4) CARGO FIRE panel

**C. Circuit Breakers**

**HAP 001-013, 015-026, 028-047, 049, 051, 052, 101-999**

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP 048, 050, 053, 054**

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 16         | C01528        | CARGO FIRE EXT 2 |
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP ALL**

**D. Related Data**

- (1) (SSM 26-23-11)
- (2) (WDM 26-23-11)

**E. Initial Evaluation**

- (1) Examine the fire bottle.

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- (a) Weigh the bottle.

**NOTE:** The purpose of weighing the bottle is to determine if the bottle is empty, or not. Therefore, the weight of the bottle can not vary more than 10% of the weight stamped on the bottle.

- 1) These are the tasks:

- Cargo Fire Extinguisher Bottle Removal, AMM TASK 26-23-01-000-801-001
- Cargo Fire Extinguisher Bottle Installation, AMM TASK 26-23-01-000-802-001

- (b) If the bottle is full, then do the Fault Isolation Procedure - Bottle Did Not Discharge, below.

- (c) If the bottle is empty, then do the Fault Isolation Procedure - Bottle Discharged, below.

### F. Fault Isolation Procedure - Bottle Did Not Discharge

- (1) Do this check of the squib circuit:

- (a) On the CARGO FIRE panel, push the TEST switch.
- (b) Make sure the EXT FWD and AFT lights come on.
- (c) If the lights do not come on when the TEST switch is pushed, then, do this task: Squib Test Light - Fault Isolation, 26-23 TASK 812.
- (d) If all the lights come on for both EXT TEST switch positions, then continue.

- (2) Replace the CARGO FIRE panel. These are the tasks:

- Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801
- Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801

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

### G. Fault Isolation Procedure - Bottle Did Discharge

#### HAP 001-013, 015-026, 028-047, 049, 051, 052, 101-999

- (1) Do this check of the pressure switch wiring:

- (a) Remove the connector D12792 from the pressure switch.
- (b) Install a jumper between pins 2 and 3 on the pressure switch connector.
- 1) If the DISC light on the CARGO FIRE panel comes on, then do these steps:
- a) Remove the jumper.
- b) Replace the fire bottle. These are the tasks:
- Cargo Fire Extinguisher Bottle Removal, AMM TASK 26-23-01-000-801-001
  - Cargo Fire Extinguisher Bottle Installation, AMM TASK 26-23-01-000-802-001
- c) If the installation test for the fire bottle is satisfactory, then you corrected the fault.
- 2) If the DISC light on the CARGO FIRE panel does not come on, then remove the jumper and continue.

#### HAP 048, 050, 053, 054

- (2) Do this check of the pressure switch wiring:

- (a) Remove connector D12792 from the pressure switch on bottle 1.
- (b) Install a jumper between pins 2 and 3 on the pressure switch connector.
- 1) If the DISC light on the CARGO FIRE panel comes on, then do these steps:
- a) Remove the jumper.
- b) Replace fire bottle 1. These are the tasks:
- Cargo Fire Extinguisher Bottle Removal, AMM TASK 26-23-01-000-801-001

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## 26-23 TASK 803

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## FAULT ISOLATION MANUAL

### HAP 048, 050, 053, 054 (Continued)

- Cargo Fire Extinguisher Bottle Installation, AMM TASK 26-23-01-000-802-001
- c) If the installation test for the fire bottle is satisfactory, then you corrected the fault.
- 2) If the DISC light on the CARGO FIRE panel does not come on, then continue.
- (c) Remove connector D12816 from the pressure switch on bottle 2.
- (d) Install a jumper between pins 2 and 3 on the pressure switch connector.
  - 1) If the DISC light on the CARGO FIRE panel comes on, then do these steps:
    - a) Remove the jumper.
    - b) Replace fire bottle 2. These are the tasks:
      - Cargo Fire Extinguisher Bottle Removal, AMM TASK 26-23-01-000-801-001
      - Cargo Fire Extinguisher Bottle Installation, AMM TASK 26-23-01-000-802-001
    - c) If the installation test for the fire bottle is satisfactory, then you corrected the fault.
  - 2) If the DISC light on the CARGO FIRE panel does not come on, then remove the jumpers and continue.

### HAP ALL

- (3) Do a check of the wiring from the pressure switch to the CARGO FIRE panel.

|               | PRESSURE<br>SWITCH<br>CONNECTOR | CARGO FIRE<br>PANEL<br>CONNECTOR |
|---------------|---------------------------------|----------------------------------|
| FIRE BOTTLE 1 | D12792                          | D12760                           |
|               | pin 3 -----                     | pin 28                           |
| FIRE BOTTLE 2 | D12816                          | D12760                           |
|               | pin 3 -----                     | pin 28                           |

- (a) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
  - 2) Install a jumper between pins 2 and 3 of the pressure switch connectors.

### HAP 001-013, 015-026, 028-047, 049, 051, 052, 101-999

- a) If the DISCH light on the CARGO FIRE panel comes on, then you corrected the fault. Re-connect the connector to the pressure switch.

### HAP 048, 050, 053, 054

- b) If the DISCH light on the CARGO FIRE panel, comes on, then you corrected the fault. Re-connect the connectors to the pressure switches.

### HAP ALL

————— END OF TASK —————

## 812. Squib Test Light - Fault Isolation

### A. Description

- (1) This task is for the EXT FWD and AFT lights on the CARGO FIRE panel.
- (2) The EXT FWD and AFT lights come on when the TEST switch pushed, to show there is continuity through the squibs. If the lights do not come on, then there is a problem with the discharge system.

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## 26-23 TASKS 803-812

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**B. Possible Causes**

(1) Squib

- (a) M2249 (bottle 1 forward)
- (b) M2250 (bottle 1 aft)

**HAP 048, 050, 053, 054**

- (c) M2264 (bottle 2 forward)
- (d) M2265 (bottle 2 aft)

**HAP ALL**

(2) CARGO FIRE panel P8-75

(3) Wiring

**C. Circuit Breakers**

**HAP 001-013, 015-026, 028-047, 049, 051, 052, 101-999**

(1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP 048, 050, 053, 054**

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

CAPT Electrical System Panel, P18-3

| <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u>      |
|------------|------------|---------------|------------------|
| B          | 16         | C01528        | CARGO FIRE EXT 2 |
| B          | 17         | C01526        | CARGO FIRE EXT 1 |

**HAP ALL**

**D. Related Data**

(1) (SSM 26-23-11)

(2) (WDM 26-23-11)

**E. Initial Evaluation**

(1) Set the DIM/BRT/TEST switch on the captain's instrument panel, P1 to TEST.

- (a) Make sure the FWD and AFT EXT, the ARM FWD and AFT, The DETECTOR FAULT and the DISCH lights on the CARGO FIRE panel come on.
- (b) If any lights do not come on, then replace the faulty light. To replace it, do this task: Lighted Pushbutton Switch - Lamp Replacement, AMM TASK 33-18-00-960-803

(2) Push the TEST switch on the CARGO FIRE panel.

- (a) If the EXT FWD and AFT lights come on, then the problem is intermittent.
- (b) If the EXT FWD and AFT lights both stay off, then do the Fault Isolation Procedure - EXT FWD and AFT Lights Both Off.
- (c) If one of the EXT FWD and AFT lights come on, then do the Fault Isolation Procedure - One EXT FWD or AFT light Does Not Come On.

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### F. Fault Isolation Procedure - EXT FWD or AFT Lights Both Off

- (1) Replace the CARGO FIRE panel.
  - (a) If the replacement test passed, then you corrected the fault.

### G. Fault Isolation Procedure - One EXT FWD or AFT light Does Not Come On

- (1) Replace the squib indicated by the light that did not come on.

These are the tasks:

Engine Fire Extinguisher Bottle Squib Removal, AMM TASK 26-21-02-000-801,

Engine Fire Extinguisher Bottle Squib Installation, AMM TASK 26-21-02-400-801.

- (a) If the replacement test passed, then you corrected the fault.
  - (b) If the replacement test failed, then continue.
- (2) Do a check of the wiring from the applicable squib to the CARGO FIRE panel.

|               | SQUIB<br>CONNECTOR    | CARGO FIRE<br>PANEL<br>CONNECTOR |
|---------------|-----------------------|----------------------------------|
| FIRE BOTTLE 1 | D12794<br>pin 1 ----- | D12760<br>pin 26                 |
| FIRE BOTTLE 1 | D12796<br>pin 1 ----- | D12760<br>pin 24                 |
| FIRE BOTTLE 2 | D12818<br>pin 1 ----- | D12760<br>pin 12                 |
| FIRE BOTTLE 2 | D12820<br>pin 1 ----- | D12760<br>pin 23                 |
|               | SQUIB<br>CONNECTOR    | CARGO FIRE<br>PANEL<br>CONNECTOR |
| FIRE BOTTLE 1 | D12794<br>pin 1 ----- | D13188<br>pin 26                 |
| FIRE BOTTLE 1 | D12796<br>pin 1 ----- | D13188<br>pin 24                 |
| FIRE BOTTLE 2 | D12818<br>pin 1 ----- | D13188<br>pin 12                 |
| FIRE BOTTLE 2 | D12820<br>pin 1 ----- | D13188<br>pin 23                 |

- (a) If you find a problem with the wiring, then do these steps:
  - 1) Repair the wiring.
  - 2) Push the TEST switch on the CARGO FIRE panel.
  - 3) Make sure the EXT FWD and AFT lights on the CARGO FIRE panel come on.
    - a) If the lights come on, then you corrected the fault.
- (b) If you do not find a problem with the wiring, then continue.

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- (3) Replace the CARGO FIRE panel.

These are the tasks:

Cargo Fire Control Panel Removal, AMM TASK 26-00-02-000-801,

Cargo Fire Control Panel Installation, AMM TASK 26-00-02-400-801.

- (a) Make sure the EXT FWD and AFT lights on the CARGO FIRE panel come on when the TEST switch is pushed.

- 1) If the lights come on, then you corrected the fault.

**END OF TASK**

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## **26-23 TASK 812**

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## FAULT ISOLATION MANUAL

### 801. Procedure by Airline Method - Fault Isolation

#### A. Initial Evaluation

NOTE: Use the standard method of your airline to correct this fault.

\_\_\_\_\_ **END OF TASK** \_\_\_\_\_

| EFFECTIVITY |
|-------------|
| HAP ALL     |

## 26-99 TASK 801

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