

CHAPTER

26

FIRE PROTECTION

MD-80 AIRCRAFT MAINTENANCE MANUAL

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GENERAL - DESCRIPTION AND OPERATION

1. Description

- A. The airplane fire protection system consists of a detection system and an extinguishing system. The detection system provides the means to detect a fire and alert the crew by aural and visual indications. The extinguishing system provides the means to extinguish a fire. (Figure 1)
- B. Fire detection systems are installed in the left and right engine compartments and the auxiliary power unit (APU) compartment. The detection system is basically a dual loop arrangement using separate fire sensing element loops and a fire detector control unit for each designated fire area. The detection system in each fire area is capable of detecting a fire with one sensing element loop ground faulted or open. Fire warning for the engine areas is indicated by lights located in the left and right engine fire control handles in the flight compartment, and an aural fire warning. Fire warning for the APU compartment is indicated by an APU fire light in the annunciator panel, master warning and master caution lights on the glareshield in the flight compartment, an aural fire warning, an external fire warning horn, and a fire light on the APU ground fire control panel. Capability for monitoring and checking integrity of the detection system is provided by a fire detector system panel, a fire detector loop light, and loop test switches located in the flight compartment.

WJE 406-408, 411

- C. Fire detection systems are installed in the left and right engine compartments and the auxiliary power unit (APU) compartment. The detection system is basically a dual loop arrangement using separate fire sensing element loops and a fire detector control unit for each designated fire area. The detection system in each fire area is capable of detecting a fire with one sensing element loop ground faulted or open. Fire warning for the engine areas is indicated by lights located in the left and right engine fire control handles in the flight compartment, and an aural fire warning. Fire warning for the APU compartment is indicated by an APU fire light in the annunciator panel, master warning lights on the glareshield in the flight compartment, an aural fire warning, an external fire warning horn, and a fire light on the APU ground fire control panel. Capability for monitoring and checking integrity of the detection system are provided by a fire detector system panel, a fire detector loop light, and loop test switches located in the flight compartment.

WJE 416, 420, 422, 424-427, 429, 868, 873, 874, 891-893

- D. Fire detection systems are installed in the left and right engine compartments and the auxiliary power unit (APU) compartment. The detection system is basically a dual loop arrangement using separate fire sensing element loops and a fire detector control unit for each designated fire area. The detection system in each fire area is capable of detecting a fire with one sensing element loop ground faulted or open. Fire warning for the engine areas is indicated by lights located in the left and right engine fire control handles in the flight compartment and a fire warning bell. Fire warning for the APU compartment is indicated by an APU fire light in the annunciator panel, master warning and master caution lights on the glareshield in the flight compartment, an external fire warning horn, and a fire light on the APU ground fire control panel. Capability for monitoring and checking integrity of the detection system is provided by a fire detector system panel, a fire detector loop light, and loop test switches located in the flight compartment.

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WJE ALL

- E. A fixed fire extinguishing system is provided for the engine and APU compartments. The system consists of two fire extinguishing agent containers, providing two-shot extinguishing capability, deployment lines, and fire extinguishing discharge controls for each area. The discharge controls provide a means of selecting either fire extinguishing agent container for discharge. Discharge controls for the engines are a left and right engine fire control handle located on the upper instrument panel. Discharge controls for the APU compartment are two switches located on the APU control panel in the flight compartment, and two switches located on the APU ground fire control panel.
- F. Low agent indicating lights, one for each of the fixed system fire extinguisher containers, are located on the upper instrument panel, and on the APU ground fire control panel. When a container is discharged, the corresponding lights come on.
- G. Portable fire extinguishers, located in the flight and passenger compartments, provide fire extinguishing capability in these compartments or areas accessible from them.

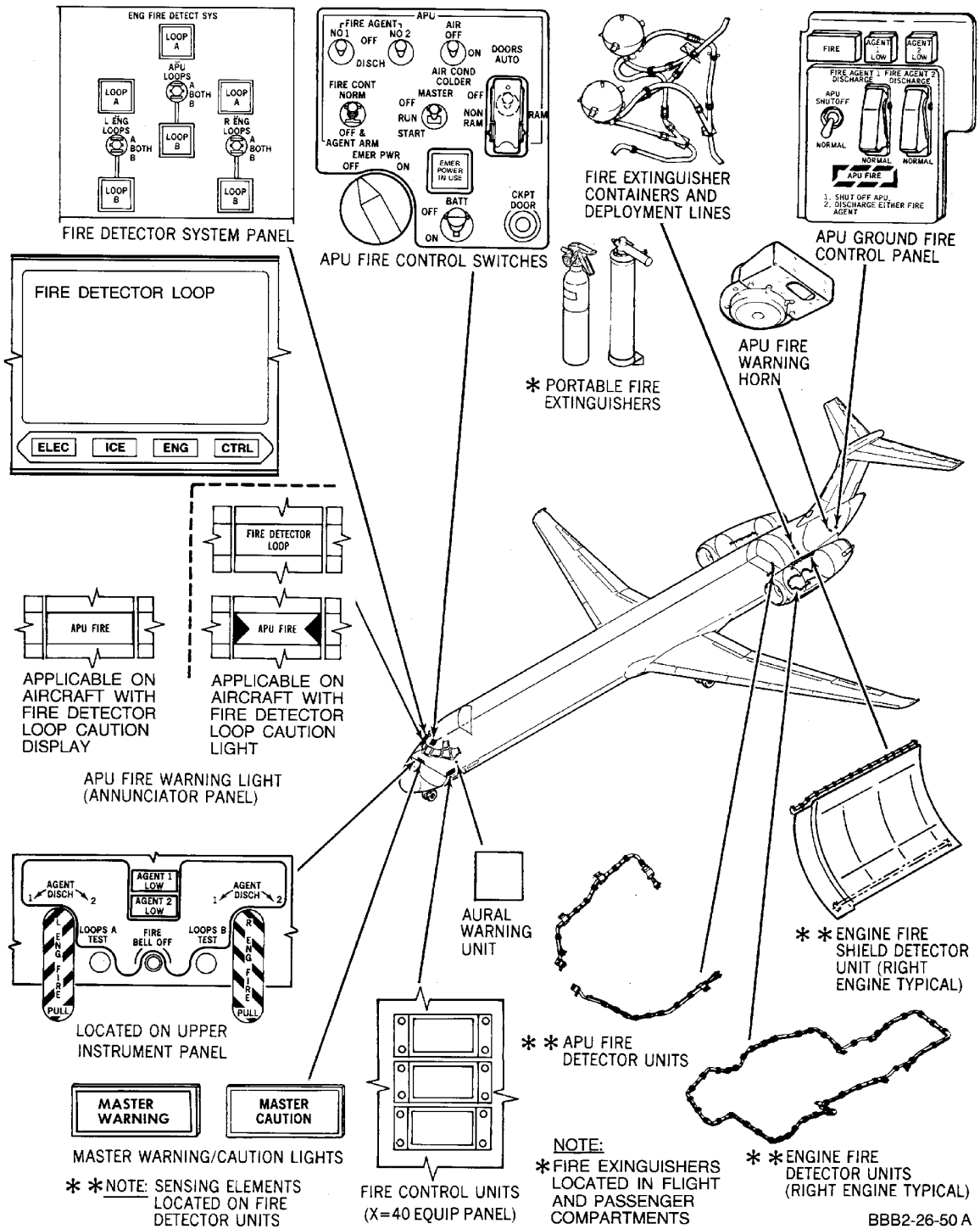
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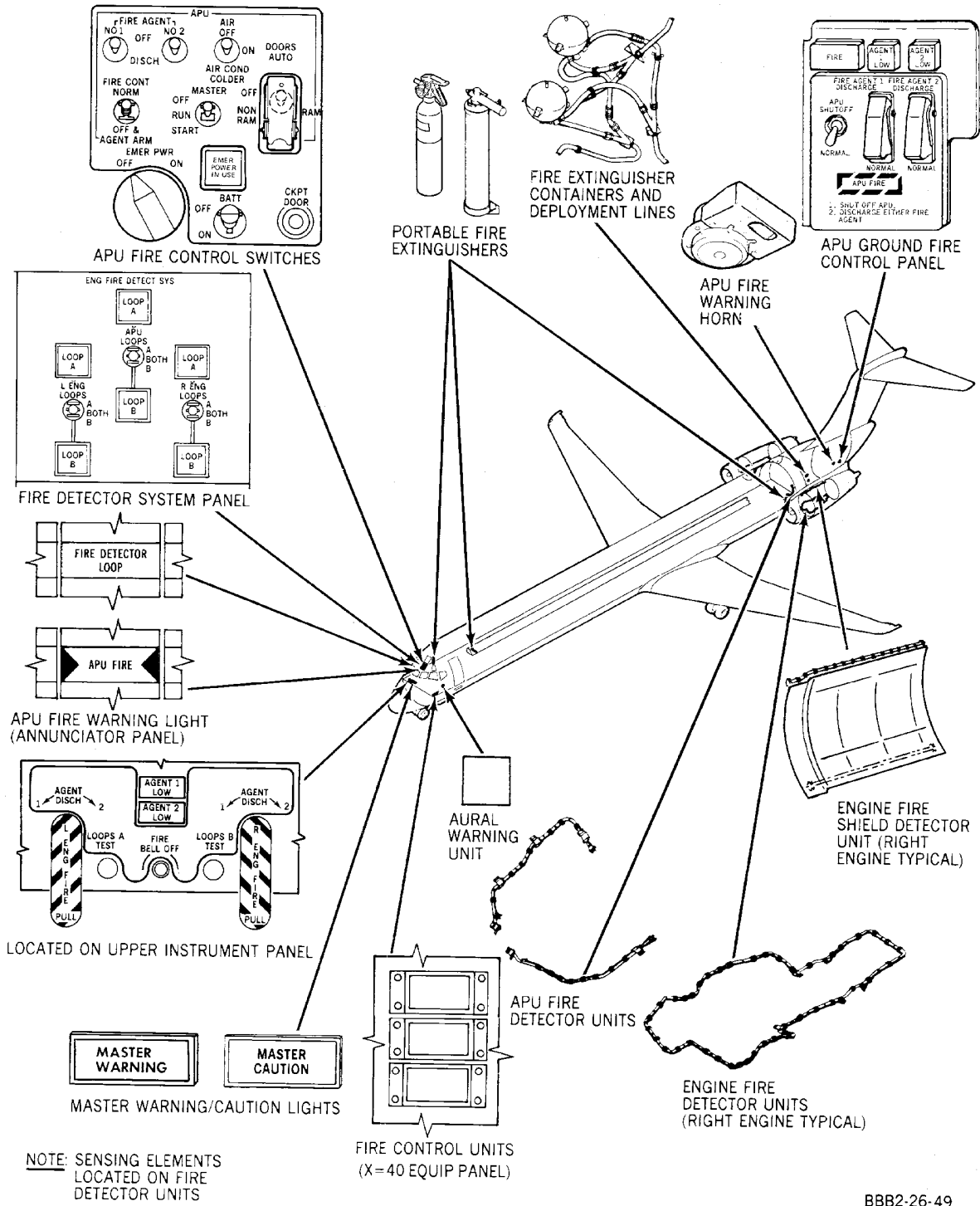


Fire Protection System
Figure 1/26-00-00-990-801 (Sheet 1 of 4)

EFFECTIVITY
WJE 401-405, 409, 410, 412, 414, 415, 417-419, 421, 423, 863-866, 869, 871, 872, 875-881, 883, 884, 886, 887

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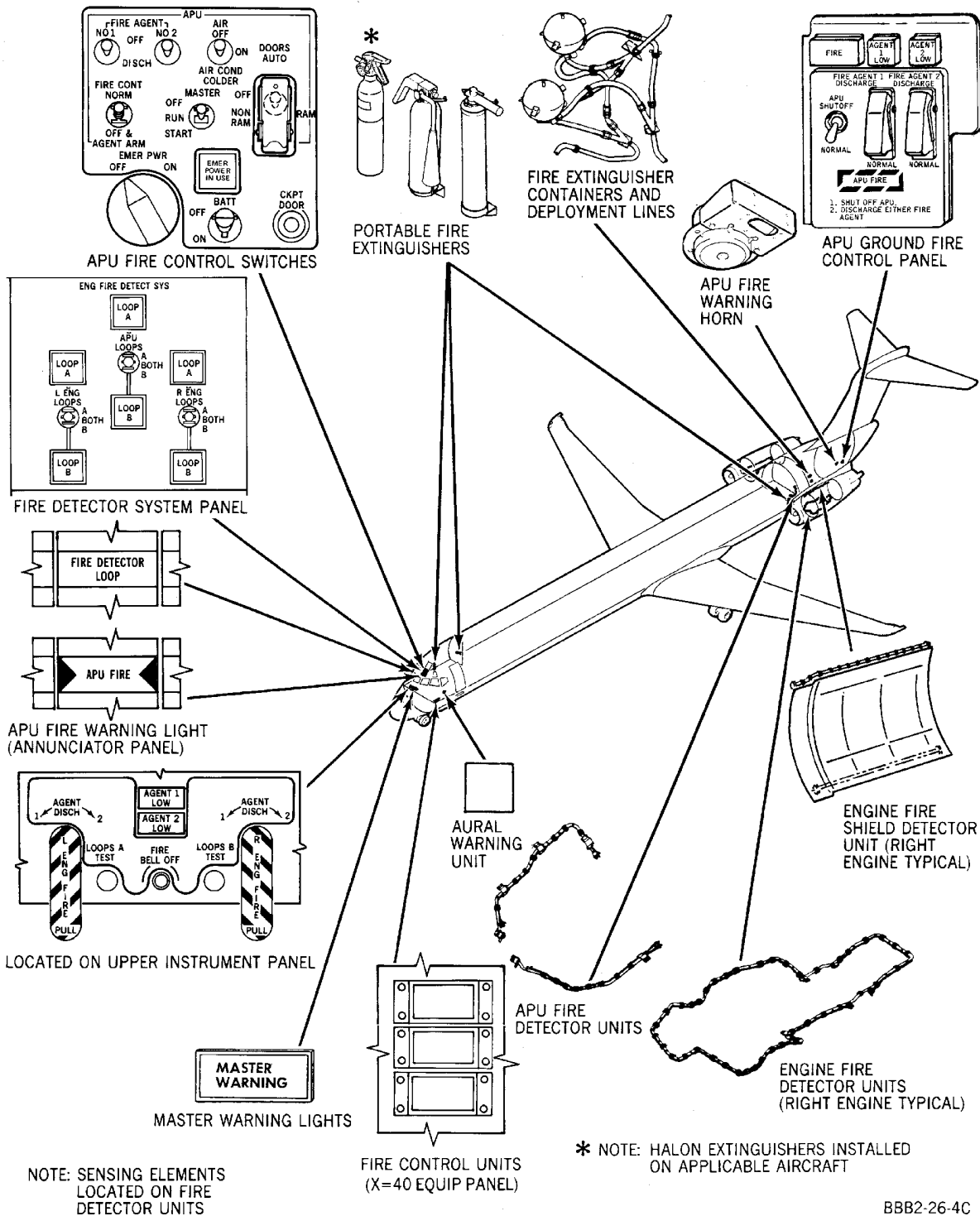


Fire Protection System
Figure 1/26-00-00-990-801 (Sheet 2 of 4)

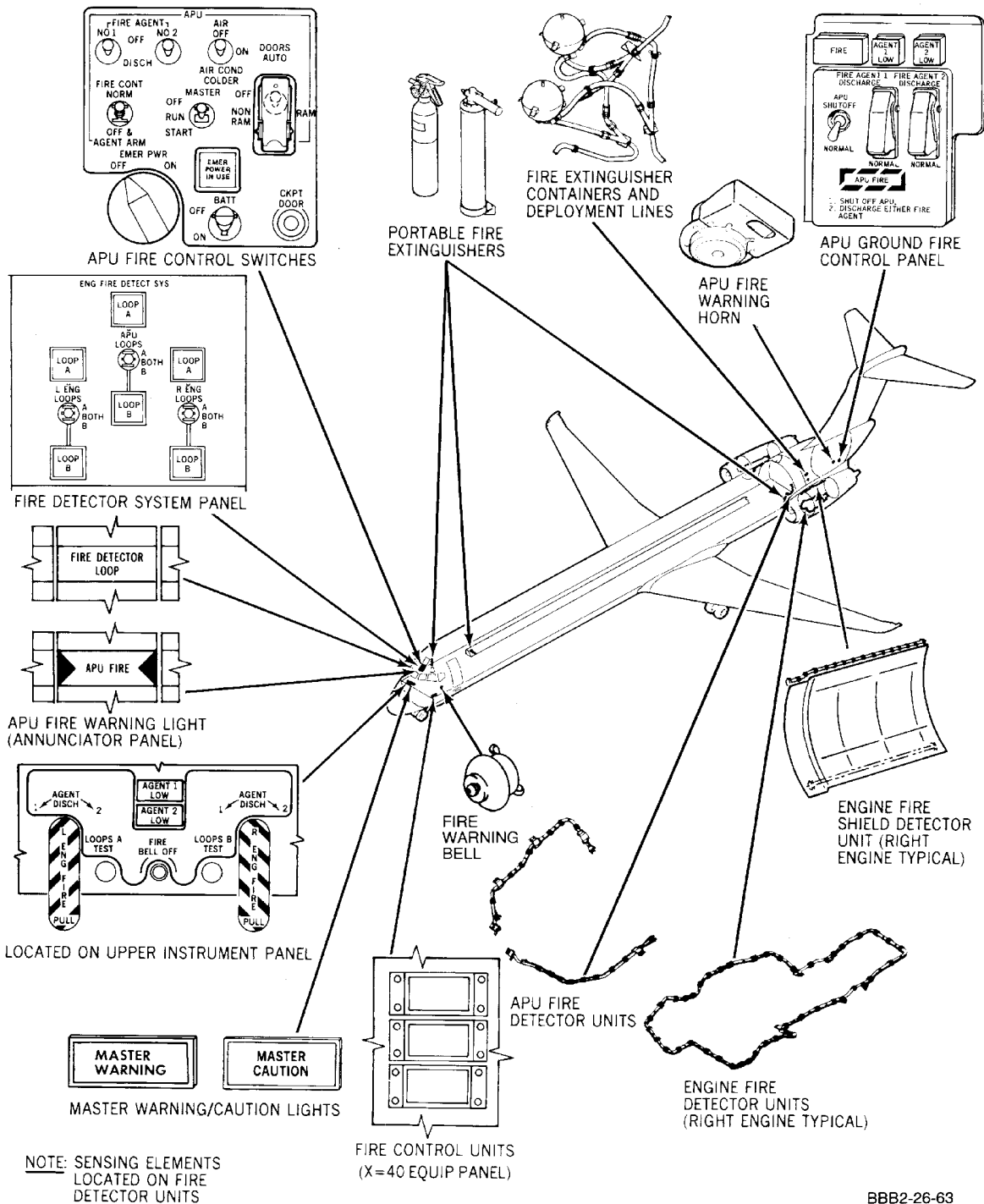
EFFECTIVITY
WJE 416, 420, 422, 424-427, 429, 868, 873, 874,
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Fire Protection System
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EFFECTIVITY
WJE 861, 862

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GENERAL - MAINTENANCE PRACTICES

1. General

- A. The following test determines the acceptable operating condition of the fire protection system. For detail system testing, see sections on detection and extinguishing (PAGEBLOCK 26-10-00/201 and PAGEBLOCK 26-20-00/201).
- B. The fire detector system panel is located on the overhead switch panel in the flight compartment.
- C. The loop test switches, fire bell off switch, and low agent indicating lights are located on the upper instrument panel.

2. Adjustment/Test Fire Protection System

WJE 405, 406, 410, 415, 417-419, 421, 423, 863-866, 869, 871, 872, 875-879

A. Test System

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

- (2) Test the left engine, right engine, and Auxiliary Power Unit (APU) systems as follows:
 - (a) Put the L ENG LOOPS, R ENG LOOPS and APU LOOPS switches to BOTH.
 - (b) Push and hold the LOOP A test button.
 - 1) Verify the items that follow:
 - Left engine, right engine, and APU LOOP A lights illuminate
 - MASTER CAUTION lights illuminate
 - MASTER WARNING lights illuminate
 - FIRE DETECTOR LOOP is shown on the Electronic Overhead Annunciator Panel (EOAP)
 - No fire aural warning sounds.
 - 2) Release the LOOP A test button. All lights must go out.
 - (c) Push and hold the LOOPS B test button
 - 1) Verify the items that follow:
 - Left engine, right engine, and APU LOOP B lights illuminate
 - MASTER CAUTION lights illuminate
 - MASTER WARNING lights illuminate
 - FIRE DETECTOR LOOP is shown on the EOAP
 - No fire aural warning is heard.
 - 2) Release the LOOP B test button. All lights must go out.

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WJE 405, 406, 410, 415, 417-419, 421, 423, 863-866, 869, 871, 872, 875-879 (Continued)

- (d) Push and hold the LOOP A and LOOP B test buttons simultaneously.
 - 1) Verify the fire aural warning is heard and the following items illuminate:
 - Left engine, right engine, and APU LOOP A and LOOP B lights
 - FIRE DETECTOR LOOP is shown on the EOAP
 - APU FIRE is shown on the EOAP
 - MASTER CAUTION lights
 - MASTER WARNING lights
 - L ENG FIRE and R ENG FIRE handles.
 - (e) Push the the FIRE BELL OFF button.
 - 1) Verify the fire aural warning silences and the lights remain illuminated.
 - (f) Release the LOOP A and LOOP B test buttons.
 - 1) Verify all lights extinguish.
- (3) Test the left engine system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (b) Push and hold the LOOP A and LOOP B test buttons.
 - 1) Verify the fire aural warning is heard and the following items illuminate:
 - Left engine LOOP A and LOOP B lights
 - MASTER CAUTION lights
 - L ENG FIRE handle
 - FIRE DETECTOR LOOP is shown on the EOAP.
 - (c) Release the LOOP A and LOOP B test buttons.
 - 1) Verify the fire aural warning silences and all lights extinguish.
- (4) Test the right engine system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A

EFFECTIVITY WJE ALL	
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WJE 405, 406, 410, 415, 417-419, 421, 423, 863-866, 869, 871, 872, 875-879 (Continued)

(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (c) Push and hold the LOOP A and LOOP B test buttons.
- 1) Verify the fire aural warning is heard and the following items illuminate:
 - MASTER CAUTION lights
 - Right engine LOOP A and LOOP B lights
 - R ENG FIRE handle
 - FIRE DETECTOR LOOP is shown on the EOAP.
- (d) Release the LOOP A and LOOP B test buttons.
- 1) Verify the fire aural warning silences and all lights extinguish.

- (5) Test the APU system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (c) Push and hold the LOOP A and LOOP B test buttons.
- 1) Verify the following items illuminate:
 - APU LOOP A and LOOP B lights
 - FIRE DETECTOR LOOP is shown on the EOAP
 - APU FIRE is shown on the EOAP.
- (d) Release the LOOP A and LOOP B test buttons.
- 1) Verify all lights extinguish.

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WJE 405, 406, 410, 415, 417-419, 421, 423, 863-866, 869, 871, 872, 875-879 (Continued)

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

B. Test System

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

- (2) Test the left engine, right engine, and APU systems as follows:
- (a) Put the L ENG LOOPS, R ENG LOOPS and APU LOOPS switches to BOTH.
 - (b) Push and hold the LOOP A test button.
 - 1) Verify the items that follow:
 - Left engine, right engine, and APU LOOP A lights illuminate
 - MASTER WARNING lights illuminate

WJE 407, 408, 411

- MASTER CAUTION lights illuminate

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light illuminates on the annunciator panel
- No fire aural warning is heard.

- 2) Release the LOOP A test button. All lights must go out.

- (c) Push and hold the LOOPS B test button.
 - 1) Verify the items that follow:
 - Left engine, right engine, and APU LOOP B lights illuminate
 - MASTER WARNING lights illuminate

WJE 407, 408, 411

- MASTER CAUTION lights illuminate

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WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light illuminates on the annunciator panel
 - No fire aural warning is heard.
- 2) Release the LOOP B test button. All lights must go out.
- (d) Push and hold the LOOP A and LOOP B test buttons simultaneously.
- 1) Verify the fire aural warning is heard and the following items illuminate:
 - Left engine, right engine, and APU LOOP A and LOOP B lights
 - FIRE DETECTOR LOOP light illuminates on the annunciator panel
 - MASTER WARNING lights

WJE 407, 408, 411

- MASTER CAUTION lights

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- APU FIRE light illuminates on the annunciator panel
 - L ENG FIRE and R ENG FIRE handles.
- (e) Push the the FIRE BELL OFF button.
- 1) Verify the fire aural warning silences and the lights remain illuminated.
- (f) Release the LOOP A and LOOP B test buttons.
- 1) Verify all lights extinguish.
- (3) Test the left engine system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (b) Push and hold the LOOP A and LOOP B test buttons.
- 1) Verify the fire aural warning is heard and the following items illuminate:
 - Left engine LOOP A and LOOP B lights

WJE 407, 408, 411

- MASTER CAUTION lights

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- L ENG FIRE handle
 - FIRE DETECTOR LOOP light illuminates on the annunciator panel.
- (c) Release the LOOP A and LOOP B test buttons.

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WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893 (Continued)

- 1) Verify the fire aural warning silences and all lights extinguish.
- (4) Test the right engine system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (c) Push and hold the LOOP A and LOOP B test buttons.
 - 1) Verify the fire aural warning is heard and the following items illuminate:
 - Right engine LOOP A and LOOP B lights

WJE 407, 408, 411

- MASTER CAUTION lights

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- R ENG FIRE handle
- FIRE DETECTOR LOOP light illuminates on the annunciator panel.

- (d) Release the LOOP A and LOOP B test buttons.
 - 1) Verify the fire aural warning silences and all lights extinguish.
- (5) Test the APU system as follows:

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

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WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893 (Continued)

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (c) Push and hold the LOOP A and LOOP B test buttons.

- 1) Verify the following lights illuminate:
- APU LOOP A and LOOP B lights

WJE 407, 408, 411

- MASTER CAUTION lights

WJE 401-404, 407-409, 411, 412, 414, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 886, 887, 891-893

- APU FIRE light illuminates on the annunciator panel
- FIRE DETECTOR LOOP light illuminates on the annunciator panel

- (d) Release the LOOP A and LOOP B test buttons.

- 1) Verify all lights extinguish.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

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GENERAL - ADJUSTMENT/TEST

1. General

- A. This SCI test (SCI-26) is to determine if fire detector wiring were crossed as a result of prior maintenance activities.
- B. Access to the engine fire detector units is through the engine cowl doors and access doors.
- C. Access to the fire detector units and wiring harness is through the APU compartment doors.

2. Equipment and Materials

NOTE: Equivalent substitute may be used instead of the following listed items:

Name and Number	Manufacturer
Inconel Lockwire 0.020 in. (0.508 mm) NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in. (0.508 mm) NASM20995C20, DPM 5865	Not specified
Wrench, Torque 0 - 100 in-lb (11 N·m)	Not specified

3. Fire Detection System Integrity Check (SCI 26-2) - Adjustment/Test

- A. Test the Fire Detection System Wire Routing

NOTE: During this procedure the fire aural warning and engine fire warning lights (in the Fire handle) should not come on and the annunciator fire detector loop light will come on whenever a LOOP light on the overhead panel is on. The light in the fire handle associated with the engine being tested should come on during the individual FIRE TEST. The light in the fire handle associated with the engine being tested should come on during the individual FIRE TEST.

- (1) On the ENG FIRE DETECT SYS panel, located on aft overhead switch panel, put the three LOOPS selector switches in the BOTH position.
- (2)

Make sure that these circuit breakers are closed:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

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- (3) Do a fire detector wire routing test for left engine Loop A as follows:

NOTE: On aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

- (a) Disconnect the connector at either end of Loop A element.

NOTE: The Loop A element is located at the bottom of the engine.

- (b) Place the jumper wire between ground and center conductor of the detector element.

- 1) Make sure that the L ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION (if equipped) lights come on.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (d) Make sure that only the L ENG LOOP A light stays on.

- (e) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (f) Remove the jumper wire.

- 1) Make sure that the L ENG LOOP A light goes off.

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- (g) Place the jumper wire between ground and center conductor of the plug that was on the detector.
 - 1) Make sure that the L ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION (if equipped) lights come on.
- (h) Remove the jumper wire.
 - 1) Make sure that the L ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION (if equipped) lights go off.
- (4) Do the fire detector wire routing test for the left engine Loop B as follows:
 - (a) Disconnect the connector at either end of Loop B element.
NOTE: The Loop B detector element is located at the bottom of the engine.
 - (b) Place the jumper wire between ground and center conductor of the detector element.
 - 1) Make sure that the L ENG LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION (if equipped) lights come on.
 - (c) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- 1) Make sure that only the L ENG LOOP B light stays on.

- (d) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

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OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (e) Remove the jumper wire.
 - 1) Make sure that the L ENG LOOP B light goes off.
- (f) Place the jumper wire between ground and center conductor of the plug that was on the detector.
 - 1) Make sure that the L ENG LOOP B light comes on.
- (g) Remove the jumper wire.
 - 1) Make sure that the L ENG LOOP B light goes off.
- (h) Place the jumper wire between ground and center conductor of the Loop A detector element.
 - 1) With Loop A and B detector elements grounded, verify the following:
 - L ENG LOOP A and LOOP B lights come on
 - FIRE DETECTOR LOOP light on the Annunciator Panel comes on
 - MASTER CAUTION light comes on (if equipped)
 - L ENG FIRE handle lights come on
 - Fire Aural Warning is heard.
- (i) Remove the jumper wires.
 - 1) Make sure that the Warnings stop.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (k) Connect the engine harness electrical connectors to the sensing elements.
 - 1) Tighten electrical connectors to torque of 50 in-lb (5.6 N·m) - 70 in-lb (7.9 N·m).
 - 2) Safety electrical connectors with safety wire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (l) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (5) Do the fire detector wire routing test for right engine Loop A detector element as follows:

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (b) Disconnect the connector at either end of Loop A element.

NOTE: The Loop A element is located at the bottom of the engine.

- (c) Place the jumper wire between ground and center conductor of the detector element.
- 1) Make sure that the R ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- 1) Make sure that only the R ENG LOOP A light stays on.

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- (e) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (f) Remove the jumper wire.
- 1) Make sure that the R ENG LOOP A light goes off.
- (g) Place the jumper wire between ground and the center conductor of plug that was on the detector.
- 1) Make sure that the R ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.
- (h) Remove the jumper wire.
- 1) Make sure that the R ENG LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) go off.
- (6) Do the fire detector wire routing test for right engine Loop B element as follows:
- (a) Disconnect the connector at either end of Loop B element.
NOTE: The Loop B element is located at the bottom of the engine.
 - (b) Place the jumper wire between ground and center conductor of the detector element.
 - 1) Make sure that the R ENG LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.
 - (c) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

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OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

1) Make sure that only the R ENG LOOP B light stays on.

(d) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

(e) Remove the jumper wire.

1) Make sure that the R ENG LOOP B light goes off.

(f) Place the jumper wire between ground and center conductor of plug that was on the detector.

1) Make sure that the R ENG LOOP B, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.

(g) Remove the jumper wire.

1) Make sure that the R ENG LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) go off.

(h) Place the jumper wire between the ground and center conductor of the Loop A detector element.

1) With the Loop A and B elements grounded, verify the following:

- a) R ENG LOOP A and LOOP B lights come on
- b) FIRE DETECTOR LOOP light on the Annunciator Panel comes on
- c) MASTER CAUTION light comes on (if equipped)
- d) R ENG FIRE handle lights come on
- e) Fire Aural Warning is heard.

(i) Remove the jumper wires.

1) Make sure that the warnings stop.

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (k) Connect aircraft harness electrical connectors to the sensing elements.
- 1) Tighten electrical connectors to 50 in-lb (5.6 N·m) - 70 in-lb (7.9 N·m).
 - 2) Safety electrical connectors with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (l) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B

- (7) Do the fire detector wire routing test for APU Loop A as follows:
- (a) On the APU control panel, place the MASTER switch in the RUN position.
 - (b) Make sure that these circuit breakers are closed:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (c) Gain access to the fire detector and wiring harness through the APU compartment doors.
- (d) Disconnect the connector at either end of the APU Loop A element.

NOTE: The Loop A element is located on the fwd side of APU enclosure inside either APU access door.

- (e) Place the jumper wire between the ground and center conductor of the detector element.
 - 1) Make sure the APU LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.

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- (f) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- 1) Make sure that only the APU LOOP A light stays on.

- (g) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (h) Remove jumper wire.

- 1) Make sure that the APU LOOP A light goes off.

- (i) Place jumper wire between ground and center conductor of plug that was on detector.

- 1) Make sure that the APU LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.

- (j) Remove jumper wire.

- 1) Make sure that the APU LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) go off.

- (8) Do the APU fire detector wire routing test for Loop B as follows:

- (a) Disconnect the connector at either end of APU Loop B element.

NOTE: The APU Loop B element located on fwd side of APU enclosure inside either APU access door.

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- (b) Place the jumper wire between ground and center conductor of the detector element.
 - 1) Make sure the APU LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.
- (c) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- 1) Make sure that only the APU LOOP B light stays on.
- (d) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (e) Remove the jumper wire.
 - 1) Make sure that the APU LOOP B light goes off.
- (f) Place the jumper wire between ground and center conductor of plug that was on the detector.
 - 1) Make sure that the APU LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) come on.
- (g) Remove the jumper wire.
 - 1) Make sure that the APU LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (if equipped) go off.

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- (h) Place the jumper wire between ground and center conductor of the Loop A detector element.
- 1) With Loop A and B detector elements grounded, verify the items that follow:
 - APU LOOP A and LOOP B lights come on
 - FIRE DETECTOR LOOP light on the Annunciator Panel comes on
 - APU FIRE light on the Annunciator Panel comes on
 - MASTER WARNING light comes on
 - MASTER CAUTION light comes on (if equipped)
 - APU Fire Aural Warning
 - APU Fire Warning Horn is heard.
 - (i) Remove the jumper wires.
 - 1) Make sure that the warnings stop.
 - (j) On the APU control panel, place the MASTER switch in the OFF position.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (l) Connect the APU harness electrical connectors to the sensing element connectors.
- 1) Install bonding wires to detector unit.
 - 2) Tighten the electrical connectors to 50 in-lb (5.6 N·m) - 70 in-lb (7.9 N·m).
 - 3) Safety electrical connectors with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (m) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (n) Open this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

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- (o) Operate both LOOP A and LOOP B test switches at the same time. Make sure that the Aural Warning and following lights that follow come on:

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

- R ENG LOOP A and LOOP B lights come on
 - L ENG LOOP A and LOOP B lights come on
 - APU LOOP A and LOOP B lights come on
 - APU FIRE warning light comes on
 - MASTER WARNING lights come on
 - MASTER CAUTION lights come on (if equipped)
 - Fire aural warning is heard
 - Left and Right engine fire handle lights go on.
- (p) Remove the safety tag and close this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

B. Job Close-up

- (1) Remove all the tools and equipment from the work area.
- (2) Close the engine and APU access.
- (3) Make sure the area is clean.

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DETECTION - DESCRIPTION AND OPERATION

1. General

WJE 405, 409, 410, 415-427, 429, 863-866, 868, 869, 871-881, 883, 884, 891-893

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

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A. The fire detection system provides a means of detecting a fire or overheat condition in the left or right engine and auxiliary power unit (APU) compartment, and alerting the crew by aural and visual indications. The system consists of the following components:

WJE 405, 409, 410, 415-427, 429, 863-866, 868, 869, 871-881, 883, 884, 891-893

- Fire detector units
- Fire detector control units
- Fire warning indicating components (aural/visual)
- FIRE BELL OFF switch
- Fire detector system panel
- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only
- Loop test switches
- Central aural warning (vocal/aural).

WJE 401-404, 406-408, 411, 412, 414, 861, 862

- Fire detector units
- Fire detector control units
- Fire warning indicating components (aural/visual)
- FIRE BELL OFF switch
- Fire detector system panel
- FIRE DETECTOR LOOP light
- Loop test switches
- Central aural warning (vocal/aural).

WJE 401-404, 412, 414, 886, 887

- Fire detector units
- Fire detector control units
- Fire warning indicating components (aural/visual)
- FIRE BELL OFF switch
- Fire detector system panel
- FIRE DETECTOR LOOP display
- Loop test switches
- Central aural warning (vocal/aural).

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WJE ALL

B. Fire Detector Units

- (1) Each fire detector unit is an assembly consisting of two sensing elements mounted in close proximity on a rigid support tube. There are three fire detector units installed on the engine. One unit is routed longitudinally on underside of the engine and two units are mounted to the fireshield barrier, one on the top and one on the bottom. The fireshield barrier is installed between the engine burner section and the pylon, and mounted on the engine. In the APU compartment, the units are installed one on each side of the compartment enclosure. In each area, the sensing elements of one unit are connected to the sensing elements of the other unit by an electrical harness forming two complete independent sensing loops. (Figure 1, Figure 2 and Figure 3)
- (2) The sensing elements are the basic components that detect a fire condition and initiate activation of the fire warning indicating components. The elements consist of two conductor wire embedded in a thermister-type insulation inside a metal tube.
- (3) The capability for determining a fire condition is accomplished by monitoring the resistance value of the sensing elements, as measured from one conductor to the other conductor grounded to the shell. The resistance value will decrease as temperature increases. A fire condition will cause the sensing element resistance to reach a predetermined resistance value, thus initiating the sequence for activating the fire warning indications.

C. Fire Detector Control Units

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (1) The fire detector control units are hermetically sealed electrical devices, that contain the circuits for monitoring the resistance values of the sensing elements. There are three control units, one for each fire area, located in the electrical/electronics compartment. There are two monitoring circuits in each control unit that provide a separate monitoring circuit for each sensing element loop in an area. Each monitoring circuit contains two relays that are energized when a resistance value, corresponding to a fire condition, is received from the sensing element loops. When the relays in each circuit are energized, the respective fire warning components for the area will be activated. An additional relay in each unit is used in the engine units only to cut off the aural fire warning sound. The relay is energized by the fire bell off switch.

WJE 861, 862

- (2) The fire detector control units are hermetically sealed electrical devices, that contain the circuits for monitoring the resistance values of the sensing elements. There are three control units, one for each fire area, located in the electrical/electronics compartment. There are two monitoring circuits in each control unit that provide a separate monitoring circuit for each sensing element loop in an area. Each monitoring circuit contains two relays that are energized when a resistance value, corresponding to a fire condition, is received from the sensing element loops. When the relays in each circuit are energized, the respective fire warning components for the area will be activated. An additional relay in each unit is used in the engine units only to cut off the fire warning bell ringing. The relay is energized by the FIRE BELL OFF switch.

WJE ALL

D. Fire Warning Indicating Components

- (1) The fire warning indicating components, location, and fire area they represent are as follows:

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WJE 401-405, 409, 410, 412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

Table 1

Fire Warning	Location	Fire Area
Left engine fire control handle--red light	Upper instrument panel	Left engine
Right engine fire control handle--red light	Upper instrument panel	Right engine
Aural warning-- continuous bell Vocal: <ul style="list-style-type: none"> • FIRE LEFT ENGINE • FIRE RIGHT ENGINE • APU FIRE 	Central aural warning unit	Either engine area and APU compartment
APU fire -- red light	Annunciator panel flight compartment	APU compartment
Master warning lights	Glareshield flight compartment	APU compartment
Master caution lights	Glareshield flight compartment	APU compartment
Fire--red light	APU ground fire control panel	APU compartment
Fire warning horn	Adjacent to APU ground fire control panel	APU compartment

WJE 861, 862

Table 2

Fire Warning	Location	Fire Area
Left engine fire control handle--red light	Upper instrument panel	Left engine
Right engine fire control handle--red light	Upper instrument panel	Right engine
Fire warning bell	Left console in flight compartment	Either engine area
APU fire -- red light	Annunciator panel flight compartment	APU compartment
Master warning lights	Glareshield flight compartment	APU compartment
Fire--red light	APU ground fire control panel	APU compartment
Fire warning horn	Adjacent to APU ground fire control panel	APU compartment

WJE ALL

E. Aural Warning Off Switch

- (1) A FIRE BELL OFF switch, located on the upper instrument panel, can be used to cut off the engine or APU aural fire warning by depressing the switch. The engine aural fire warning will automatically be cut off by switches actuated when either fire control handle is pulled to full out position. APU fire warning will automatically cut off after 3 cycles.

WJE 861, 862

F. Fire Bell Cutoff Switch

- (1) A FIRE BELL OFF switch, located on the upper instrument panel, can be used to cut off the fire warning bell by depressing the switch. The fire warning bell will automatically be cut off by switches actuated when either fire control handle is pulled to full out position.

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G. Fire Detector System Panel

- (1) A fire detector system panel is located on the overhead switch panel in the flight compartment. The panel contains six amber colored lights and three switches arranged in three groups. Each group consists of two lights and a switch and represents a designated fire area. Each light in a group represents one of the two sensing element loops, loop A or Loop B. The amber lights provide visual indication of sensing element loops circuit integrity during normal operation or test procedures. The switches have three selective lever locked positions; BOTH, A, and B. The switches provide means for selecting individual loops for integrity tests, or maintaining fire detection operation in an area where a fire detector circuit has been analyzed as open by an integrity check. For normal system operation, the switch is placed in the BOTH position.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 891-893

H. Fire Detector Loop Light

WJE 405, 409, 410, 415-427, 429, 863-866, 868, 869, 871-881, 883, 884, 891-893

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 891-893

- (1) An amber FIRE DETECTOR LOOP light, located in the annunciator panel, will come on when any of the loop lights on the fire detector system panel comes on.

NOTE: When any four of the six fire detector system circuit breakers in the lower EPC circuit breaker panel are pulled, the fire detector loop warning light will come on.

WJE 401-404, 412, 414, 886, 887

I. Fire Detector Loop Display

- (1) An amber FIRE DETECTOR LOOP display, located in the annunciator panel LED screen, will come on when any of the loop lights on the fire detector system panel comes on.

NOTE: When any four of the six fire detector system circuit breakers in the lower EPC circuit breaker panel are pulled, the FIRE DETECTOR LOOP display will come on.

WJE ALL

J. Loop Test Switches

- (1) Loop A and loop B test switches are located on the upper instrument panel in the flight compartment. An integrity check of the fire detection system is performed by pressing the test switches, completing a circuit through the sensing elements to ground, simulating a fire condition.

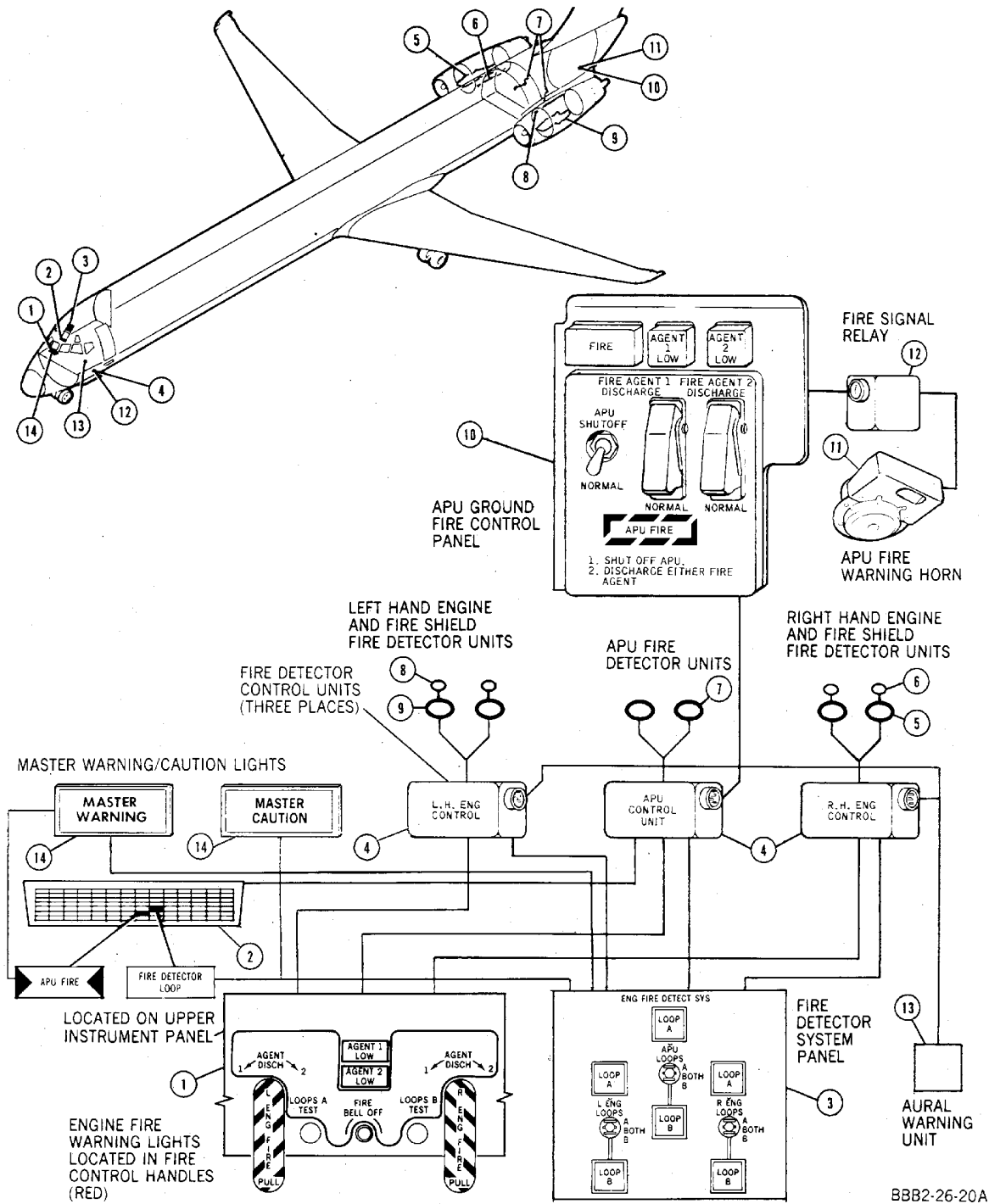
EFFECTIVITY
WJE ALL

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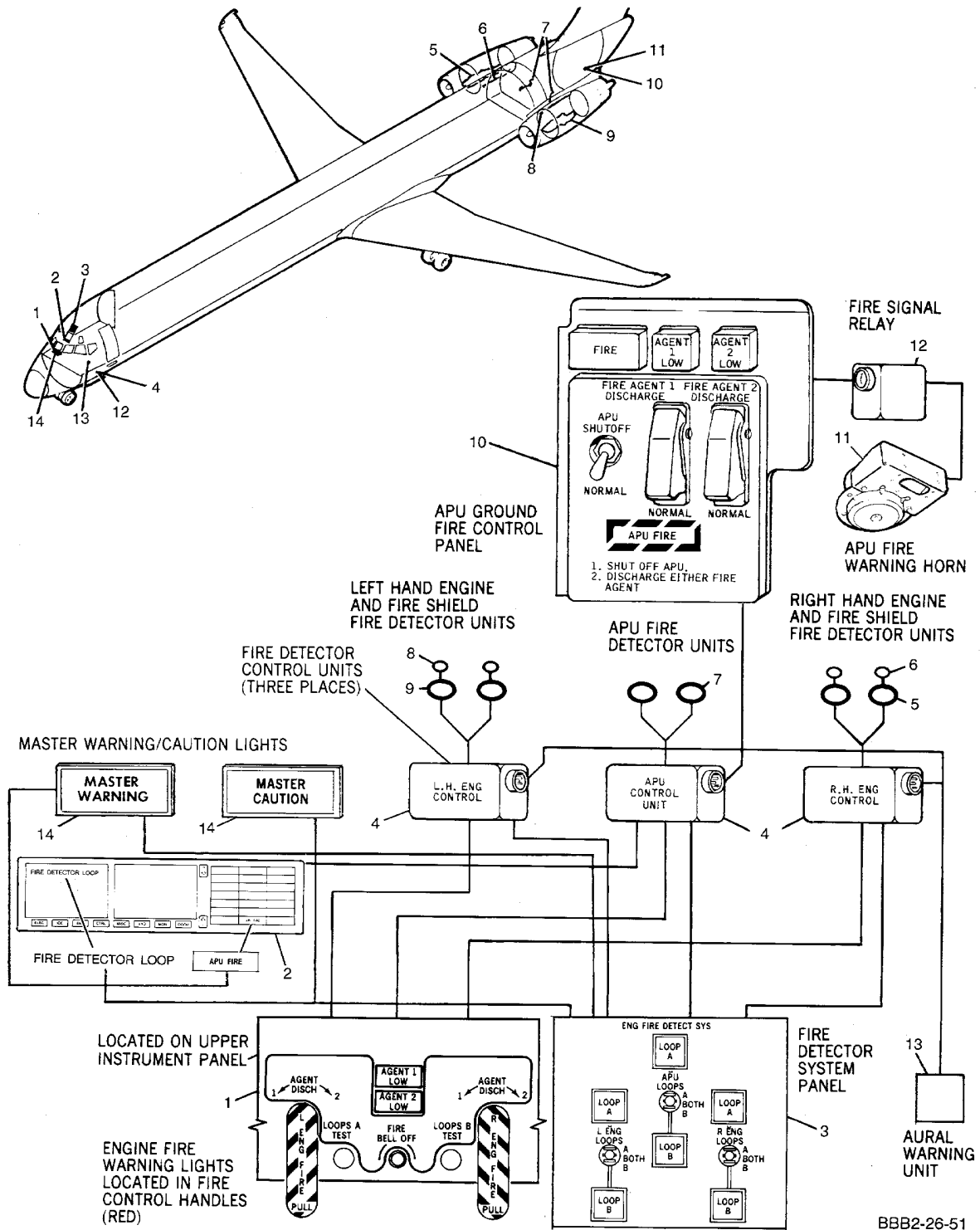
Fire Detection System
Figure 1/26-10-00-990-801 (Sheet 1 of 4)

EFFECTIVITY
WJE 405, 409, 410, 416, 420, 422, 424-427, 429, 868,
873, 874, 880, 881, 883, 884, 891-893

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Fire Detection System
Figure 1/26-10-00-990-801 (Sheet 2 of 4)

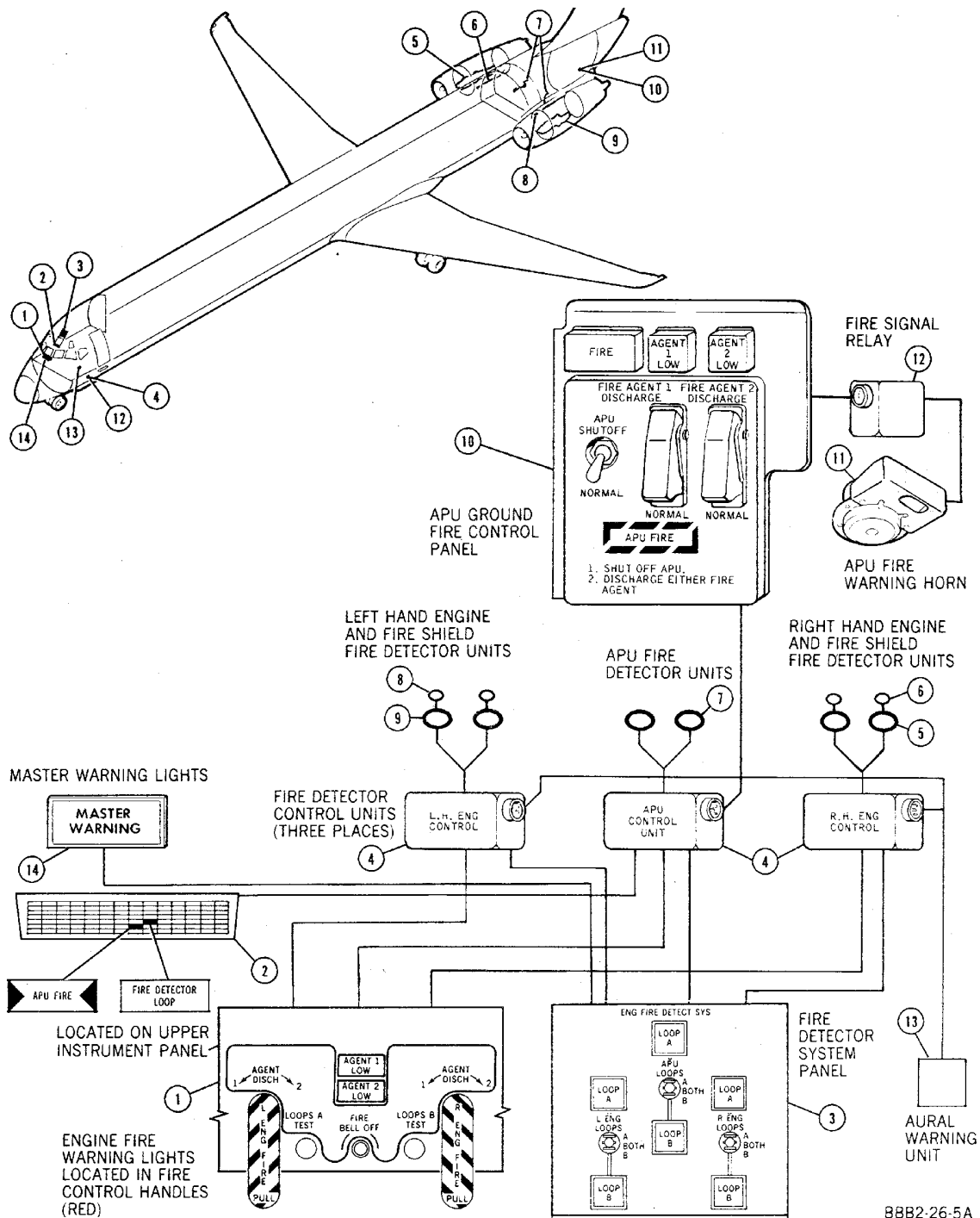
EFFECTIVITY

WJE 401-404, 412, 414, 415, 417-419, 421, 423,
863-866, 869, 871, 872, 875-879, 886, 887

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Fire Detection System
Figure 1/26-10-00-990-801 (Sheet 3 of 4)

EFFECTIVITY
WJE 406-408, 411

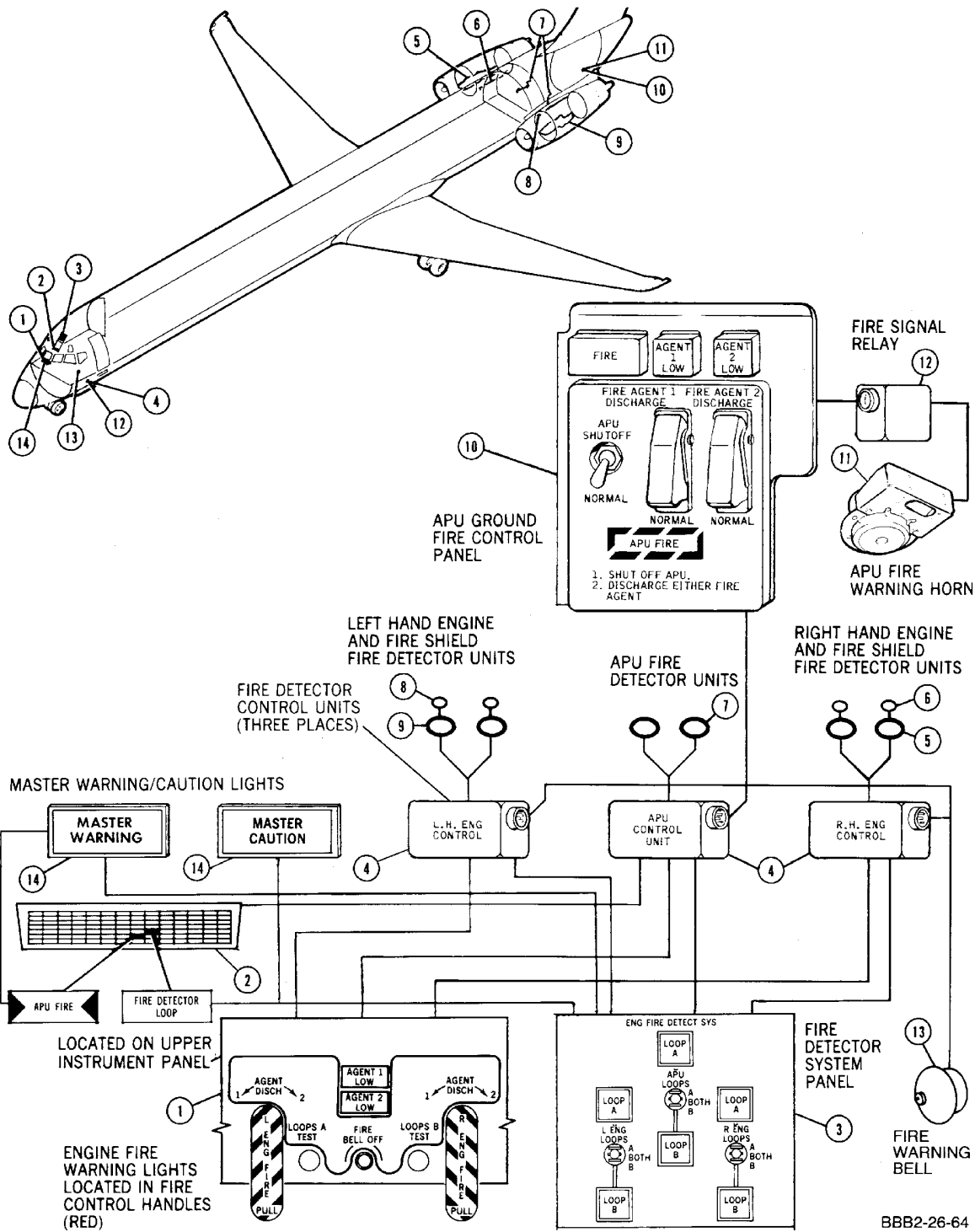
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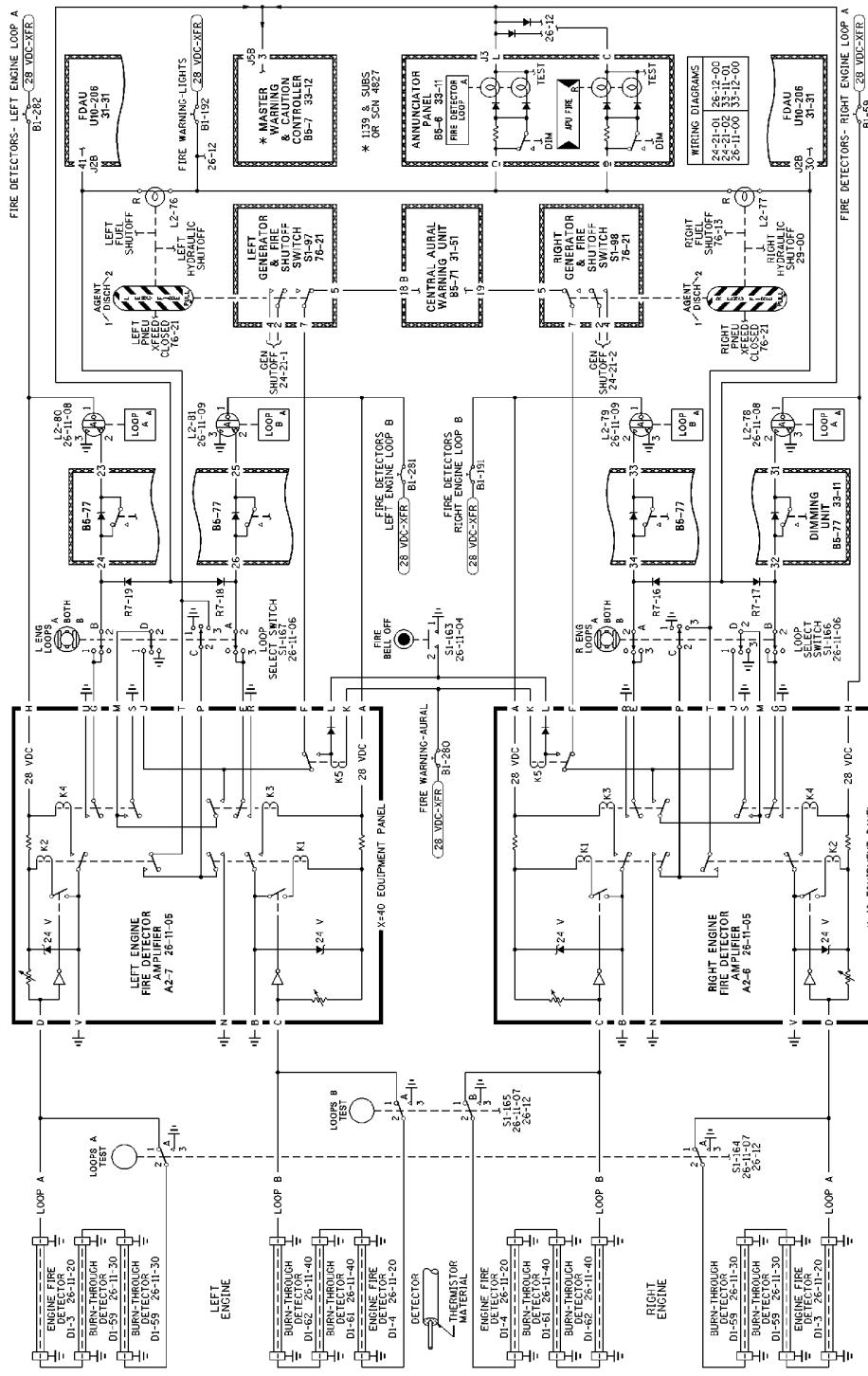


Fire Detection System
Figure 1/26-10-00-990-801 (Sheet 4 of 4)

EFFECTIVITY
WJE 861, 862

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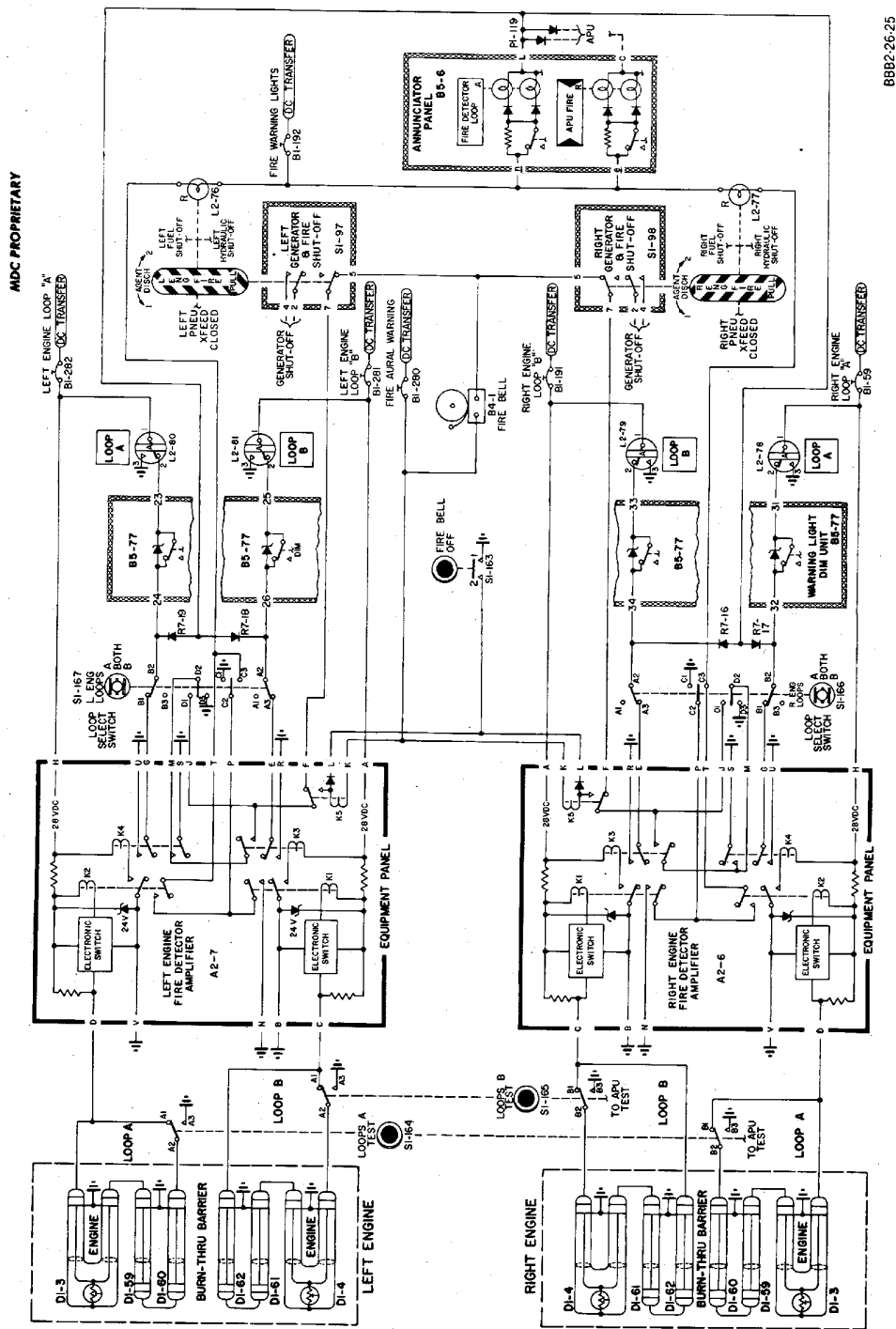


Engine Fire Detection -- System Schematic
Figure 2/26-10-00-990-802 (Sheet 1 of 4)

EFFECTIVITY
WJE 405-411, 873, 874, 880, 881, 883, 884, 892, 893

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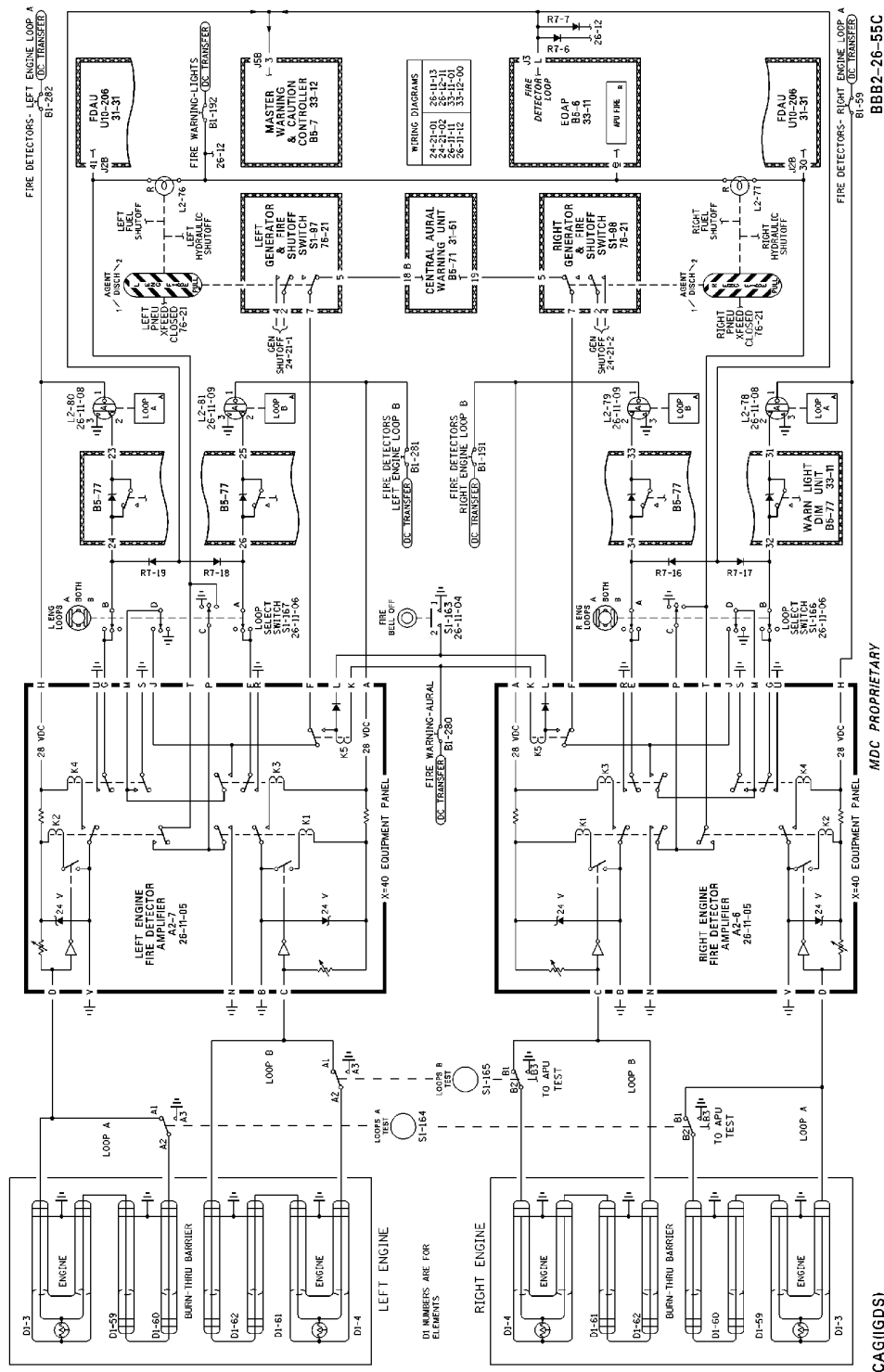
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Engine Fire Detection -- System Schematic
Figure 2/26-10-00-990-802 (Sheet 2 of 4)

EFFECTIVITY
WJE 416, 420, 422, 424-427, 429, 861, 862, 868, 891

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Engine Fire Detection -- System Schematic
Figure 2/26-10-00-990-802 (Sheet 3 of 4)

EFFECTIVITY
WJE 401-404, 412, 414, 415, 417-419, 421, 423,
863-866, 869, 871, 872, 886, 887

TP-80MM-WJE

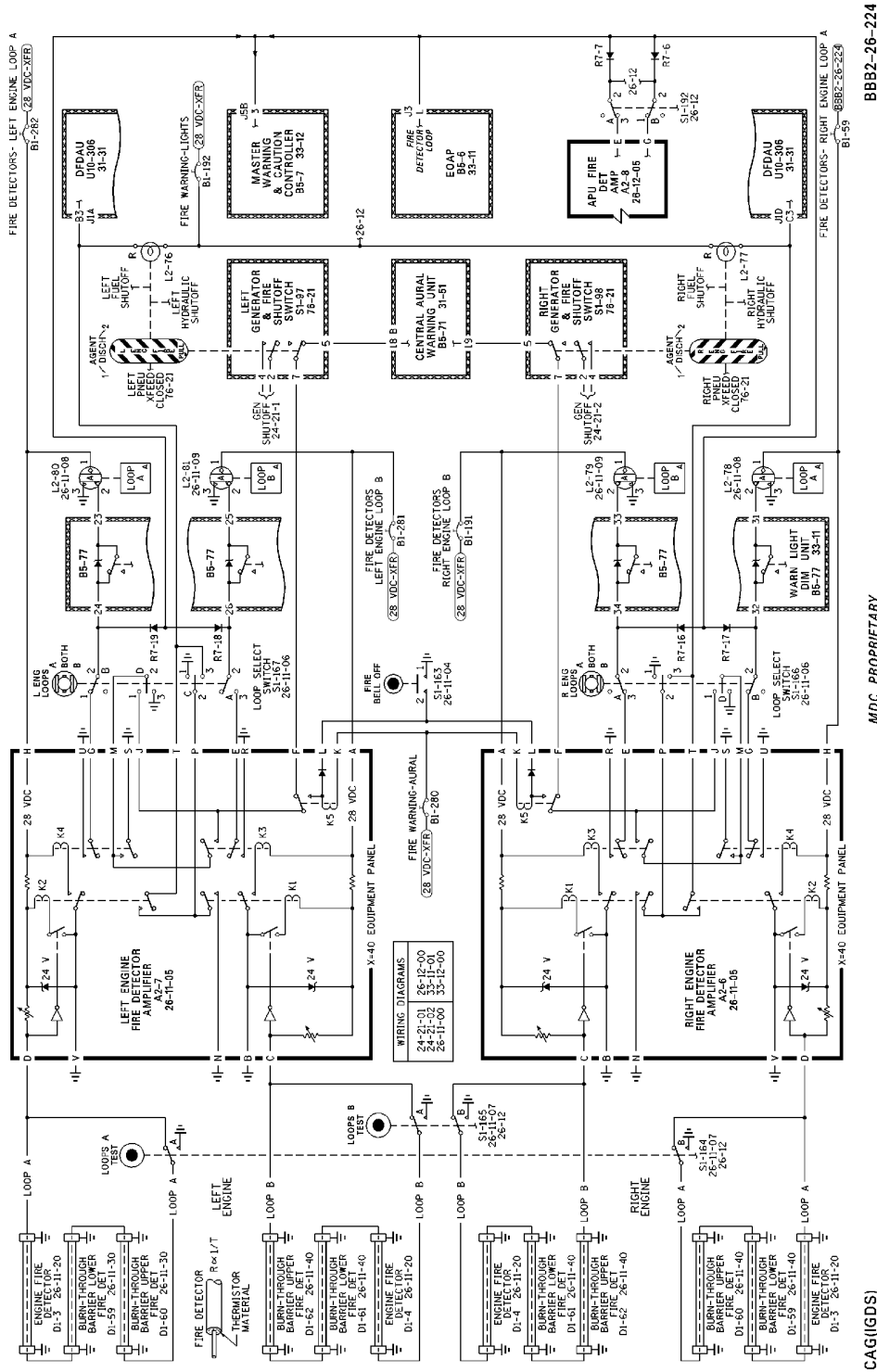
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Engine Fire Detection -- System Schematic
Figure 2/26-10-00-990-802 (Sheet 4 of 4)

EFFECTIVITY
WJE 875-879

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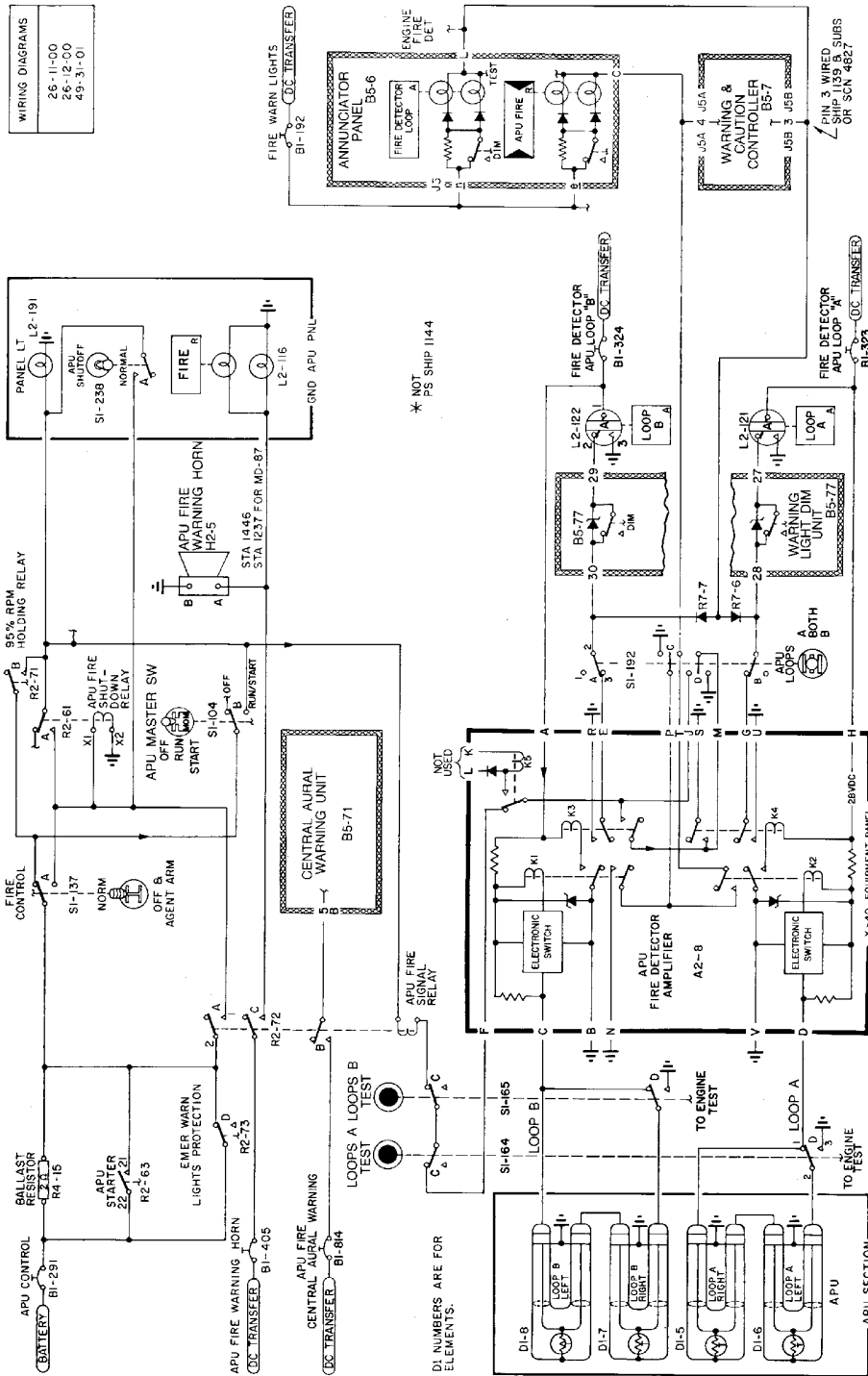
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CAG(IGDS)

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Fire Detection System
Figure 3/26-10-00-990-803 (Sheet 1 of 4)

EFFECTIVITY
WJE 405, 409, 410, 416, 420, 422, 424-427, 429, 861,
862, 868, 873, 874, 880, 881, 883, 884, 891-893

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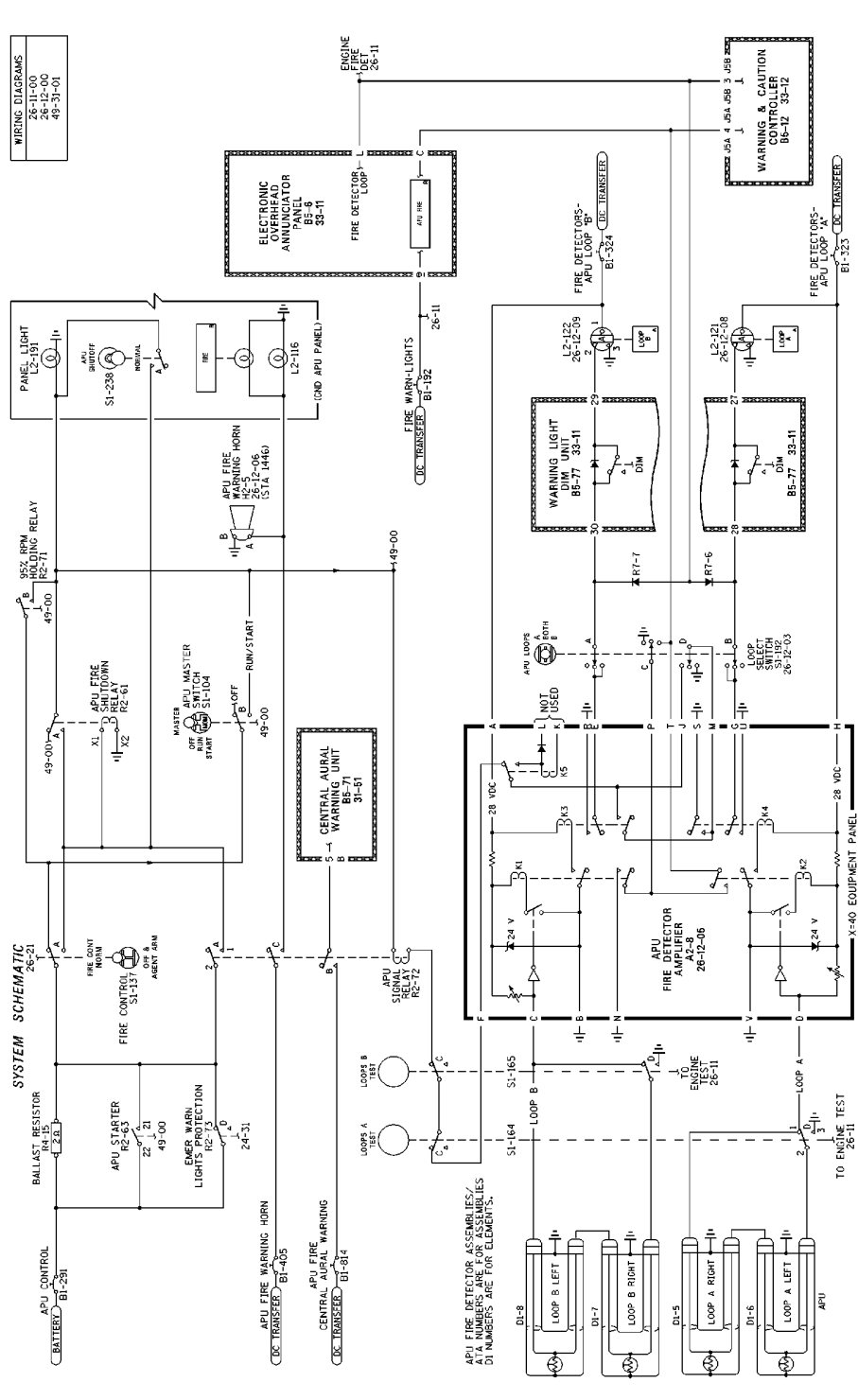
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WIRING DIAGRAMS
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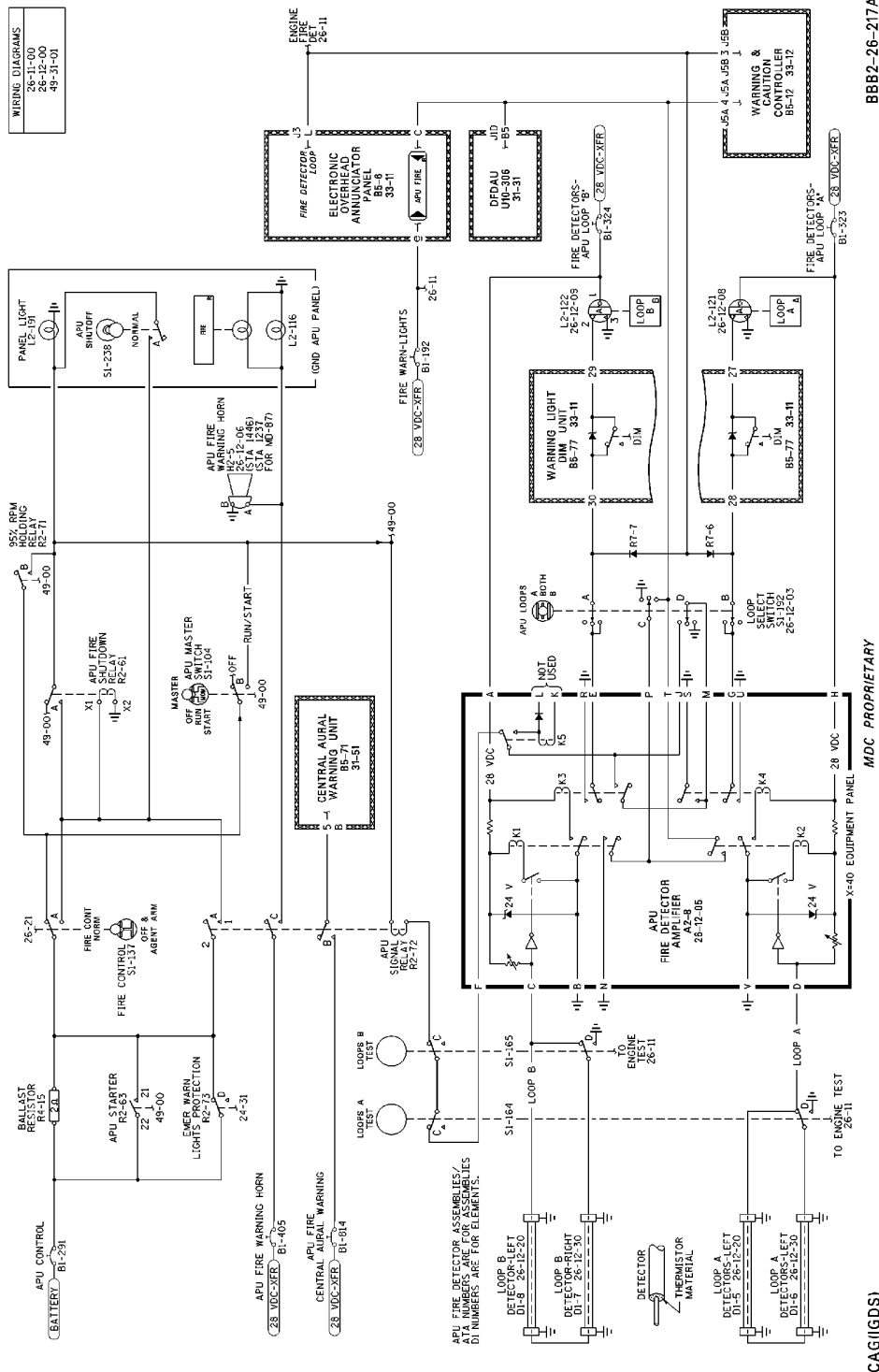
CAG(I/GDS)

Fire Detection System
Figure 3/26-10-00-990-803 (Sheet 2 of 4)

EFFECTIVITY
WJE 401-404, 412, 414, 415, 417-419, 421, 423,
863-866, 869, 871, 872, 886, 887

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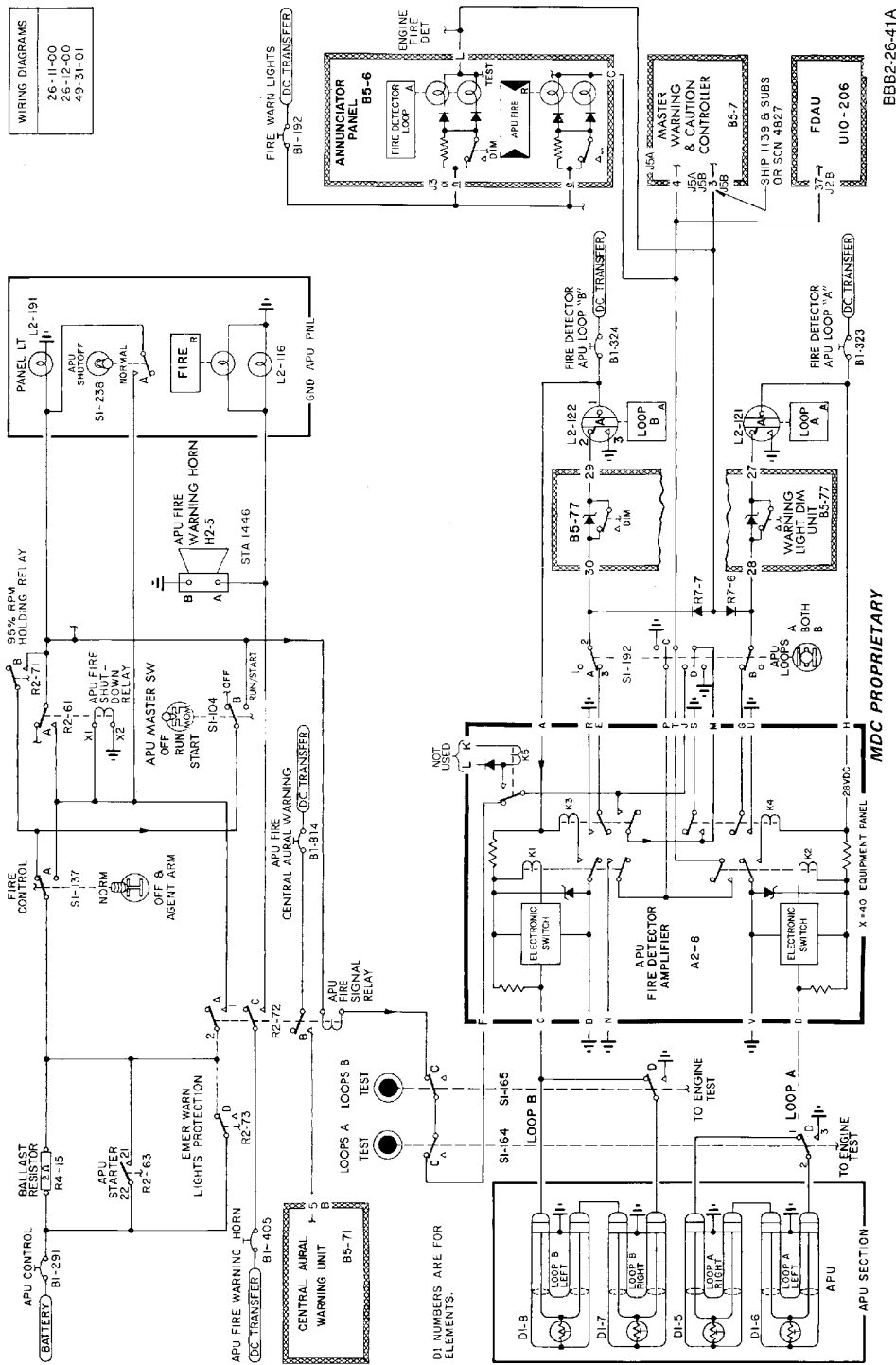
CAG(IIGDS)

Fire Detection System
Figure 3/26-10-00-990-803 (Sheet 3 of 4)

EFFECTIVITY
WJE 875-879

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Fire Detection System
Figure 3/26-10-00-990-803 (Sheet 4 of 4)

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2. Operation

- A. Normal fire detection is automatic when the aircraft electrical buses are energized and the applicable fire detector system circuit breakers are closed.

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- B. If a fire condition occurs in a designated fire area, the two sensing elements are subjected to temperature rise. The temperature rise will cause the resistance value of the elements to decrease. At a predetermined resistance value, each sensing element monitoring circuit, in the fire detector control unit, will energize the relays in its circuit. The energized relays will activate the respective fire warning indicating components. When the fire is extinguished, the temperature and sensing elements resistance values should return to normal. The monitor circuits will deenergize the relays and the fire warning indicating components will go off. The aural fire warning will be automatically cut off, when either engine fire control handle for an engine area is pulled full out. The aural warning can be cut off before pulling the fire control handle by depressing the fire bell off switch. There is no designated control to cut off the fire APU warning horn.

WJE 861, 862

- C. If a fire condition occurs in a designated fire area, the two sensing elements are subjected to temperature rise. The temperature rise will cause the resistance value of the elements to decrease. At a predetermined resistance value, each sensing element monitoring circuit, in the fire detector control unit, will energize the relays in its circuit. The energized relays will activate the respective fire warning indicating components. When the fire is extinguished, the temperature and sensing elements resistance values should return to normal. The monitor circuits will deenergize the relays and the fire warning indicating components will go off. The fire warning bell will be automatically cut off, when either engine fire control handle for an engine area is pulled full out. The fire warning bell can be cut off before pulling the fire control handle by depressing the FIRE BELL OFF switch. There is no designated control to cut off the fire APU warning horn; however, the horn will automatically cut off after three cycles.

WJE ALL

- D. During normal operations, if a sensing element loop or the monitoring circuit in the fire detector control unit should ground fault, the monitoring circuit relays in the control unit for that loop will be energized and the corresponding loop light on the fire detector system panel will come on. The integrity of the companion loop should be checked by depressing both loop test switches. The companion loop light should come on. All fire warning indicating components should also come on, and then go off when loop test switches are released. This will indicate the companion loop is operational and fire detection for the area will operate normally.

The loop light activated by the ground faulted loop can be turned off by placing the area selector switch in the position of the operational loop. A recheck should be made of the operational loop by depressing both loop test switches.

NOTE: When the loop selector switches are in the BOTH position, both sensing element circuits must be operational to cause the fire warning indicating components to come on. Placing a switch in either LOOP A or LOOP B position, switches the circuits so that only the selected loop need operate, or corresponding loop test switch be pressed to activate the fire warning indicating components.

- E. During a loop integrity check, if the fire warning indicating components and one loop light for an area do not come on, it indicates an open in that loop circuit. Fire detection can be maintained by placing the area loop selector switch in the position of the operational loop. A loop integrity recheck should produce fire warning component indication (ref. NOTE from above step).
- F. When a fire condition activates the fire warning indicating components, the corresponding loop lights on the fire detector system panel will also come on.

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- G. A loop integrity check for the fire detector system sensing elements and circuits can be made by placing the selector switches on the fire detector system panel in the BOTH position and depressing both loop test switches. The fire warning indicating components (except fire warning horn and light on APU ground control panel), and the amber loop lights should come on, and then go off when the loop test switches are released. An individual check of each loop circuit can be made by placing the selector switch in the applicable loop position and depressing the applicable loop test switch. The fire warning indicating components and loop lights for the area selected should come on, and then go off when loop test switches are released.

WJE 405, 409, 410, 415-427, 429, 863-866, 868, 869, 871-881, 883, 884, 891-893

- H. The activating circuit for the FIRE DETECTOR LOOP light on the annunciator panel is in parallel with the activating circuits for the loop lights on the fire detector system panel and the master caution system. The FIRE DETECTOR LOOP light and master caution lights will come on whenever any loop light on the fire detector system panel comes on.

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE 406-408, 411, 861, 862

- I. The activating circuit for the FIRE DETECTOR LOOP light on the annunciator panel is in parallel with the activating circuits for the loop lights on the fire detector system panel. The FIRE DETECTOR LOOP light will come on whenever any loop light on the fire detector system panel comes on.

WJE 401-404, 412, 414, 886, 887

- J. The activating circuit for the FIRE DETECTOR LOOP display on the annunciator panel is in parallel with the activating circuits for the loop lights on the fire detector system panel and the master caution system. The FIRE DETECTOR LOOP display and master caution lights will come on whenever any loop light on the fire detector system panel comes on.

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**MD-80
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DETECTION SYSTEM - TROUBLE SHOOTING**

1. General

- A. Trouble shooting procedures of electrical circuits exclude the electrical power system and circuit breakers.
- B. Trouble shooting procedures are applicable to both right and left engines and APU compartments fire detection systems.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following item.

NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your location. Persons in each location must make sure they are permitted to use these materials. All persons must obey all applicable federal, state, local, and provincial regulations for their location.

Table 101

Name and Number	Manufacturer
Multimeter 630A	Triplett

3. Trouble Shooting

- A. Loop Light On Fire Detector System Panel Comes On -- No Fire Warning Indication

Table 102

Step	Possible Causes	Isolation Procedures	Correction
(1)	Sensing element shorted to ground	Disconnect electrical connector from sensing element receptacle. (Figure 101 and Figure 102)	If light goes out, replace sensing element.
(2)	Short circuit in fire detector control unit	Disconnect electrical connector to control unit. Check pins C and D for more than 20,000 ohms resistance to ground.	If pins have more than 20,000 ohms resistance to ground, replace control unit.
(3)	Defective light assembly	Isolate ground wire from light assembly.	If light remains on, replace light assembly.

- B. Loop Lights Or Fire Warning Lights Inoperative

Table 103

Step	Possible Causes	Isolation Procedures	Correction
(1)	Defective bulb	Press to test light assembly, or use test light.	If light does not come on, replace bulb.
(2)	Circuit open in engine fire detector amplifier of fire detector control unit	Remove electrical connector from control unit; check pins A and H for power; depress loop test switches and check pins C and D for continuity to ground; release switches; check pins U, S, N, V, B and R for continuity to ground.	If electrical power is present at pins A and H; and pins U, S, N, V, B, and R have continuity to ground, replace control unit.

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Table 103 (Continued)

Step	Possible Causes	Isolation Procedures	Correction
(3)	Circuit open in sensing element	Remove electrical connectors from sensing element and check continuity of center conductor of sensing element; check outer cover of sensing element for continuity to ground.	If continuity of center conductor or outer cover of sensing element is open, replace sensing element.
(4)	Defective loop test switches	Press Fire test switch and check continuity between switch terminals A2 and A3, B2 and B3 or D2 and D3.	Replace switch if continuity is defective between any switch terminals.
(5)	Defective wiring or connections between test switches and sensing elements, engine fire detector amplifier of fire detector control unit plug or ground	Check continuity between switch terminals and sensing elements, plugs, control unit plug, and to ground.	Repair or replace any wiring, components, or connections which indicate faulty continuity.
(6)	Defective loop select switch	Check continuity between switch terminals.	Replace switch if continuity is defective between any switch terminals.
(7)	Defective wiring or connections between loop selector switches and fire detector control unit plug or lights	Check continuity between loop selector switches and control unit plug, loop lights, APU FIRE warning light, and MASTER WARNING lights.	If continuity is defective replace or repair faulty wire, connections, or components.
NOTE: The following step (8) applies only to APU fire warning lights on APU ground fire control panel.			
(8)	Defective APU fire signal relay	Apply 28-volt dc power to terminal X1 of relay and ground terminal X2.	If fire warning light does not come on, replace relay.

C. Aural Warning Does Not Sound

Table 104

Step	Possible Causes	Isolation Procedures	Correction
(1)	Defective central aural warning unit	Make certain electrical power is present at unit jumper pin 18 at unit to ground.	If aural warning does not sound, replace aural warning unit.
(2)	Defective aural warning cutoff switch (L ENG FIRE and R ENG FIRE control handles operated switches)	Check continuity through cut off switches with L ENG FIRE and R ENG FIRE control handles in off position.	If no continuity, replace defective cut off switch.
(3)	Defective aural warning circuit in engine fire detector amplifier of fire detector control unit	Depress both loop test switches.	If all warning light operation is normal and aural warning does not sound, replace control unit.
(4)	Open wiring between central aural warning unit and fire detector control unit or circuit breaker and control unit	Check continuity between aural warning unit and control unit and between circuit breaker and control unit.	If no continuity, replace or repair defective wiring or connections.

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WJE 415-427, 429, 861-866, 868, 869, 871, 872, 891

D. Fire Warning Bell Does Not Ring

Table 105

Step	Possible Causes	Isolation Procedures	Correction
(1)	Defective fire bell cut off switch (L ENG FIRE and R ENG FIRE control handles operated switches)	Check continuity through cut off switches with L ENG FIRE and R ENG FIRE control handles in off position.	If no continuity, replace defective cut off switch.
(2)	Defective fire bell circuit in engine fire detector amplifier of fire detector control unit	Depress both loop test switches.	If all warning light operation is normal and fire bell does not sound, replace control unit.
(3)	Open wiring between fire bell warning unit and fire detector control unit or circuit breaker and control unit	Check continuity between fire bell and control unit and between circuit breaker and control unit.	If no continuity, replace or repair defective wiring or connections.

WJE ALL

E. Aural Warning Does Not Cut Off

Table 106

Step	Possible Causes	Isolation Procedures	Correction
(1)	Defective aural warning circuit in engine fire detector amplifier of fire detector control unit	Depress and hold loop test switches and then depress FIRE BELL OFF switch.	If aural warning does not cut off, replace control unit.
(2)	Defective aural warning (FIRE BELL OFF) switch (instrument panel)	Press FIRE BELL OFF switch and check continuity between terminals 1 and 2.	If no continuity, replace switch.
(3)	Defective aural warning cut off (FIRE BELL OFF) switch (fire control handles)	Disconnect electrical connectors from all cartridges on fire extinguisher containers; depress loop test switches and then operate fire control handles full out individually.	If aural warning does not cut off, replace defective aural warning (FIRE BELL) OFF switch.
(4)	Ground circuit open from aural warning (FIRE BELL OFF) switch	Check continuity of wiring from FIRE BELL OFF switch to ground.	If no continuity, replace or repair defective wiring.
(5)	Electrical circuit open between circuit breaker and engine fire detector amplifier of fire detector control unit	Remove control unit electrical connector, close fire bell circuit breaker, check pin K on plug for power.	If no power is present at pin K, repair or replace defective wiring or connections between circuit breaker and plug.

WJE 415-427, 429, 861-866, 868, 869, 871, 872, 891

F. Fire Warning Bell Does Not Cut Off

Table 107

Step	Possible Causes	Isolation Procedures	Correction
(1)	Fire bell shorted to ground	Remove ground wire from bell terminal.	If fire bell does not stop ringing, replace bell.

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WJE 415-427, 429, 861-866, 868, 869, 871, 872, 891 (Continued)

Table 107 (Continued)

Step	Possible Causes	Isolation Procedures	Correction
(2)	Defective fire bell circuit in engine fire detector amplifier of fire detector control unit	Depress and hold loop test switches and then depress fire bell off switch.	If fire bell does not cut off, replace control unit.
(3)	Defective FIRE BELL OFF switch (instrument panel)	Depress loop test switches and then depress fire bell off switch.	If fire bell does not cut off, replace switch.
(4)	Defective FIRE BELL OFF switch (fire control handles)	Disconnect electrical connectors from all cartridges on fire extinguisher containers; depress loop test switches and then operate fire control handles full out individually.	If fire bell does not cut off, replace defective FIRE BELL OFF switch.
(5)	Ground circuit open from FIRE BELL OFF SWITCH	Check continuity of wiring from FIRE BELL OFF switch to ground.	If no continuity, replace or repair defective wiring.
(6)	Electrical circuit open between circuit breaker and engine fire detector amplifier of fire detector control unit	Remove control unit electrical connector, close fire bell circuit breaker, check pin K on plug for power.	If no power is present at pin K, repair or replace defective wiring or connections between circuit breaker and plug.

WJE ALL

G. APU Fire Warning Horn Does Not Sound

Table 108

Step	Possible Causes	Isolation Procedures	Correction
(1)	Defective horn	Make certain power is present at horn and jumper wire negative terminal to ground.	If horn does not sound, replace horn.
(2)	Defective APU fire signal relay (station 110 relay panel)	Apply 28-volt dc power to terminal X1 and ground terminal X2.	If relay does not actuate and horn does not sound, replace relay.
(3)	Defective circuit from ground terminal of APU fire relay to ground	Check continuity of circuit from ground terminal of relay through loop test switches to pin F in APU FIRE DETECTOR AMPLIFIER of APU control unit.	Repair or replace defective wiring or connections.
(4)	Defective circuit from horn to circuit breaker	Check continuity from horn through APU fire signal relay to circuit breaker.	Repair or replace defective wiring or connections.
(5)	Defective fire detector control unit	Depress loop test switches and check for ground at pin F in APU FIRE DETECTOR AMPLIFIER of APU control unit.	If no ground, replace control unit.

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WJE ALL

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H. APU Fire Warning Horn Does Not Cut Off

Table 109

Step	Possible Causes	Isolation Procedures	Correction
(1)	Internal circuit short to ground	Remove wire from ground terminal of horn.	If horn does not stop sounding, replace horn.
(2)	APU fire signal relay will not release from actuated position	Make certain no electrical power is present at terminal X1 of APU fire signal relay.	If relay does not release, replace relay.

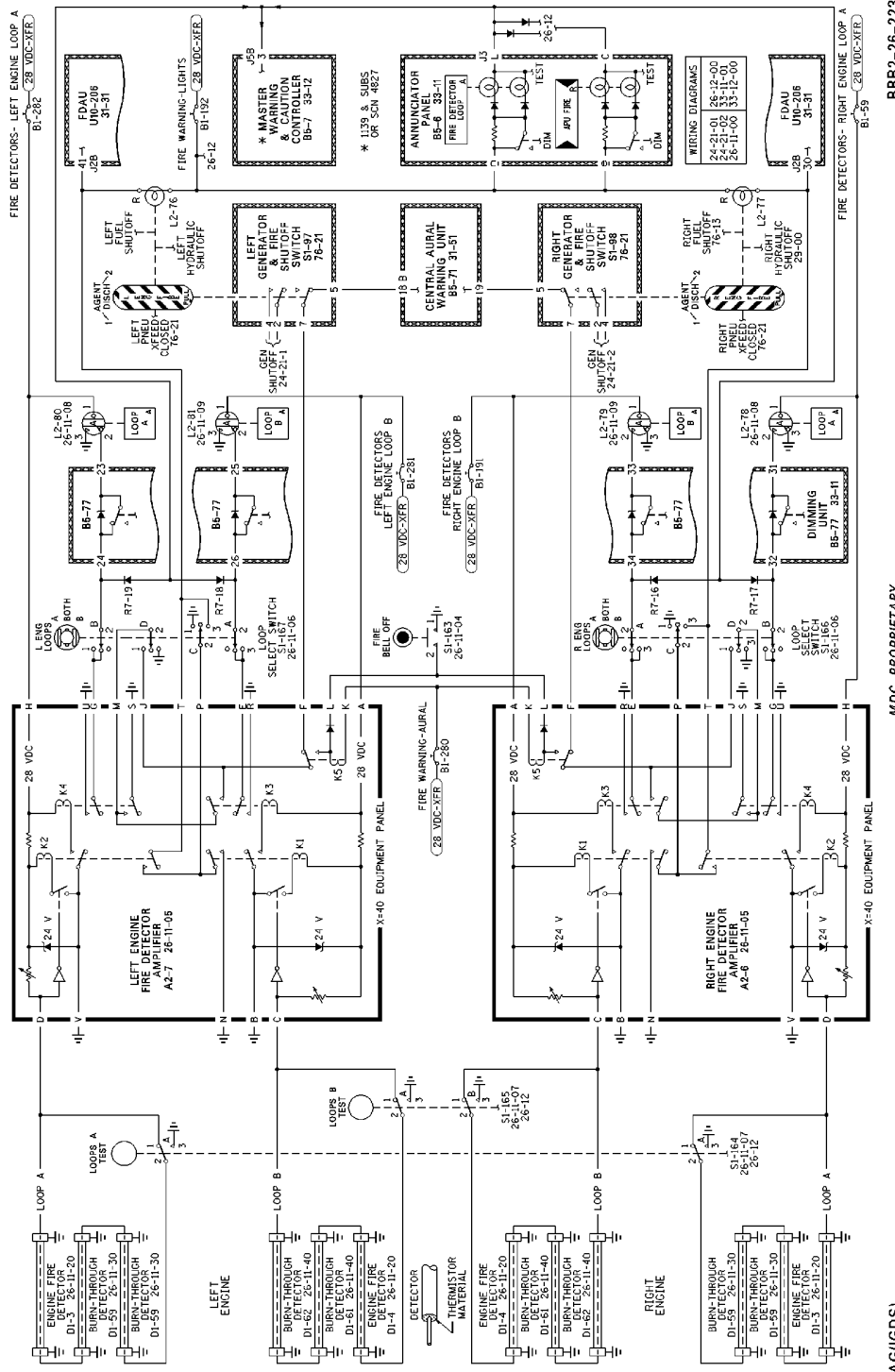
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Engine Fire Detection Schematic
Figure 101/26-10-00-990-827 (Sheet 1 of 4)

BBB2-26-223

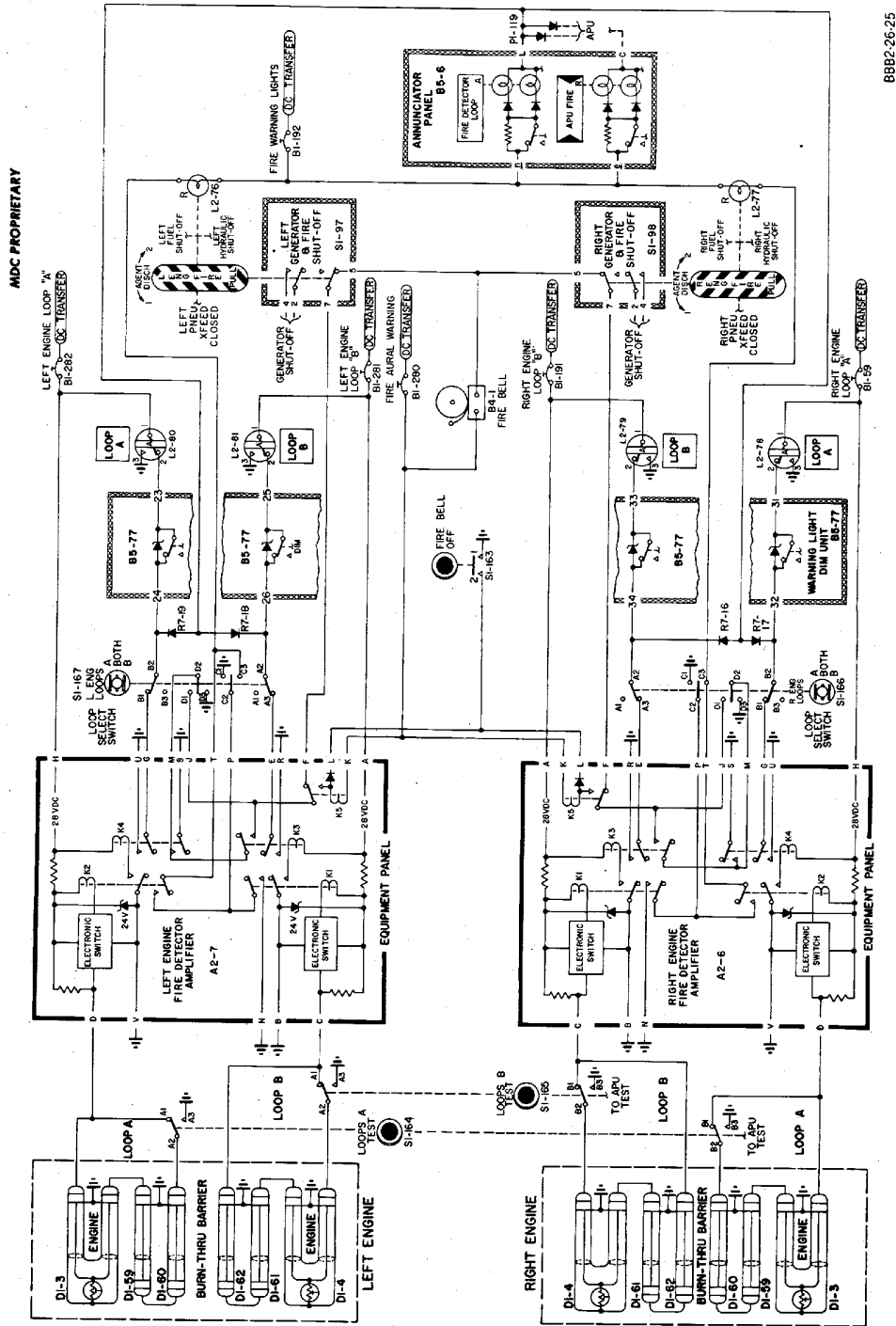
MDC PROPRIETARY

CAG(IGDS)

EFFECTIVITY
WJE 405-411, 873, 874, 880, 881, 883, 884, 892, 893

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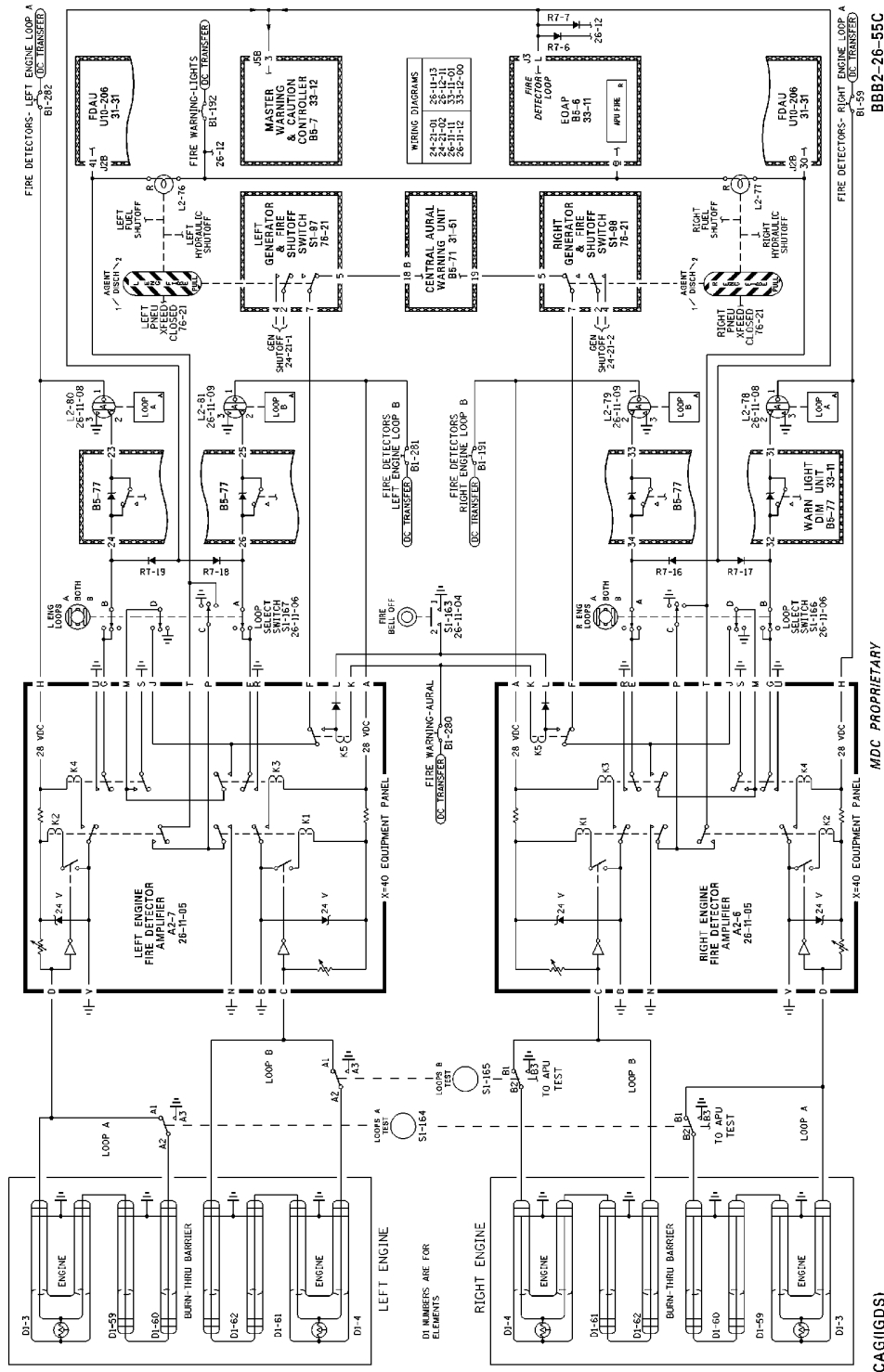
88B2-26-25

Engine Fire Detection Schematic
Figure 101/26-10-00-990-827 (Sheet 2 of 4)

EFFECTIVITY
WJE 416, 420, 422, 424-427, 429, 861, 862, 868, 891

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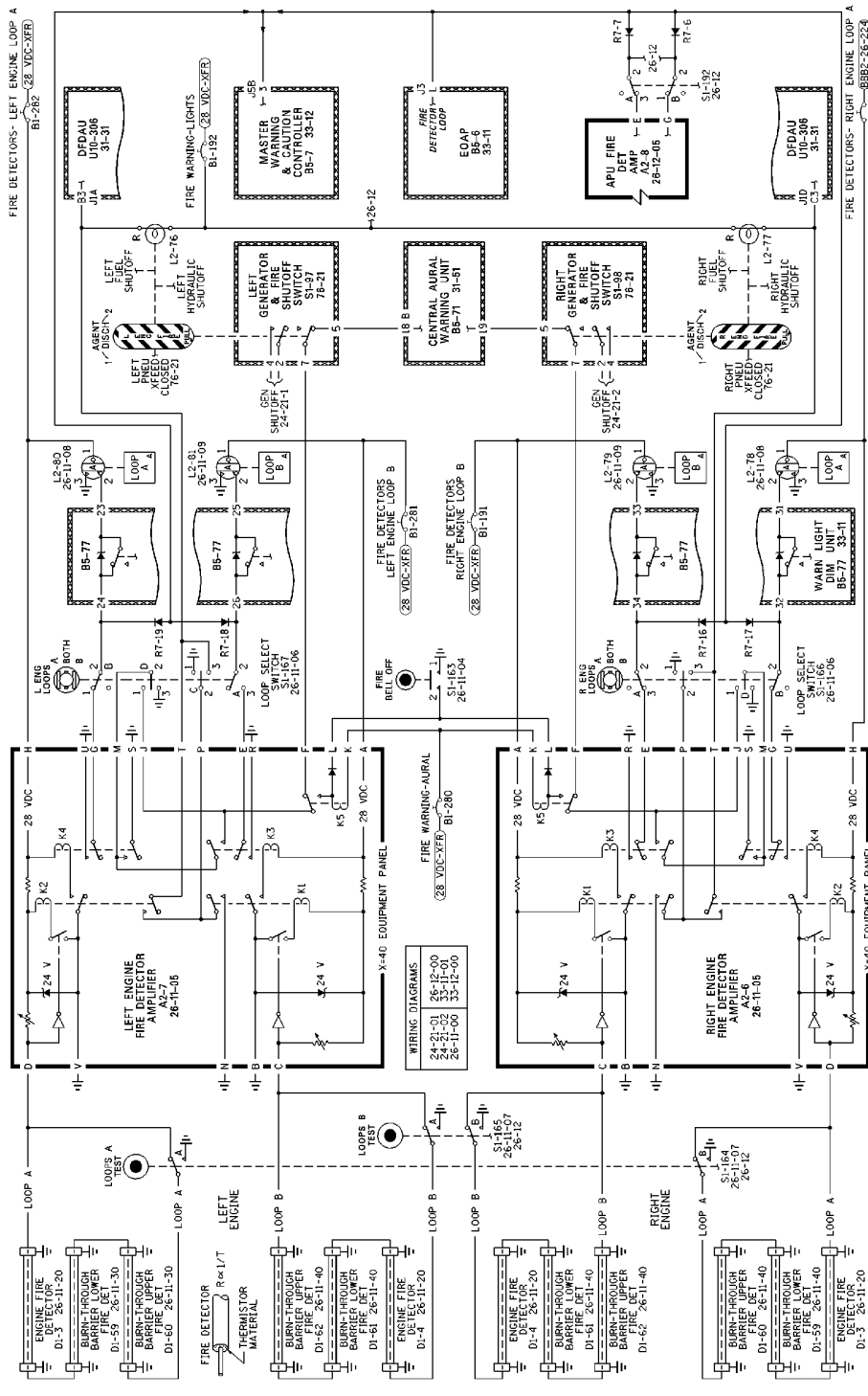


Engine Fire Detection Schematic
Figure 101/26-10-00-990-827 (Sheet 3 of 4)

EFFECTIVITY
WJE 401-404, 412, 414, 415, 417-419, 421, 423,
863-866, 869, 871, 872, 886, 887

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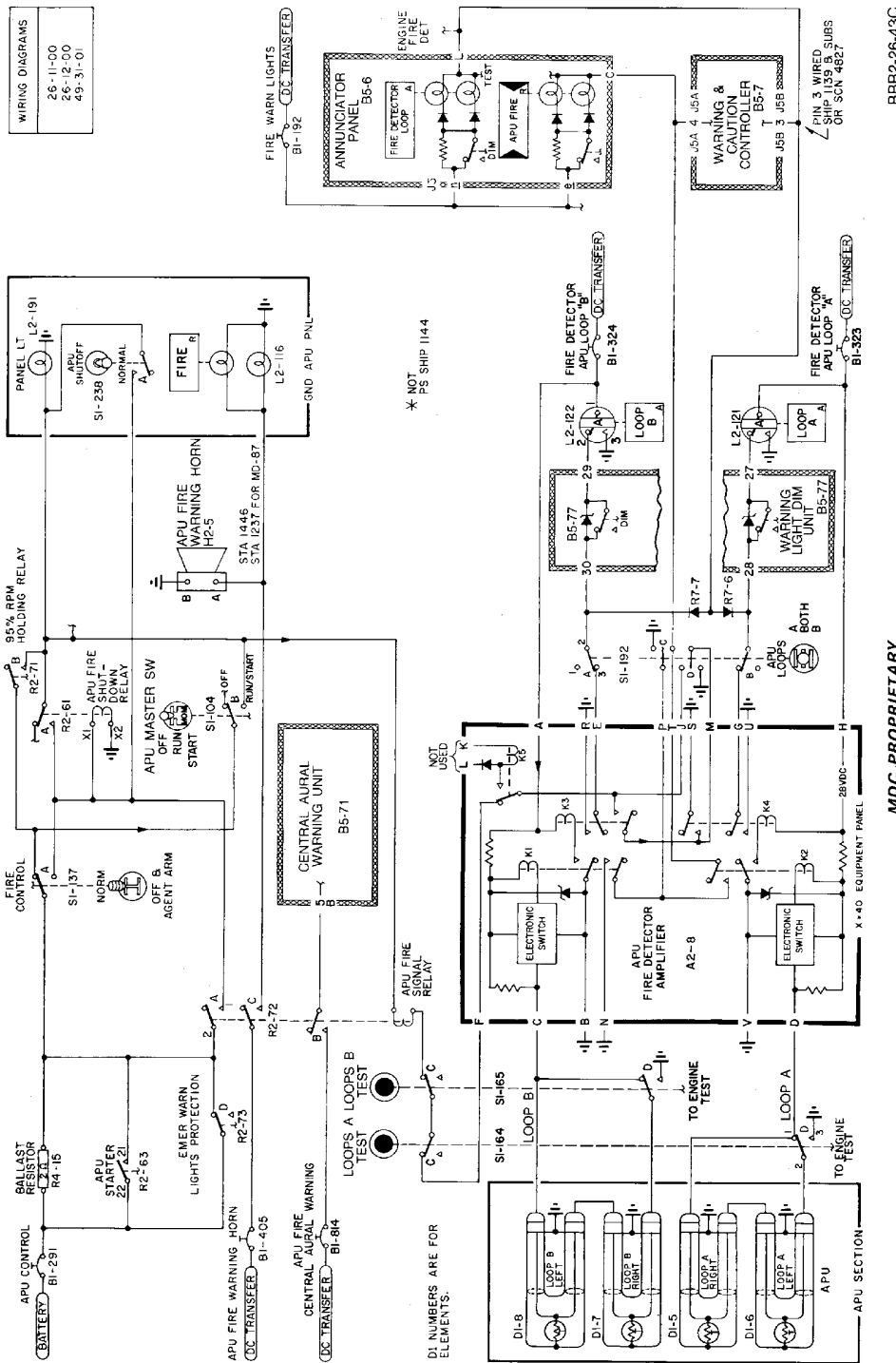
Engine Fire Detection Schematic
Figure 101/26-10-00-990-827 (Sheet 4 of 4)

BBB2-26-224
MDC PROPRIETARY
CAG(IGDS)

EFFECTIVITY
WJE 875-879

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BBB2-26-43C

MDC PROPRIETARY

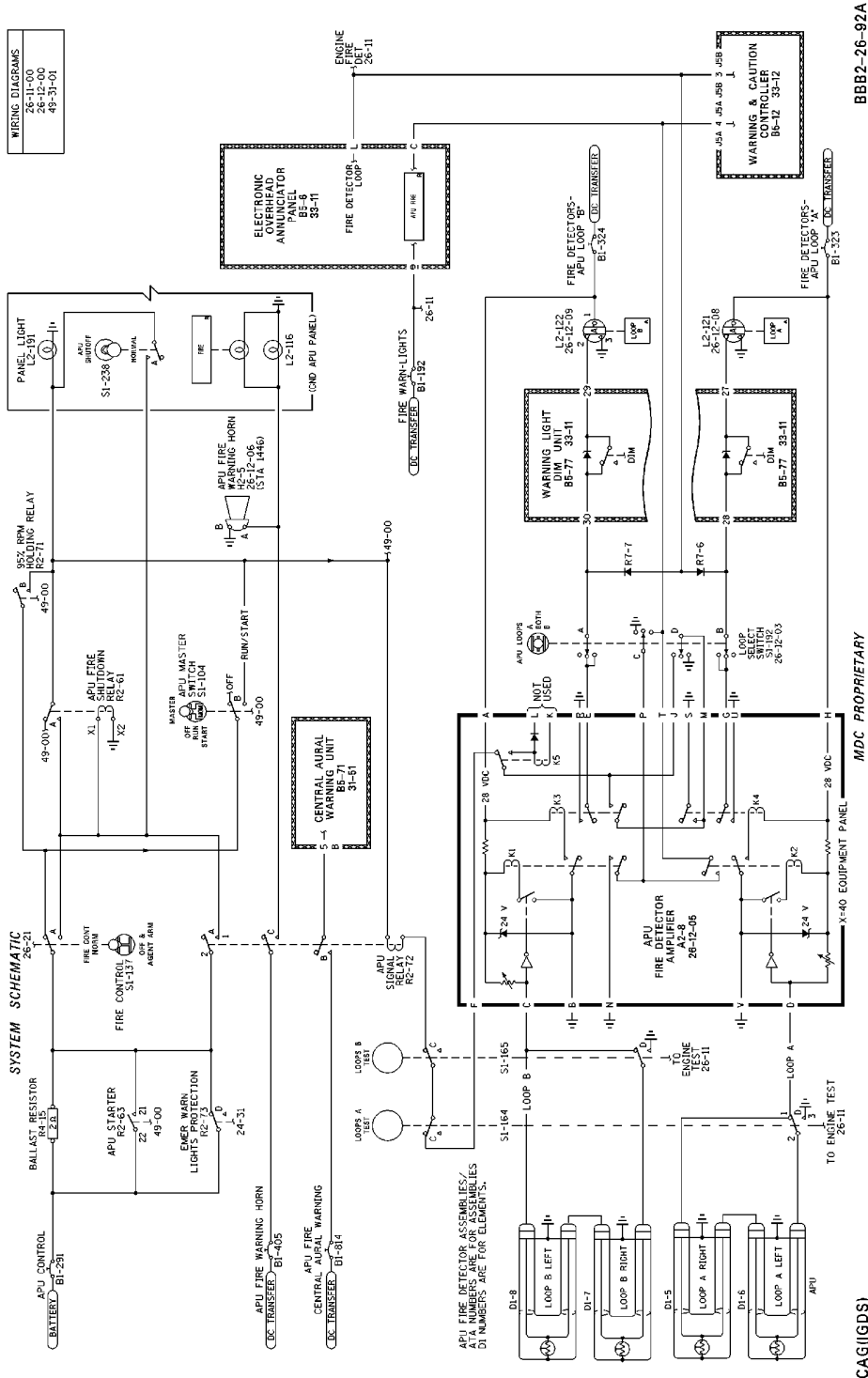
APU Fire Detection - Schematic
Figure 102/26-10-00-990-828 (Sheet 1 of 3)

EFFECTIVITY

WJE 405-411, 416, 420, 422, 424-427, 429, 861, 862, 868, 873, 874, 880, 881, 883, 884, 891-893

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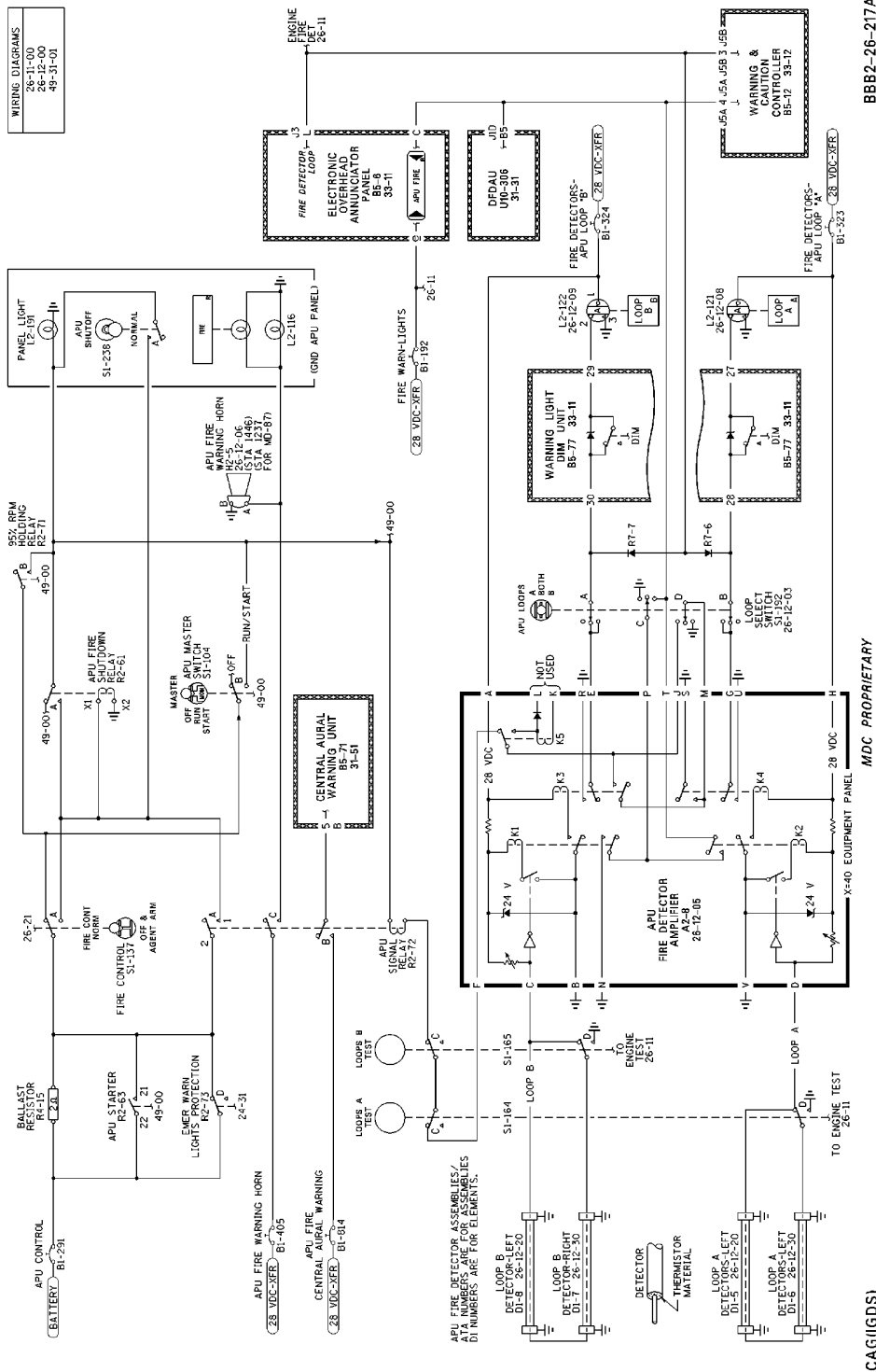


APU Fire Detection - Schematic
Figure 102/26-10-00-990-828 (Sheet 2 of 3)

EFFECTIVITY
WJE 401-404, 412, 414, 415, 417-419, 421, 423,
863-866, 869, 871, 872, 886, 887

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WIRING DIAGRAMS

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49-31-01

APU Fire Detection - Schematic
Figure 102/26-10-00-990-828 (Sheet 3 of 3)

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MDC PROPRIETARY

CAG(I/GDS)

EFFECTIVITY
WJE 875-879

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DETECTION SYSTEM - MAINTENANCE PRACTICES

1. General

- A. The following tests check operation of the detection system warning indication components and the integrity of the sensing element loops.
- B. The engine/APU fire detector and control units and APU fire signal relay are located in the left forward part of the electrical/electronics compartment and are accessible through the compartment access door.

2. Adjustment/Test Detection System

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE ALL

- A. Test System

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Place loop selector switches on fire detector system panel in BOTH position.
- (3) Depress both loop test switches and hold. Fire aural warning should come on and following lights should come on:
 - Lights in engine fire control handles
 - MASTER WARNING lights on glareshield
 - MASTER CAUTION lights on glareshield
 - APU FIRE light in annunciator panel
 - All loop lights on fire detector system panel

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only

WJE 401-404, 412, 414

- FIRE DETECTOR LOOP display on annunciator panel.

WJE ALL

- (4) Pull left fire control handle to full out position. Do not turn handle. Fire aural warning should remain on.
- (5) Push left fire control handle to full in position. Fire aural warning should remain on.
- (6) Pull right fire control handle to full out position. Do not turn handle. Fire aural warning should remain on.
- (7) Push right fire control handle to full in position. Fire aural warning should remain on.

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- (8) Pull both engine fire control handles to full out position. Do not turn handles. Fire aural warning should go off.
- (9) Push fire control handles to full in position. Fire aural warning should come on.
- (10) Depress FIRE BELL OFF switch, aural warning should go off.
- (11) Depress MASTER WARNING and MASTER CAUTION lights. Lights should go off and following lights should remain on:
 - Lights in engine fire control handle
 - APU FIRE light in annunciator panel
 - All loop lights on fire detector system panel

WJE 401-404, 412, 414

- FIRE DETECTOR LOOP display annunciator panel

WJE ALL

- FIRE DETECTOR LOOP light on annunciator panel

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only

WJE ALL

- (12) Release loops test switches. All lights listed in previous step should go off.
- (13) Depress and hold LOOPS A test switch. All LOOP A lights on fire detector system panel, MASTER CAUTION lights on glareshield and FIRE DETECTOR LOOP light on annunciator panel should come on.
- (14) Release LOOPS A test switch. Loop lights and MASTER CAUTION lights should go off.
- (15) Depress and hold LOOPS B test switch. All LOOP B lights on fire detector system panel, MASTER CAUTION lights on glareshield and FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel should come on.
- (16) Release LOOPS B test switch. Loop lights and MASTER CAUTION lights should go off.
- (17) Place loop selector switches on fire detector system panel in LOOPS A positions.
- (18) Depress LOOPS A test switch. Fire aural warning should come on and following lights should come on:
 - All LOOPS A lights on fire detector system panel
 - Lights in both engine fire control handles
 - APU FIRE light in annunciator panel

WJE 401-404, 412, 414

- FIRE DETECTOR LOOP display annunciator panel

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only

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WJE ALL

- MASTER WARNING lights on glareshield
 - MASTER CAUTION lights on glareshield.
- (19) Release LOOPS A test switch. All lights listed in Paragraph 2.A.(18) should go off, and fire aural warning should go off.
- (20) Place all loops selector switches in B position.
- (21) Depress LOOPS B test switch. Fire aural warning should come on and following lights should come on:
- All LOOPS B lights on fire detector system panel
 - Lights in both engine fire control handles
 - APU FIRE light in annunciator panel

WJE 401-404, 412, 414

- FIRE DETECTOR LOOP display in annunciator panel

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only

WJE ALL

- MASTER WARNING lights on glareshield
 - MASTER CAUTION lights on glareshield.
- (22) Release LOOPS B test switch. All lights and display listed in previous step should go off, and fire aural warning should go off.
- (23) Place all loops selector switches in BOTH position.
- (24) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (25) Remove fire detector plugs from APU enclosure. Connect jumper wire from pin A of each receptacle to ground.

WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (26) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (a) Both APU loop lights, APU FIRE light on annunciator panel, MASTER CAUTION, and MASTER WARNING lights should come on.

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WJE ALL

- (27) Make sure that this circuit breaker is closed:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (28) Place APU MASTER SW in RUN position (do not move to START position).

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

WARNING: FIRE WARNING HORN IS VERY LOUD. WEAR SUITABLE EAR PROTECTION.

- (29) Fire warning horn should sound, APU FIRE vocal warning should annunciate through CAWS speakers in flight compartment, and FIRE light on APU external control panel should come on.

NOTE: APU FIRE vocal warning will annunciate three times (about 6 seconds); then, automatically stop. The vocal warning will not repeat until the circuit is interrupted and made again.

WJE 861, 862

WARNING: MAKE SURE YOU USE THE APPROVED SAFETY EQUIPMENT FOR YOUR EARS WHEN YOU ARE NEAR THE WARNING HORN. THE SOUND FROM THE HORN HAS A VERY HIGH LEVEL OF INTENSITY, AND CAN CAUSE DAMAGE TO YOUR EARS.

- (30) Fire warning horn should sound. FIRE light on APU external panel should come on.
(31) Push LOOP A test switch. Fire warning horn should go off. Release LOOP A test switch. Fire warning horn should sound again.

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (32) Push LOOPS A test switch. Fire warning horn should go off and APU FIRE vocal warning should stop annunciating through CAWS speakers in flight compartment. Release LOOP A test switch. Fire warning horn should sound again and APU FIRE vocal warning should annunciate through CAWS speakers in flight compartment.

WJE 861, 862

- (33) Push LOOP B test switch. Fire warning horn should go off. Release LOOP B test switch. Fire warning horn should sound again.

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (34) Push LOOPS B test switch. Fire warning horn should go off and APU FIRE vocal warning should stop annunciating through CAWS speakers in flight compartment. Release LOOP B test switch. Fire warning horn should sound again and APU FIRE vocal warning should annunciate through CAWS speakers in flight compartment.

WJE ALL

- (35) Place APU MASTER SW in OFF position. External FIRE light and fire warning horn should remain on.
(36) Open this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

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- (a) External light and fire warning horn should go off, and APU FIRE vocal warning should not annunciate.

- (37) Close this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

WJE 401-412, 414-427, 429, 863-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (38) Place FIRE CONTROL switch in OFF & AGENT ARM position. External light, APU FIRE vocal warning should annunciate through CAWS speakers in flight compartment, and fire warning horn should come on.

WJE 861, 862

- (39) Place FIRE CONTROL switch in OFF & AGENT ARM position. External light and fire warning horn should come on.

WJE ALL

- (40) Place FIRE CONTROL switch in NORM position. External light and fire warning horn should remain on.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (a) External light and fire warning horn should go off.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (43) Remove jumper wires and connect detector plugs.
- (44) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

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OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (45) Place APU GEN switch to RESET position to close field circuit.
- (46) Return aircraft to required configuration.

B. Fire Detector Wire Routing Test

NOTE: During the following procedures the fire aural warning and engine fire warning lights (in the Firex handle) will not come on and the annunciator fire detector loop light will light whenever a LOOP light on the overhead panel is on. Since this has been checked in previous tests it is not mentioned below for clarity.

- (1) Place three loop selector switches, located on aft overhead switch panel, in BOTH position.
- (2) Make sure that these circuit breakers are closed:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (3) Perform fire detector wire routing test for left engine.
- (4) Disconnect connector at either end of LOOP A element (engine - located at bottom of engine, APU - located on fwd side of APU enclosure inside either APU access door).
- (5) Place jumper wire between ground and center conductor of detector element. Left engine LOOP A light shall come on.
- (6) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL

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(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

(a) Left Engine LOOP A light only should remain on.

(7) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (8) Remove jumper wire. Loop light shall go out.
- (9) Place jumper wire between ground and center conductor of plug that was on detector. LOOP A light for system being tested (left engine, right engine, or APU) shall come back on.
- (10) Remove jumper wire. Loop light shall go off.
- (11) Repeat Paragraph 2.B.(3) through Paragraph 2.B.(10) for LOOP B.
- (12) Place jumper wire between ground and center conductor of LOOP A detector element. With LOOP A and B elements grounded, amber lights, fire warning lights and fire aural warning or fire warning horn (APU) shall come on.
- (13) Remove jumper wires. Warnings shall stop.
- (14) Restore systems to normal.
- (15) Repeat Paragraph 2.B.(3) through Paragraph 2.B.(14) for right engine.
- (16) Place APU master switch in RUN position.
- (17) Repeat Paragraph 2.B.(3) through Paragraph 2.B.(14) for APU.
- (18) Place APU MASTER SW switch in OFF position.

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(19) Open this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

(20) Operate both test switches. All loop lights, fire warning light, and fire aural warning shall operate.

Remove the safety tag and close this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

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FIRE DETECTION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-10-00-710-801

2. Operational Check of the Engine and APU Fire Detection System for Integrity

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure is a Special Compliance Item (SCI 26-2). This procedure has the integrity check instructions for the engine/APU fire detection system.
- (2) This SCI is to determine if fire detector wiring were crossed as a result of prior maintenance activities.
- (3) During this procedure the fire aural warning and engine fire warning lights (in the Firex handle) should not come on and the annunciator fire detector loop light will light whenever a LOOP light on the overhead panel is on. The light in the fire handle associated with the engine being tested should come on during the individual FIRE TEST.

B. Fire Detector Wire Routing Test

SUBTASK 26-10-00-860-001

- (1) Place three loop selector switches, located on aft overhead switch panel, in BOTH position.

SUBTASK 26-10-00-860-003

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-003

- (3) Perform fire detector wire routing test for left engine Loop A.
- (4) Disconnect connector at either end of LOOP A element - located at bottom of engine.
- (5) Place jumper wire between ground and center conductor of detector element.
 - (a) Left engine LOOP A Light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

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SUBTASK 26-10-00-860-002

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-004

- (7) Left Engine LOOP A light ONLY should remain on.

SUBTASK 26-10-00-860-004

- (8) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-005

- (9) Remove jumper wire. Left Engine Loop A light shall go out.
- (10) Place jumper wire between ground and center conductor of plug that was on detector. Left Engine LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come back on.
- (11) Remove jumper wire Left Engine LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall go off
- (12) Perform fire detector wire routing test for Left Engine Loop B.
- (13) Disconnect connector at either end of LOOP B element located at bottom of engine.

EFFECTIVITY
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- (14) Place jumper wire between ground and center conductor of detector element. Left engine LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

SUBTASK 26-10-00-710-006

- (15) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-008

- (16) Left Engine LOOP B light ONLY should remain on.

SUBTASK 26-10-00-710-007

- (17) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-009

- (18) Remove jumper wire. Left Engine Loop B light shall go out.
- (19) Place jumper wire between ground and center conductor of plug that was on detector. LOOP B light for left engine Loop B shall come back on.
- (20) Remove jumper wire. Loop light shall go off.
- (21) Place jumper wire between ground and center conductor of LOOP A detector element. With LOOP A and B elements grounded, verify the following:

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- (a) Left Engine Loop A and Loop B lights come on.
 - (b) Fire Detector Loop light on the Annunciator Panel comes on.
 - (c) Master Caution light comes on (for aircraft with this feature).
 - (d) Left Engine Fire Handle comes on.
 - (e) Fire Aural Warning is heard.
- (22) Remove jumper wires. Warnings shall stop.
- (23) Restore systems to normal.

C. RIGHT ENGINE

SUBTASK 26-10-00-860-005

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-010

- (2) Perform fire detector wire routing test for right engine Loop A.
- (3) Disconnect connector at either end of LOOP A element - located at bottom of engine.
- (4) Place jumper wire between ground and center conductor of detector element. Right engine LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

SUBTASK 26-10-00-860-006

- (5) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL

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WJE ALL

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OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-011

- (6) Right Engine LOOP A light ONLY should remain on.

SUBTASK 26-10-00-860-007

- (7) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-012

- (8) Remove jumper wire. Right Engine Loop A light shall go out.
- (9) Place jumper wire between ground and center conductor of plug that was on detector. Right Engine LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come back on.
- (10) Remove jumper wire. Right Engine LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall go off.
- (11) Perform fire detector wire routing test for right engine Loop B.
- (12) Disconnect connector at either end of LOOP B element located at bottom of engine.
- (13) Place jumper wire between ground and center conductor of detector element. Right engine LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

SUBTASK 26-10-00-860-008

- (14) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A

EFFECTIVITY
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(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-013

- (15) Right engine Loop B light ONLY should remain on.

SUBTASK 26-10-00-860-009

- (16) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-014

- (17) Remove jumper wire. Right Engine Loop B light shall go out.
- (18) Place jumper wire between ground and center conductor of plug that was on detector. Right Engine LOOP B , FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come back on
- (19) Remove jumper wire. Right Engine LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall go off.
- (20) Place jumper wire between ground and center conductor of LOOP A detector element. With LOOP A and B elements grounded, verify the following:
- (a) Right Engine Loop A and Loop B lights come on.
 - (b) Fire Detector Loop light on the Annunciator Panel comes on.
 - (c) Master Caution light comes on (for aircraft with this feature).
 - (d) Right Engine Fire Handle comes on.
 - (e) Fire Aural Warning is heard.

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- (21) Remove jumper wires. Warnings shall stop.
- (22) Restore systems to normal.

D. APU

SUBTASK 26-10-00-710-015

- (1) Place APU Master Switch in RUN position.

SUBTASK 26-10-00-860-010

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-016

- (3) Perform fire detector wire routing test for APU Loop A.
- (4) Disconnect connector at either end of LOOP A element - located on fwd side of APU enclosure inside either APU access door.
- (5) Place jumper wire between ground and center conductor of detector element. APU LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

SUBTASK 26-10-00-860-011

- (6) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

EFFECTIVITY
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OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-017

- (7) APU Loop A light ONLY should remain on.

SUBTASK 26-10-00-860-012

- (8) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-018

- (9) Remove jumper wire. APU Loop A light shall go out.
- (10) Place jumper wire between ground and center conductor of plug that was on detector. APU LOOP A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come back on.
- (11) Remove jumper wire. APU Loop A light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall go off.
- (12) Perform fire detector wire routing test for APU Loop B.
- (13) Disconnect connector at either end of APU LOOP B element - located on fwd side of APU enclosure inside either APU access door.
- (14) Place jumper wire between ground and center conductor of detector element. APU LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come on.

SUBTASK 26-10-00-860-013

- (15) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A

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LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-001

- (16) APU Loop B Loop light ONLY should remain on.

SUBTASK 26-10-00-860-014

- (17) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-019

- (18) Remove jumper wire. APU Loop B light shall go out.
- (19) Place jumper wire between ground and center conductor of plug that was on detector. APU LOOP B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall come back on.
- (20) Remove jumper wire. APU Loop B light, FIRE DETECTOR LOOP light on the Annunciator Panel and MASTER CAUTION lights (for those aircraft with this feature) shall go off.
- (21) Place jumper wire between ground and center conductor of LOOP A detector element. With LOOP A and B elements grounded, verify the following:
- (a) APU Loop A and Loop B lights come on.
 - (b) Fire Detector Loop light on the Annunciator Panel comes on.
 - (c) APU FIRE light on the Annunciator Panel comes on.
 - (d) Master Warning light comes on.
 - (e) Master Caution light comes on (for aircraft with this feature).
 - (f) APU Fire Aural Warning.

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- (g) APU Fire Warning Horn is heard.
- (22) Remove jumper wires:
 - (a) APU Loop A and Loop B lights go off.
 - (b) Fire Detector Loop light on the Annunciator Panel goes off.
 - (c) APU FIRE light on the Annunciator Panel goes off.
 - (d) Master Warning light goes off.
 - (e) Master Caution light goes off (for aircraft with this feature).
 - (f) APU Fire Aural Warning goes off.
 - (g) APU Fire Warning Horn goes off.

SUBTASK 26-10-00-942-002

- (23) Restore systems to normal.
- (24) Place APU Master Switch to the OFF position.

SUBTASK 26-10-00-860-015

- (25) Open this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-710-002

- (26) Operate both Loop A and Loop B test switches at the same time:
 - (a) Left Engine, Right Engine and APU Loop A and Loop B lights turn on.
 - (b) APU Fire warning light goes on.
 - (c) Master Warning lights go on.
 - (d) Master Caution lights go on (for those aircraft with this feature).
 - (e) Fire aural warning is heard.
 - (f) Left and Right Engine Fire Handle lights go on.

SUBTASK 26-10-00-860-016

- (27) Close this circuit breaker:

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-00-942-001

- (28) Restore systems to normal.

————— **END OF TASK** —————

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ENGINE FIRE DETECTOR UNITS - MAINTENANCE PRACTICES

1. General

- A. There are three fire detector units installed in each engine area; one is installed on the lower part of the engine, and one each is installed on the upper and lower part of the fire shield.
- B. Removal and installation procedures are identical for left and right engine fire detector units.

CAUTION: EXTREME CARE SHOULD BE EXERCISED DURING MAINTENANCE PRACTICES. DO NOT TWIST, KINK, OR DENT THE SENSING ELEMENTS OF THE FIRE DETECTOR ELEMENTS.

- C. Access to the engine fire detector units is through the engine cowl doors and access doors.

NOTE: Fire detector units can be removed and installed with engine mounted.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items:

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Name and Number	Manufacturer
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not specified
Torque wrench, 0-100 inch-pounds (0-11.3 N·m)	

3. Removal/Installation Engine Fire Detector Units

- A. Removal Fire Detector Unit - Engine Mounted

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (2) Disconnect aircraft harness electrical connectors from sensing element connectors. Retain hooded socket from pin type wire connector for installation.
- (3) Remove bonding wires from fire detector unit support.
- (4) Support fire detector unit and unfasten support clamps.
- (5) Carefully remove detector unit from engine.

- B. Install Fire Detector Unit - Engine Mounted

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (2) Carefully position fire detector unit in engine-mounted support clamps. (Figure 201)
- (3) Fasten sufficient number of support clamps to secure detector unit to engine.
- (4) Check detector unit for clearance from engine, and check that support tube is not twisted or under tension.
- (5) Fasten remaining support clamps.

NOTE: New copper gaskets must be installed between sensing element electrical connection points, whenever the connections are disturbed, check to assure hooded sockets are installed in sensor connector which mates with pin type wire connector.
(Figure 26-10-04-990-801)

- (6) Connect aircraft harness electrical connectors to sensing element connectors. Tighten connectors to torque of 50 to 70 inch-pounds (5.6 to 7.84 N·m).
- (7) Connect bonding wires to fire detector unit support.
- (8) Safety electrical connectors with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (9) Remove tags and close following circuit breakers:

Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

WJE 405-412, 414-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE ALL

- (10) Do a test of the fire protection system. (GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201)

C. Remove Fire Detector Units - Fire Shield

EFFECTIVITY
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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

NOTE: To remove upper unit, remove upper cowl door. To remove lower unit, open lower forward and aft engine access doors.

- (2) Disconnect aircraft harness electrical connectors from sensing elements. Retain hooded socket from pin type wire connector for installation.
- (3) Remove bonding wire from detector unit; retain hardware for installation.
NOTE: Make certain only conductive washers and hardware are used for electrical bonding.
- (4) Remove detector unit support clamps and mounting screws.
- (5) Carefully remove fire detector unit from pylon fire shield.

D. Install Fire Detector Unit - Pylon Fire Shield

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (2) Carefully position fire detector unit in place on pylon fire shield.
- (3) Install detector unit mounting screws and support clamps. (Figure 202)
NOTE: New copper gaskets must be installed between sensing element electrical connection points, whenever the connections are disturbed, check to assure hooded sockets are installed in sensor connector which mates with pin type wire connector. (SENSING ELEMENTS - REMOVAL/INSTALLATION, PAGEBLOCK 26-10-04/401)
- (4) Connect aircraft harness electrical connectors to sensing elements; tighten electrical connectors to torque of 50 to 70 inch-pounds (5.6 to 7.84 N·m).
- (5) Connect bonding wires to bonding clamps on detector unit.
NOTE: Make certain only conductive washers and hardware are used for electrical bonding.
- (6) Safety electrical connectors with lockwire. LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

WJE 405-412, 414-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE ALL

- (8) Do a test of the fire protection system. (GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201)

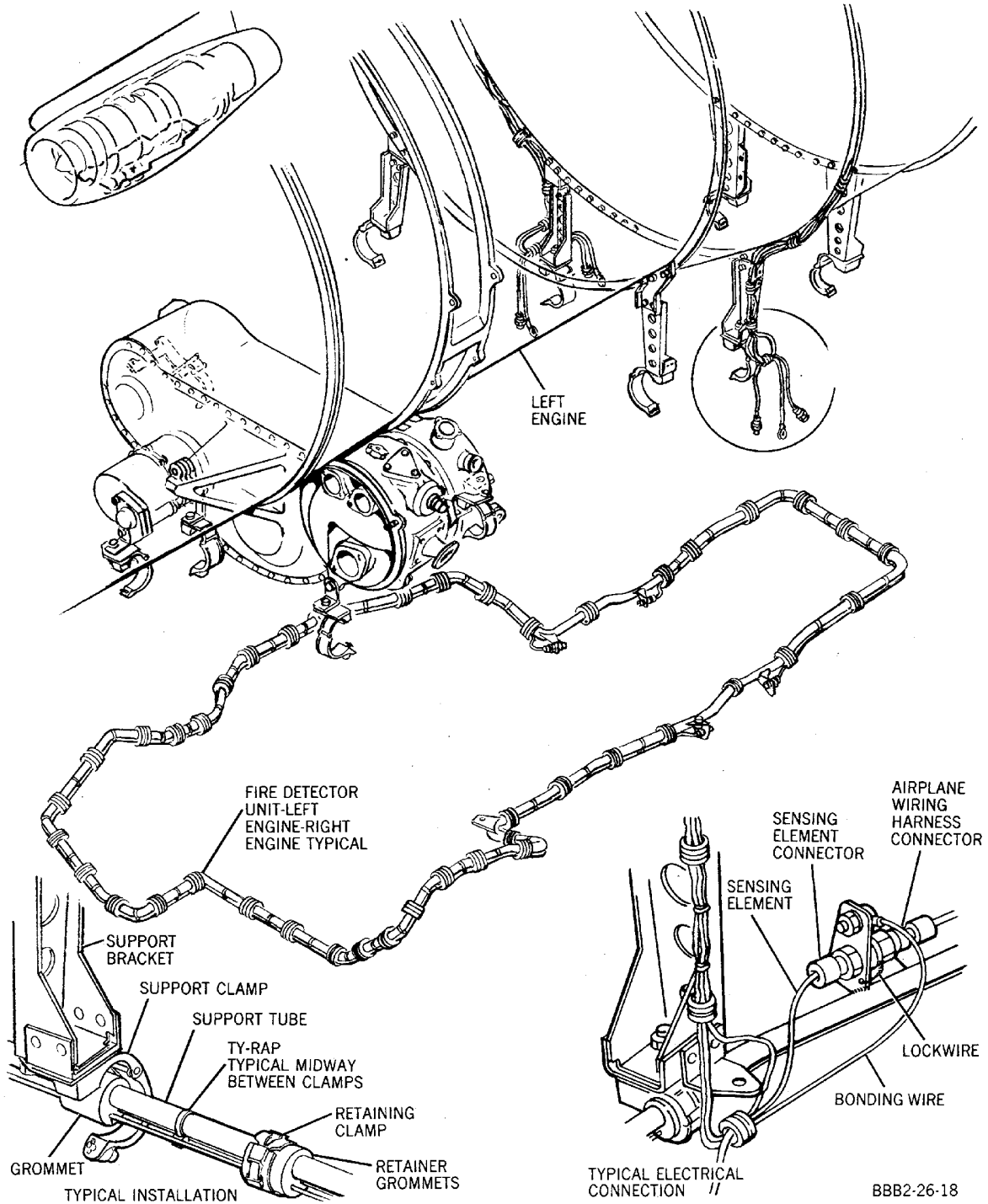
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**Engine Fire Detector Units -- Installation on Engine
Figure 201/26-10-01-990-801**

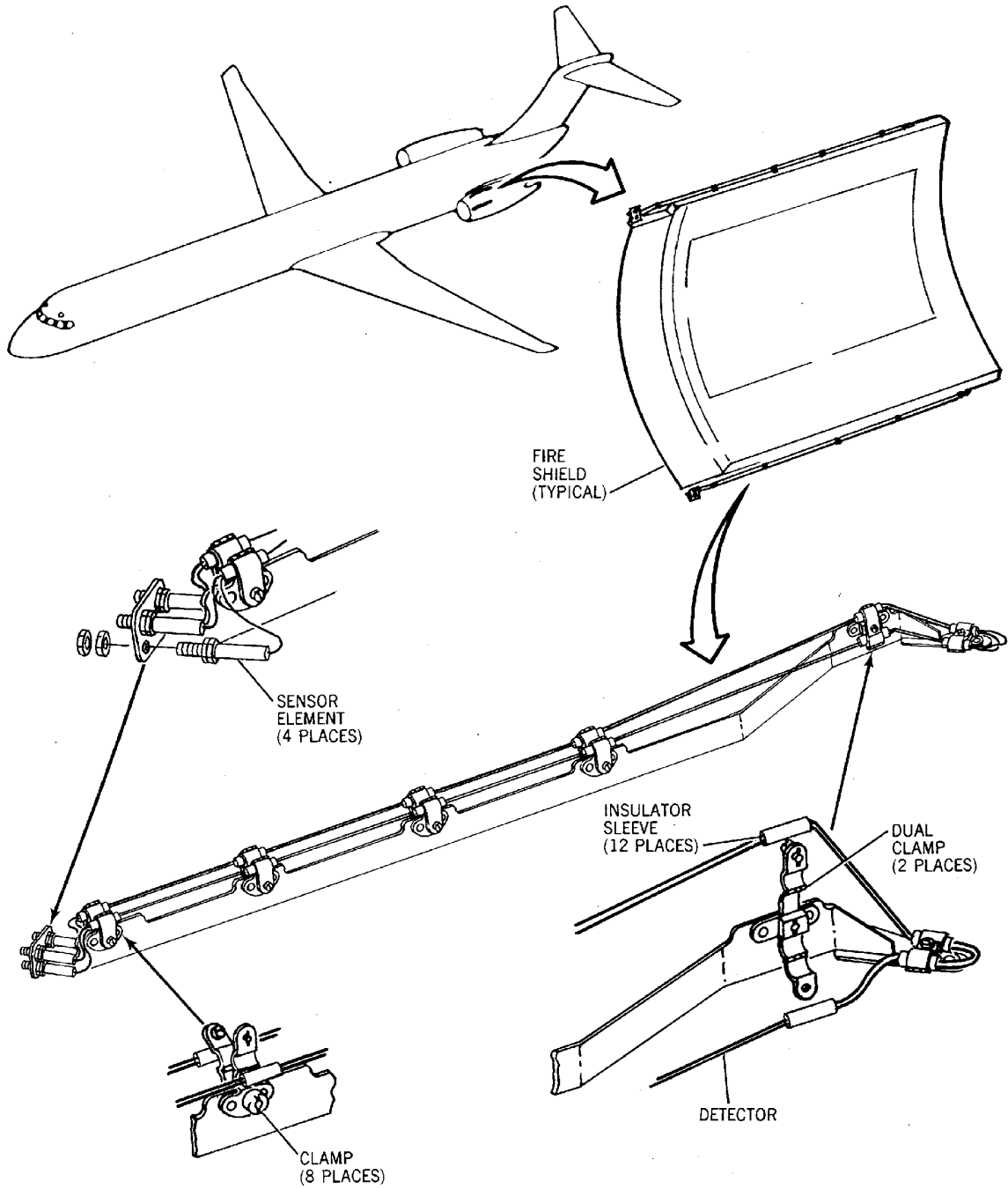
EFFECTIVITY
WJE ALL

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BBB2-26-24

Engine Fire Detector Units -- Installation -- Fire Shield
Figure 202/26-10-01-990-802

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AUXILIARY POWER UNIT FIRE DETECTOR UNITS - MAINTENANCE PRACTICES

1. General

- A. Removal and installation procedures are applicable to both left and right fire detector units in the APU compartment.

CAUTION: EXTREME CARE SHOULD BE EXERCISED DURING MAINTENANCE PRACTICES NOT TO TWIST, KINK, OR DENT THE SENSING ELEMENTS.

- B. Access to the fire detector units and wiring harness is through the APU compartment doors.

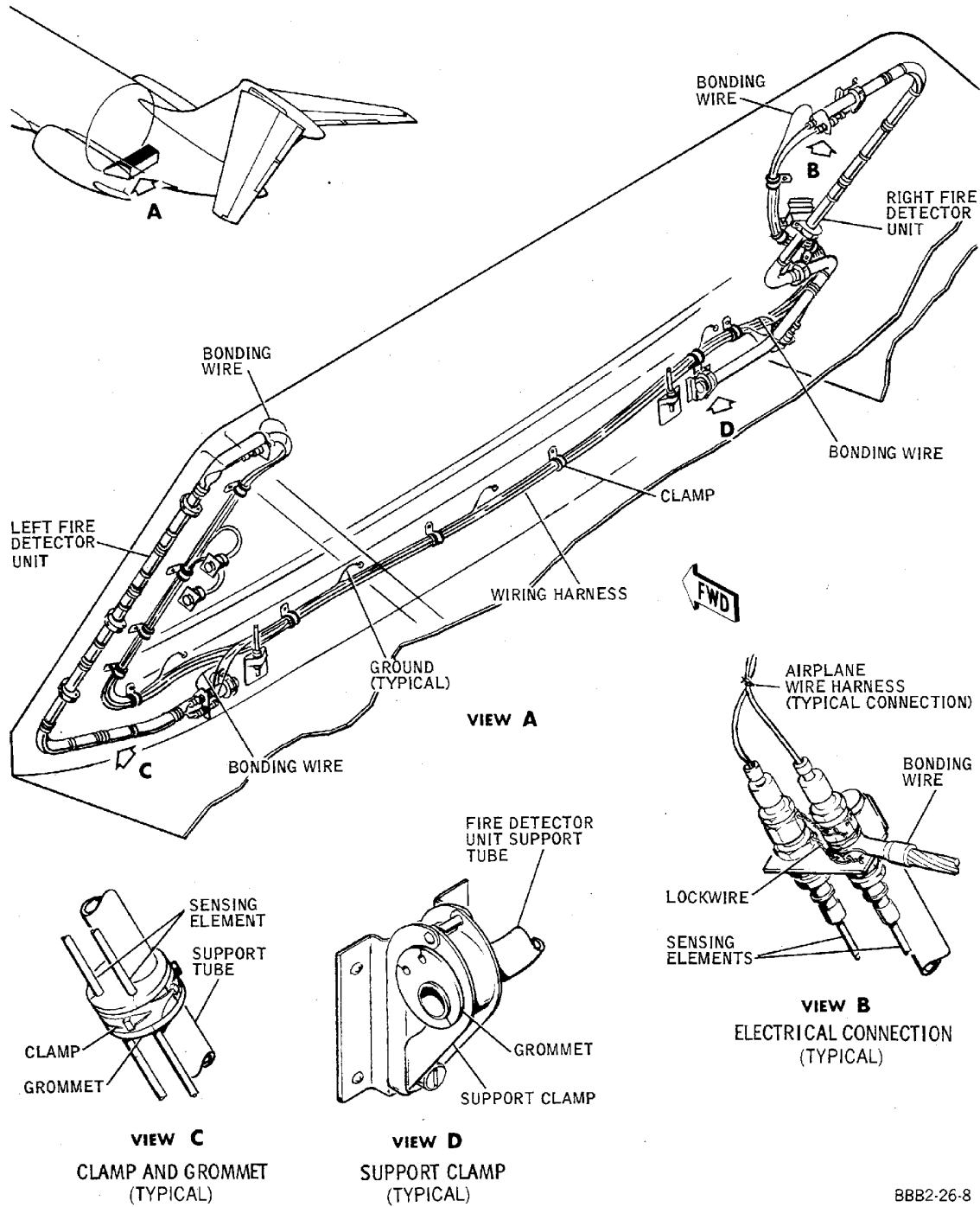
EFFECTIVITY
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APU Fire Detector Units -- Installation
Figure 201/26-10-02-990-801

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2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

Table 201

Name and Number	Manufacturer
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not specified
Torque wrench 0-100 inch-pounds (0-11.3 N·m)	

3. Removal/Installation APU Fire Detector Units

A. Remove APU Fire Detector Unit

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (2) Disconnect aircraft harness electrical connectors from sensing element connectors. Retain hooded socket from pin type wire connector for installation.
- (3) Remove bonding wires from fire detector unit.
- (4) Support detector unit and open support clamps.
- (5) Remove fire detector unit.

B. Install APU Fire Detector Unit

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (2) Carefully position fire detector unit in support clamps and fasten clamps.
- (3) Install bonding wires to detector unit.
- (4) Connect aircraft harness electrical connectors to sensing element connectors. Tighten connectors to torque of 50 to 70 inch-pounds (5.6 to 7.84 N·m).

NOTE: New copper gaskets must be installed between sensing elements connection points, whenever the connections are disturbed, check to assure hooded sockets are installed in sensor connector which mates with pin type wire connector. (SENSING ELEMENTS - REMOVAL/INSTALLATION, PAGEBLOCK 26-10-04/401)

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- (5) Safety electrical connectors with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (6) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

WJE 401-404, 412, 414

- (7) Depress and hold both loops test switches. Aural Warning and following lights and display should come on:
 - APU FIRE light on annunciator panel
 - MASTER WARNING lights
 - MASTER CAUTION lights
 - Loop lights on fire detector system panel
 - FIRE DETECTOR LOOP display on annunciator panel.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (8) Depress and hold both loops test switches. Aural Warning and following lights should come on:
NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE 415-427, 429, 861-866, 868, 869, 871-879, 886, 887, 891-893

- APU FIRE light on annunciator panel
- MASTER WARNING lights
- MASTER CAUTION lights
- Loop lights on fire detector system panel
- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only.

WJE 405-411, 880, 881, 883, 884

- APU FIRE light on annunciator panel
- MASTER WARNING lights
- MASTER CAUTION lights (on aircraft 114 only)
- Loop lights on fire detector system panel
- FIRE DETECTOR LOOP light on annunciator panel.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (9) Release test switches. Aural Warning and lights listed in previous step should go off.

WJE 401-404, 412, 414

- (10) Release test switches. Aural Warning, lights and display listed in previous step should go off.

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WJE ALL

4. Removal/Installation APU Fire Detector Wiring Harness

A. Remove Wiring Harness

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (2) Disconnect connectors from receptacles on APU enclosure.
- (3) Remove wiring harness ground connections from base of forward wall of enclosure.
- (4) Disconnect harness connectors and bonding wires from left and right fire detector units. Retain hooded socket from pin type wire connector for installation.
- (5) Carefully remove clamps and wiring harness from enclosure.

B. Installing Wiring Harness

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

- (2) Carefully position wiring harness as shown in Figure 201 and secure in place with clamps.
- (3) Connect bonding wires and connectors to left and right fire detector units. Tighten connectors to torque of 50 to 70 inch-pounds (5.6 to 7.84 N·m).

NOTE: New copper gaskets must be installed between sensing element connection points whenever the connections are disturbed, and check to assure hooded sockets are installed in sensor connector which mates with pin type wire connector. (SENSING ELEMENTS - REMOVAL/INSTALLATION, PAGEBLOCK 26-10-04/401)

- (4) Safety electrical connectors with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (5) Ground wiring harness four places to base of forward wall of enclosure.
- (6) Connect harness connectors to receptacles on APU enclosure.
- (7) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

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WJE 401-404, 412, 414

- (8) Press and hold both loop test switches; Aural Warning and following lights and display should come on:
- APU FIRE light on annunciator panel
 - MASTER WARNING lights
 - MASTER CAUTION lights
 - Loop lights on fire detector system panel
 - FIRE DETECTOR LOOP display on annunciator panel.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (9) Press and hold both loop test switches; Aural Warning and following lights should come on:
- NOTE: On applicable aircraft equipped with LED screens on EOAP (Electronic Overhead Annunciator Panel), a FIRE DETECTOR LOOP display will come on in lieu of FIRE DETECTOR LOOP light.

WJE 415-427, 429, 861-866, 868, 869, 871-879, 886, 887, 891-893

- APU FIRE light on annunciator panel
- MASTER WARNING lights
- MASTER CAUTION lights
- Loop lights on fire detector system panel
- FIRE DETECTOR LOOP light and display on EOAP or FIRE DETECTOR LOOP light on annunciator panel only.

WJE 405-411, 880, 881, 883, 884

- APU FIRE light on annunciator panel
- MASTER WARNING lights
- MASTER CAUTION lights (on aircraft 114 only)
- Loop lights on fire detector system panel
- FIRE DETECTOR LOOP light on annunciator panel.

WJE 401-404, 412, 414

- (10) Release test switches; Aural Warning, lights and display listed in previous step should go off.
- NOTE: When a complete fire protection system test is desired, refer to GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (11) Release test switches; Aural Warning and lights should go off.
- NOTE: When a complete fire protection system test is desired, refer to GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201.

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FIRE DETECTOR CONTROL UNITS - MAINTENANCE PRACTICES

1. General

- A. There are three fire detector control units located in the electrical/electronics compartment. Access to the units is through the compartment access door.
- B. Removal and installation procedures are identical for all units.

2. Removal/Installation Fire Detector Control Unit

- A. Remove Fire Detector Control Unit

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (2) Disconnect electrical connector from control unit.
- (3) Remove fire detector control unit.

- B. Install Fire Detector Control Unit

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

NOTE: Make certain bonding surfaces of control unit and mounting surface are clean.

- (2) Install fire detector control unit.
- (3) Connect electrical connector to control unit.
- (4) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B

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(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (5) Do a test of the fire protection system. (GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201)

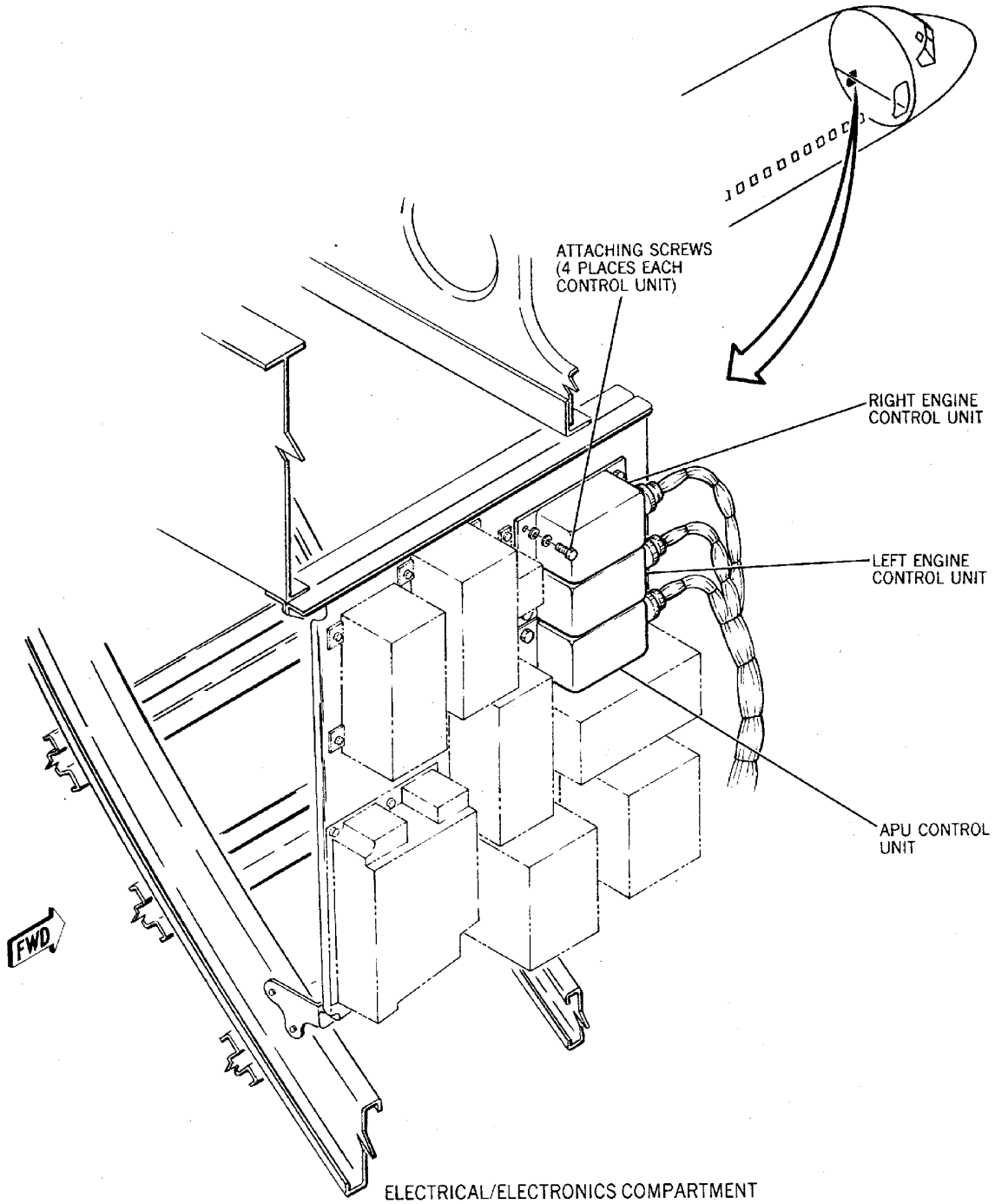
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WJE ALL

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BBB2-26-9A

Fire Detector Control Units
Figure 201/26-10-03-990-801

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SENSING ELEMENTS - REMOVAL/INSTALLATION

1. General

CAUTION: EXTREME CARE SHOULD BE EXERCISED DURING MAINTENANCE PRACTICES. DO NOT TWIST, KINK, DENT, OR BEND SENSING ELEMENTS BEYOND 1-INCH (25.4 MM) MINIMUM BEND RADIUS FOR ENGINE AND APU. MINIMUM BEND RADIUS FOR ENGINE FIRE BARRIER SENSING ELEMENT IS 0.375 INCHES (9.5 MM). ATTEMPTS TO STRAIGHTEN AN ELEMENT RADIUS LESS THAN 1 INCH (25.4 MM) CAN DAMAGE ELEMENT.

- A. The sensing elements are located on the fire detector units installed on the engine, engine fire shield, and in the APU compartment. Access to the elements is through the engine cowl doors, and the APU compartment doors.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

NOTE: It is possible that some materials in the Equipment and Materials List cannot be used for some or all of their necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Table 401

Name and Number	Manufacturer
Ty-Rap installation tool WT-183M	Thomas and Betts
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not specified
Copper gasket 209592	Walter Kidde
Solvent, cleaning P-D-680, Type 1 DPM 518	Arco Corp

3. Removal/Installation Sensing Elements

- A. Remove Sensing Elements

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

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- (2) Disconnect aircraft harness and remove fire detector unit. (ENGINE FIRE DETECTOR UNITS - MAINTENANCE PRACTICES, PAGEBLOCK 26-10-01/201) (AUXILIARY POWER UNIT FIRE DETECTOR UNITS - MAINTENANCE PRACTICES, PAGEBLOCK 26-10-02/201)
- (3) Remove hex nuts from sensing element electrical connectors.
- (4) Remove retaining clamps from grommets.
- (5) Remove sensing elements (one at a time) from grommets, support element free end at all times.

NOTE: Before removing sensing elements, the electrical connectors should be identified at each support as to type of connector (pin/socket). Clamp locations should be marked on the support tube. This will facilitate installation.

B. Install Sensing Elements

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

NOTE: Install one sensing element at a time.

- (2) Install one sensing element electrical connector in support tube bracket, Do not tighten hex nut, check for correct pin or socket.
- (3) Progressively route element in grommets and install remaining electrical connector in support bracket. Do not tighten hex nut.
- (4) Install second sensing element (if removed), repeating Paragraph 3.B.(2) and Paragraph 3.B.(3).
- (5) Install retaining clamps on grommets.
- (6) Tighten hex nuts on electrical connectors being careful not to twist elements.
- (7) Safety hex nuts with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (8) Make certain a Ty-Rap is installed midway between each retaining clamp installation. (See Paragraph 4. if Ty-Rap installation required).
- (9) Check elements for clearance (1/16-inch (1.59 mm) min. to 3/8-inch (9.525 mm) max.) from support tube, and check that elements are not twisted or kinked.
- (10) Install fire detector unit on aircraft and connect aircraft harness. (ENGINE FIRE DETECTOR UNITS - MAINTENANCE PRACTICES, PAGEBLOCK 26-10-01/201) (AUXILIARY POWER UNIT FIRE DETECTOR UNITS - MAINTENANCE PRACTICES, PAGEBLOCK 26-10-02/201)

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B

- (12) Do a test of the fire protection system. (GENERAL - MAINTENANCE PRACTICES, PAGEBLOCK 26-00-00/201)

4. Ty-Rap Installation

A. Install Ty-Rap (Figure 401)

- (1) Place Ty-Rap around support tube and insert tip through Ty-Rap hub.
- (2) Cinch Ty-Rap around support tube by hand.
- (3) Insert free end (tip) of Ty-Rap through slot in nose guide of Ty-Rap installation tool.
- (4) Slide tool up on Ty-Rap so nose guide is against Ty-Rap hub.
- (5) Pump tool handle gently so snubber tightens Ty-Rap, then depress handles until cutoff blade is just below slot in nose guide.
- (6) Rotate tool approximately 120 degrees in either direction.
- (7) Return tool to approximately 20 degrees from original position and close tool handles; Ty-Rap will be crimped and excess tip of Ty-Rap will be cut off.

5. Check Sensing Elements

A. Check Detection Unit (Visual)

- (1) Check parts for cracks, abrasions, dents, gouges, or other damage.
- (2) Check grommet in retaining clamps for gouges, checking, or deterioration.
- (3) Check Ty-Raps for security of installation and alignment.
NOTE: Ty-Raps should be snug on support tube with no lateral movement under normal finger pressure.
- (4) Check condition of support tube fasteners.
- (5) Check elements for kinks, dents, sharp bends, deep abrasions, or crushed sections as follows:

6. Cleaning Sensing Elements and Connectors

A. Clean Elements and Connectors

- (1) Clean elements and connectors thoroughly with solvent.

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WARNING: P-D-680 TYPE 1 SOLVENT IS AN AGENT THAT IS FLAMMABLE AND POISONOUS. MAKE SURE ALL PERSONS OBEY ALL OF THE PRECAUTIONS WHEN P-D-680 TYPE 1 SOLVENT IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET P-D-680 TYPE 1 SOLVENT IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR:

- MORE PRECAUTIONARY DATA
- APPROVED SAFETY EQUIPMENT
- EMERGENCY MEDICAL AID.

TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- (2) Rinse elements and connectors with clean solvent.
- (3) Dry elements and connectors with clean wipers or clean, dry air.

NOTE: Elements and connectors must be free of dirt, grease, oil, and other contaminants.

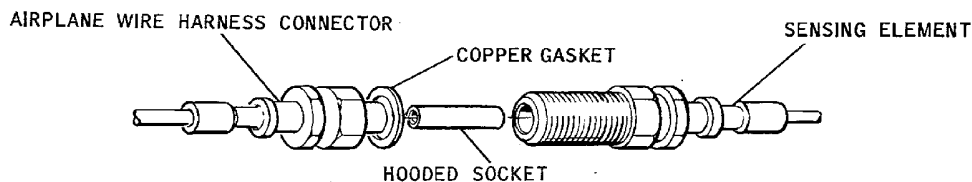
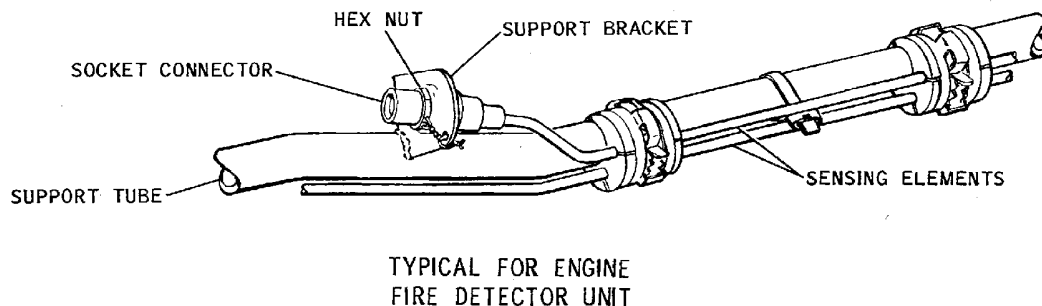
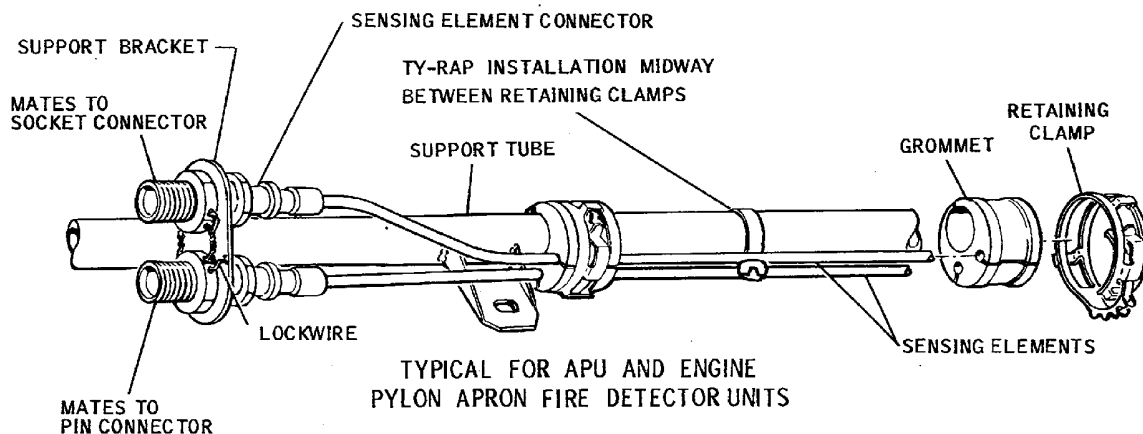
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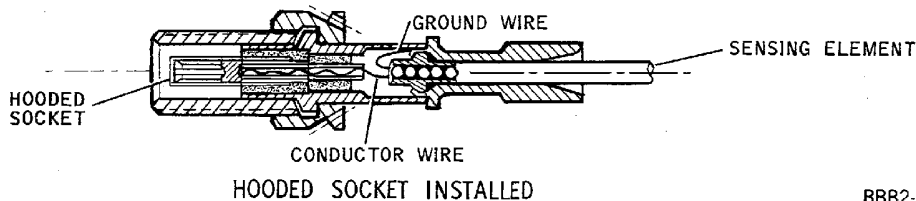
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CONNECTOR WITH HOODED SOCKET INSTALLED MATES WITH PIN TYPE CONNECTOR -- WITH SOCKET REMOVED MATES WITH SOCKET TYPE CONNECTOR

TYPICAL CONNECTION SENSING ELEMENT TO AIRPLANE HARNESS CONNECTOR



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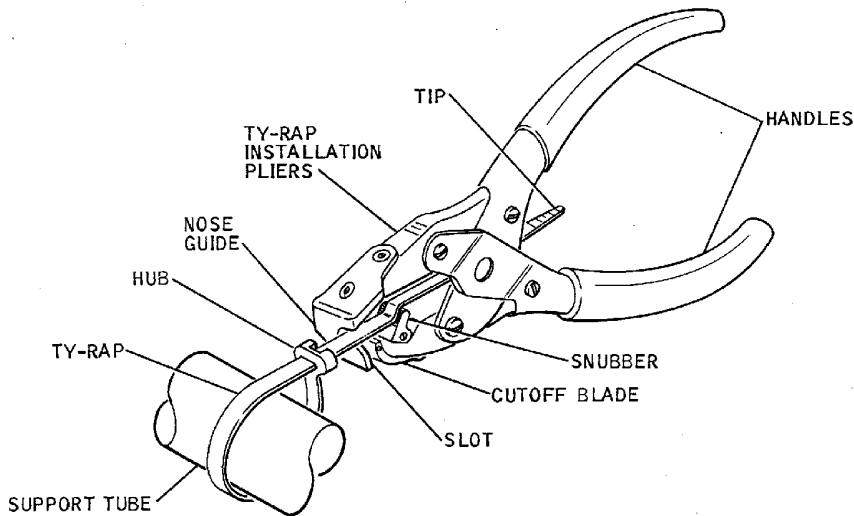
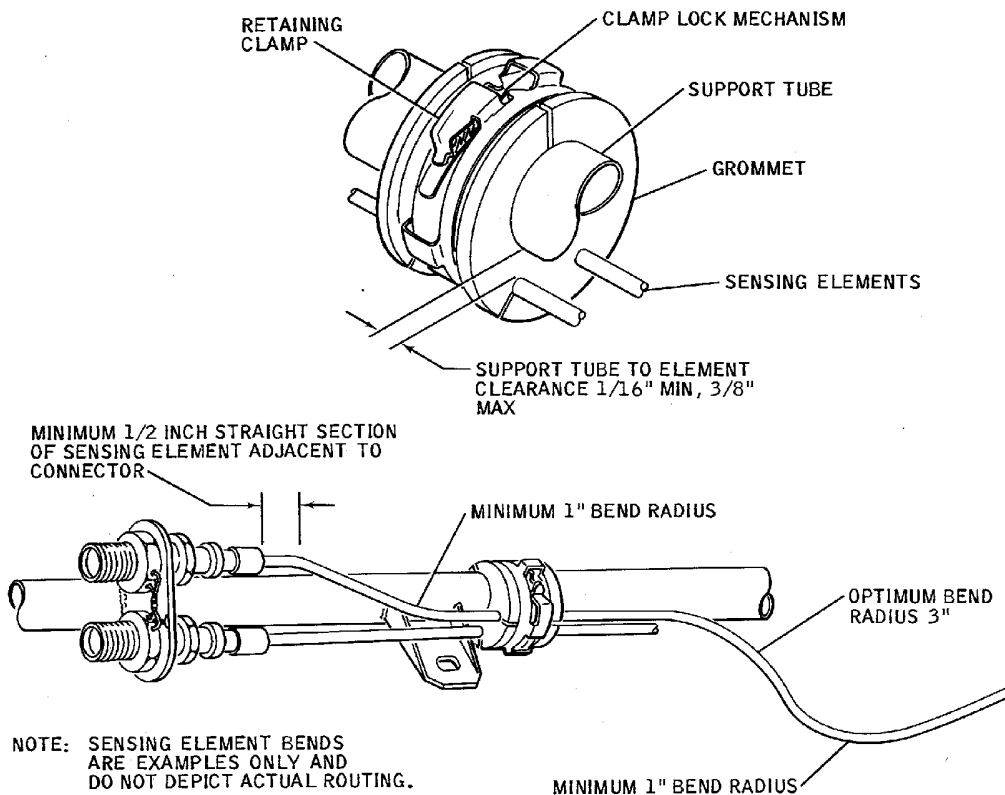
Sensing Elements Installation
Figure 401/26-10-04-990-801 (Sheet 1 of 2)

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Sensing Elements Installation
 Figure 401/26-10-04-990-801 (Sheet 2 of 2)

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SENSING ELEMENTS - ADJUSTMENT/TEST

1. General

- A. The sensing element test is a resistance check of the sensing element loops as installed in the aircraft.
- B. The fire detector control units are located in the electrical/electronics compartment and are accessible through the compartment access door.

2. Equipment and Materials

CAUTION: DO NOT USE MEGOHMMETER.

NOTE: Equivalent substitutes may be used instead of the following listed items.

- A. A multimeter (Dana Model 2000 or equivalent) is required to measure the resistance of the sensing element loops during the test.

3. Adjustment/Test Sensing Element

- A. Test Sensing Elements (Engine Areas) (Center pin to ground)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

- (2) Disconnect electrical connectors from RIGHT and LEFT ENGINE FIRE DETECTOR AMPLIFIER of right and left engine fire detector control units in electrical/electronics compartment.
- (3) Measure resistance between pin D and pin V of electrical connector to LEFT ENGINE FIRE DETECTOR AMPLIFIER of engine fire detector control unit (loop A); resistance should indicate not less than value given for engine loop at existing ambient temperature. (Figure 501)
- (4) Repeat Paragraph 3.A.(3) except substitute pin C and pin B of electrical connector (loop B).
- (5) Repeat Paragraph 3.A.(3) and Paragraph 3.A.(4) except substitute right engine fire detector control unit for left engine.
- (6) Connect electrical connectors to RIGHT and LEFT ENGINE FIRE DETECTOR AMPLIFIER of right and left engine fire detector control units.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

- B. Test Sensing Elements (APU Area) (Center pin to ground)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

- (2) Disconnect electrical connector from APU FIRE DETECTOR AMPLIFIER of APU fire detector control unit.
- (3) Measure resistance between pin D and pin V of electrical connector (loop A); resistance should indicate not less than value given for APU loop at existing ambient temperature. (Figure 502)
- (4) Repeat Paragraph 3.A.(3) except substitute pin C and pin B of electrical connector (loop B).
- (5) Connect electrical connector to APU FIRE DETECTOR AMPLIFIER of APU fire detector control unit.
- (6) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING

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(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

C. Test Sensing Element (Continuity)

NOTE: If loop light(s) fail to come on, sensing elements of appropriate loops(s) must be tested for continuity to isolate defective part. Access to sensing elements is through engine cowl doors.

- (1) Open engine cowl doors for access to malfunctioning element.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

CAUTION: EXTREME CARE SHOULD BE EXERCISED DURING MAINTENANCE PRACTICES. DO NOT TWIST, KINK, OR DENT THE SENSING ELEMENTS OF THE FIRE DETECTOR ELEMENTS.

- (3) Disconnect aircraft wiring harness electrical connectors from sensing element connectors.
- (4) Using multimeter set to appropriate ohmmeter scale, check for resistance between center pins at either end of each sensing element for the following values:

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Table 501

Position	Part No.	Resistance (max)
Pylon Burn-thru Barrier	898400	4.5 Ohm
APU	805325	3.0
APU Loop	805325 (2)	6.0
Engine	805320	15.0
Engine Loop	805320 and 898400 (2)	24.0

- (5) Replace any sensing element which fails to test within specified limits. (ENGINE FIRE DETECTOR UNITS - MAINTENANCE PRACTICES, PAGEBLOCK 26-10-01/201)

NOTE: New copper gaskets must be installed between sensing element electrical connection points whenever the connections are disturbed. (Figure 26-10-04-990-801)

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	33	B1-814	APU FIRE CENTRAL AURAL WARNING
W	34	B1-405	APU FIRE WARNING HORN
W	35	B1-323	FIRE DETECTORS APU LOOP A
W	36	B1-324	FIRE DETECTORS APU LOOP B
W	37	B1-59	FIRE DETECTORS RIGHT ENGINE LOOP A
W	38	B1-191	FIRE DETECTORS RIGHT ENGINE LOOP B
W	39	B1-282	FIRE DETECTORS LEFT ENGINE LOOP A
W	40	B1-281	FIRE DETECTORS LEFT ENGINE LOOP B
W	41	B1-280	FIRE WARNING AURAL
W	42	B1-192	FIRE WARNING LIGHTS
Z	41	B1-22	MASTER WARNING
Z	42	B1-227	MASTER CAUTION

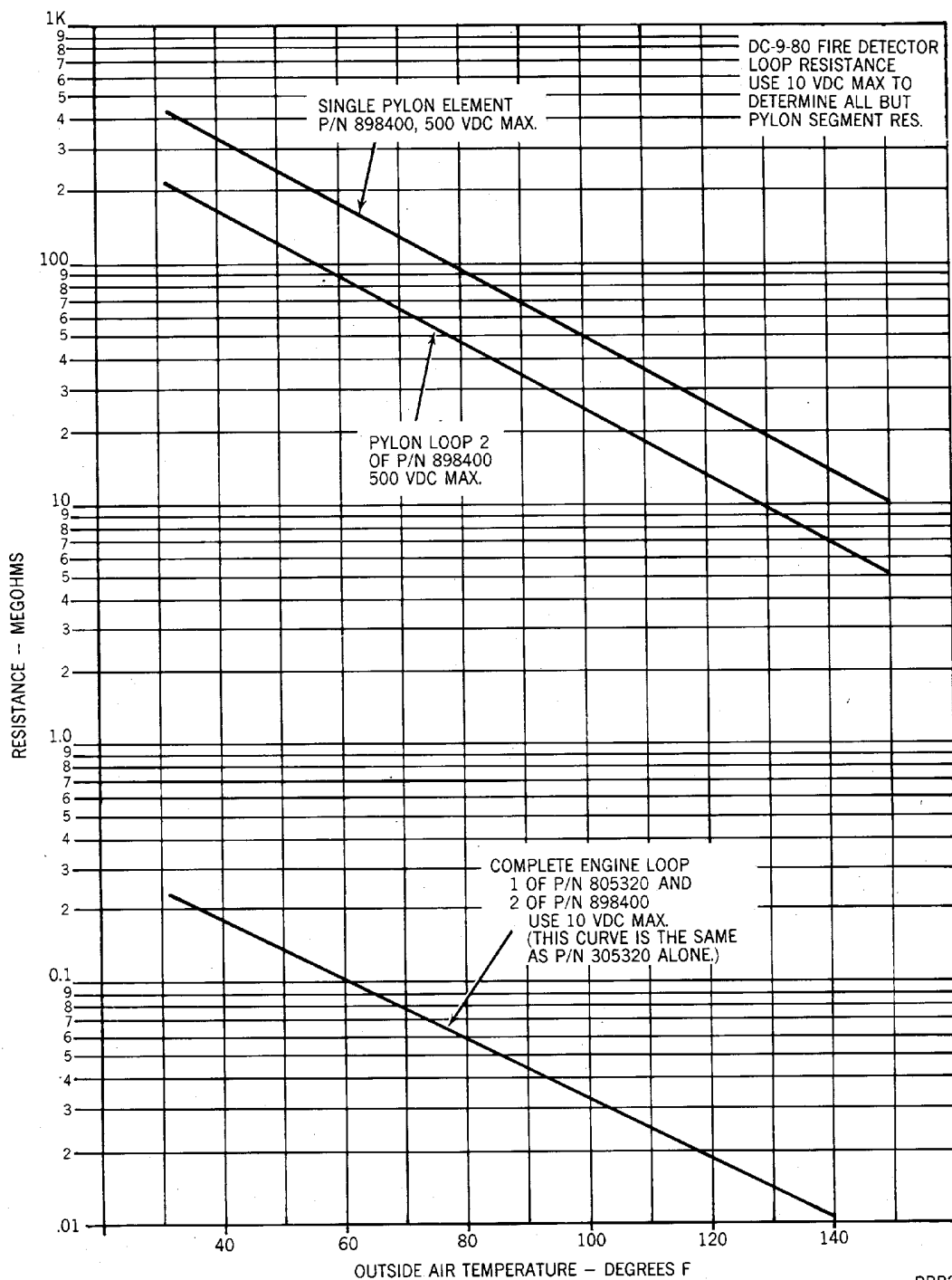
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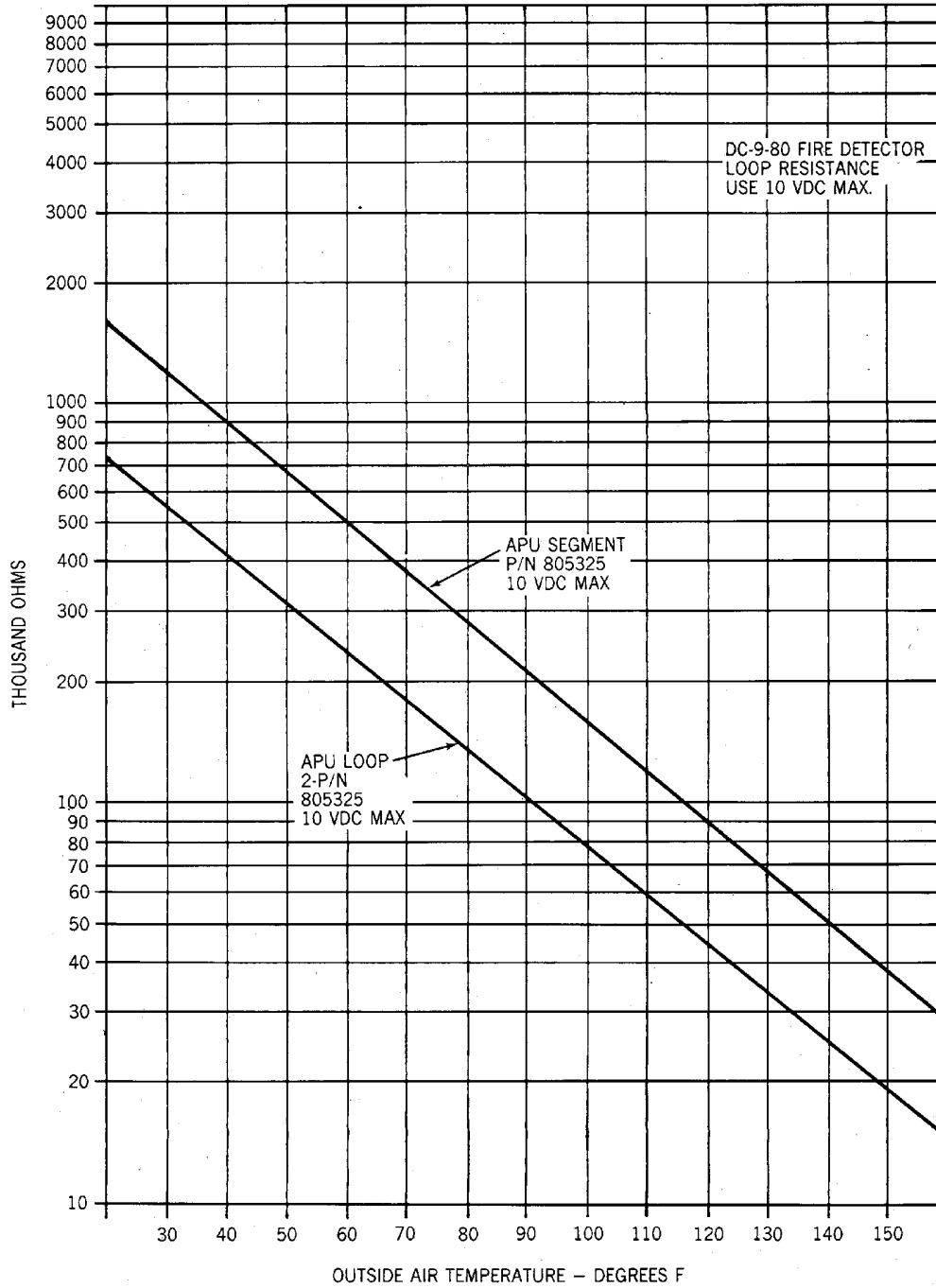
**Sensing Loop Resistance Test Curves
Figure 501/26-10-04-990-802**

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**APU Sensing Loop Resistance Test Curves
Figure 502/26-10-04-990-803**

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APU FIRE WARNING HORN - MAINTENANCE PRACTICES

1. General

- A. The APU fire warning horn is located in the left lower side of the aft accessory compartment adjacent to the APU ground fire control panel. Access to the horn is through the APU ground control panel access door.
- B. The APU fire signal relay is located in the left forward area of the electrical/electronics compartment, and is accessible through the compartment access door.

2. Removal/Installation APU Fire Warning Horn

WARNING: FIRE WARNING HORN IS VERY LOUD. WEAR SUITABLE EAR PROTECTION.

A. Remove Horn

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

- (2) Disconnect electrical wiring from fire warning horn.
- (3) Remove fire warning horn.

B. Install Horn

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Make sure that this circuit breaker is open and has safety tag:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

- (2) Install APU fire warning horn.
- (3) Connect electrical wiring to fire warning horn.
- (4) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

3. Adjustment/Test APU Fire Warning Horn

A. Test Horn

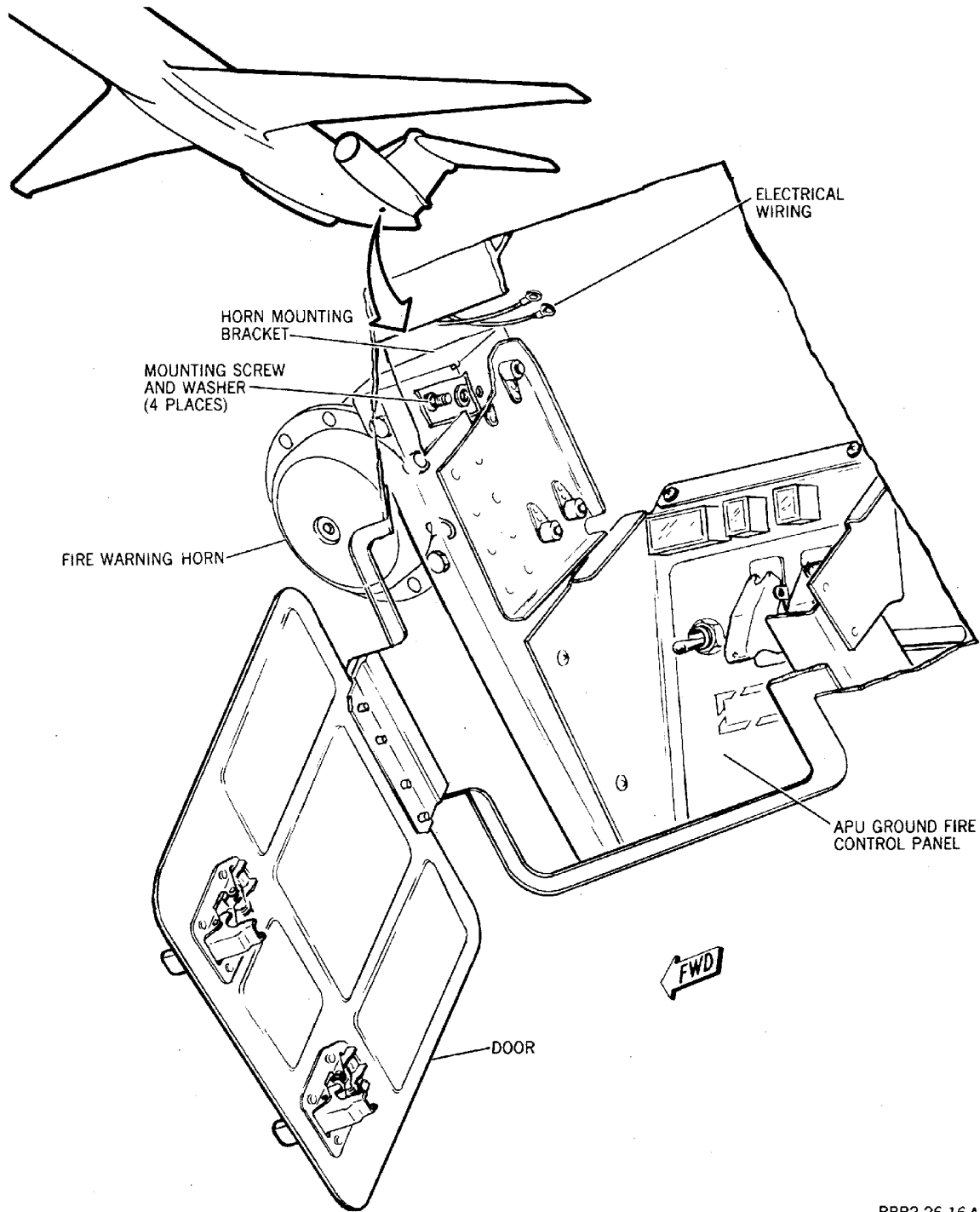
WARNING: FIRE WARNING HORN IS VERY LOUD. WEAR SUITABLE EAR PROTECTION.

- (1) Place jumper wire from terminal C1 to terminal C2 of APU fire signal relay. Fire warning horn should sound.
- (2) Remove jumper wire from APU fire signal relay. Fire warning horn should stop sounding.
- (3) Return aircraft to required configuration.

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Fire Warning Horn -- Installation
Figure 201/26-10-06-990-801

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FIRE WARNING HORN - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-10-06-710-801

2. Operational Check of the APU External Fire Warning Horn and Remote Panel Light

A. Prepare for the APU External Fire Warning Horn and Remote Panel Light Operational Check

SUBTASK 26-10-06-010-001

- (1) Open APU ground control panel access door.
- (2) Open electrical/electronics compartment door.

SUBTASK 26-10-06-865-001

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-06-861-001

- (4) Apply electrical power to the aircraft and place BATT switch to ON position.

SUBTASK 26-10-06-840-001

- (5) Make sure the FIRE CONTROL SWITCH S1-137 located on the cockpit overhead panel is in the NORM position.

B. APU External Fire Warning Horn and Remote Panel Light Operational Check

SUBTASK 26-10-06-710-001

- (1) On the overhead panel place the APU Master Switch S1-104 to the RUN position.
- (2) Position a mechanic near the tail of the aircraft to verify APU horn operation.
- (3) Gain access to electrical/electronics (E/E) compartment.

WARNING: MAKE SURE YOU USE THE APPROVED SAFETY EQUIPMENT FOR YOUR EARS WHEN YOU ARE NEAR THE WARNING HORN. THE SOUND FROM THE HORN HAS A VERY HIGH LEVEL OF INTENSITY, AND CAN CAUSE DAMAGE TO YOUR EARS.

- (4) Place jumper wire from terminal C1 to terminal C2 of APU fire signal relay. Make sure that fire warning horn sounds and red fire light illuminates on the APU ground fire control panel.
- (5) Remove jumper wire from APU fire signal relay. Make sure that fire warning horn stops sounding and red fire light extinguishes on the APU ground fire control panel.
- (6) On overhead cockpit panel position the APU Master Switch S1-104 to the OFF position.

C. Job Close-up

SUBTASK 26-10-06-862-001

- (1) Remove electrical power from the aircraft and place BATT switch to OFF position.

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SUBTASK 26-10-06-410-001

- (2) Close APU ground control panel access door.
- (3) Close electrical/electronics compartment door.

SUBTASK 26-10-06-942-001

- (4) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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APU EMERGENCY SHUTDOWN - ADJUSTMENT/TEST

1. General

A. The following procedure provides information to perform an Adjustment/Test of the APU Emergency Shutdown System (Aircraft with GTCP36-280 APU).

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

Table 501

Name and Number	Manufacturer
5 gallon container	Local
Drain hose	Local
Jumper wire	Local

3. APU Emergency Shutdown System - Adjustment/Test

A. Test APU Emergency Shutdown System

(1) Check that APU MASTER switch located on overhead switch panel is in OFF position.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Open these circuit breakers and install safety tags:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
U	40	B1-40	ENGINE START PUMP
W	34	B1-405	APU FIRE WARNING HORN

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

(3) Check that FUEL X-FEED lever located on pedestal, is in OFF position.

(4) Disconnect fuel supply line from fuel control unit at APU.

(5) Connect drain hose to APU fuel supply line and route to 5 gallon container.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
U	40	B1-40	ENGINE START PUMP

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

(7) Position personnel at APU with headset.

(8) Place ENG START PUMP switch located on overhead switch panel to ON position.

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CAUTION: DO NOT PLACE APU MASTER SWITCH TO START POSITION.

- (9) Check that APU FIRE CONT switch located on overhead switch panel is in NORM position.
- (10) Place APU MASTER switch to RUN position; fuel should flow freely from APU fuel supply line.
- (11) Place APU MASTER switch to OFF position; fuel flow should stop.
- (12) Place APU MASTER switch to RUN position; fuel should flow freely from APU fuel supply line.
- (13) Place APU FIRE CONT switch to OFF & AGEN ARM position; fuel flow should stop.
- (14) Place APU FIRE CONT switch to NORM position and cycle APU MASTER switch from RUN position to OFF position and back to RUN position; fuel should flow freely from APU fuel supply line.
- (15) Gain access to APU external control panel, and place FIRE SHUTOFF switch to APU SHUTOFF position; fuel flow should stop.
- (16) Place APU FIRE SHUTOFF switch on external control panel to NORMAL position and cycle APU MASTER switch from RUN position to OFF position and back to RUN; fuel should flow freely from APU fuel supply line.
- (17) Place APU MASTER switch on overhead switch panel to OFF position; fuel flow should stop.
- (18) Open overhead switch panel and locate APU loops switch S1-192.
- (19) Place APU MASTER switch on overhead switch panel to RUN position; fuel should flow freely from APU fuel supply line.
- (20) Connect jumper wire on contact D pin 1 and 3 of APU loops switch S1-192; fuel flow should stop.
- (21) Remove jumper wire from contact D pin 1 and 3 of APU loops switch S1-192 and cycle APU MASTER switch from RUN position to OFF position and back to RUN; fuel should flow freely from APU fuel supply line.
- (22) Place APU MASTER switch on overhead switch panel to OFF position; fuel flow should stop.
- (23) Place ENG START PUMP switch on overhead switch panel to OFF position.
- (24) Close overhead switch panel.
- (25) Remove drain hose from APU fuel supply line.
- (26) Connect fuel supply to fuel control unit on APU.
- (27) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

4. Leak Check APU Fuel Line Connection

A. Leak Check APU Fuel Line Connection

- (1) Place ENG START PUMP to ON position.

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START POSITION.

- (2) Place APU MASTER switch on overhead switch panel to RUN position.
- (3) Check APU fuel supply line for leaks.
- (4) Place APU MASTER switch on overhead switch panel to OFF position.
- (5) Place ENG START PUMP switch on overhead switch panel to OFF position.

EFFECTIVITY
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APU EMERGENCY SHUTDOWN - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-10-07-710-801

2. Operational Check of the APU Emergency Shutdown System from the Cockpit and External Panel

A. Prepare for the APU Emergency Shutdown System Operational Check from the Cockpit and External Panel

SUBTASK 26-10-07-865-001

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
U	40	B1-40	ENGINE START PUMP
W	34	B1-405	APU FIRE WARNING HORN

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-07-010-001

(2) Open access panels.

B. APU Emergency Shutdown System Operational Check from the Cockpit and External Panel

SUBTASK 26-10-07-710-001

- (1) Check that APU MASTER switch located on overhead switch panel is in OFF position.
- (2) Check that FUEL X-FEED lever located on pedestal is in OFF position.
- (3) Disconnect fuel supply line from fuel control unit at Auxiliary Power Unit (APU).
- (4) Connect drain hose to APU fuel supply line and route to 5 gallon container.

SUBTASK 26-10-07-865-002

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
U	40	B1-40	ENGINE START PUMP

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

SUBTASK 26-10-07-710-002

- (6) Position personnel at APU with headset.
- (7) Place ENG START PUMP switch located on overhead switch panel to ON position.

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CAUTION: DO NOT PLACE APU MASTER SWITCH TO START.

- (8) Check that APU FIRE CONT switch located on overhead switch panel is in NORM position.
- (9) Place APU MASTER switch to RUN position. Make sure fuel flows freely from APU fuel supply line.
- (10) Place APU MASTER switch to OFF position. Make sure fuel flow stops.
- (11) Place APU MASTER switch to RUN position. Make sure fuel flows freely from APU fuel supply line.
- (12) Place APU FIRE CONT switch to OFF & AGENT ARM position. Make sure fuel flow stops.
- (13) Place APU FIRE CONT switch to NORM position and cycle APU MASTER switch from RUN position to OFF position and back to RUN position. Make sure fuel flows freely from APU fuel supply line.
- (14) Gain access to APU external control panel and place FIRE SHUTOFF switch to APU SHUTOFF position. Make sure fuel flow stops.
- (15) Place APU FIRE SHUTOFF switch on external control panel to NORMAL position and cycle APU MASTER switch from RUN position to OFF position and back to RUN. Make sure fuel flows freely from APU fuel supply line.
- (16) Place APU MASTER switch on overhead switch panel to OFF position. Make sure fuel flow stops.
- (17) Open overhead switch panel and locate APU loops switch S1-192.
- (18) Place APU MASTER switch on overhead switch panel to RUN position. Make sure fuel flows freely from APU fuel supply line.
- (19) Connect jumper wire on contact D pin 1 and 3 of APU loops switch S1-192. Make sure fuel flow stops.
- (20) Remove jumper wire from contact D pin 1 and 3 of APU loops switch S1-192 and cycle APU MASTER switch from RUN position to OFF position and back to RUN. Make sure fuel flows freely from APU fuel supply line.
- (21) Place APU MASTER switch on overhead switch panel to OFF position. Make sure fuel flow stops.
- (22) Place ENG START PUMP switch on overhead switch panel to OFF position.
- (23) Close overhead switch panel.
- (24) Remove drain hose from APU fuel supply line.
- (25) Connect fuel supply to fuel control unit on APU.

SUBTASK 26-10-07-865-003

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
W	34	B1-405	APU FIRE WARNING HORN

SUBTASK 26-10-07-790-001

- (27) Leak check APU fuel line connection.
 - (a) Place ENG START PUMP to ON position.

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START.

- (b) Place APU MASTER switch on overhead switch panel to RUN position.

EFFECTIVITY
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- (c) Check APU fuel supply line for leaks.
- (d) Place APU MASTER switch on overhead switch panel to OFF position.
- (e) Place ENG START PUMP switch on overhead switch panel to OFF position.

C. Job Close-up

SUBTASK 26-10-07-410-001

- (1) Close access panels.

SUBTASK 26-10-07-942-001

- (2) Remove all the tools and equipment from the work area. Make sure the area is clean.

———— **END OF TASK** ————

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LAVATORY SMOKE DETECTOR - DESCRIPTION AND OPERATION

1. General

- A. Lavatory smoke detection is provided by a smoke detector and a suction fan installed in each lavatory. Both detector and fan are located behind the toilet shroud above the toilet tank.
- B. Access to the smoke detector and fan is by removal of the toilet shroud.

2. Description

- A. The smoke detector consists of a flow through photoelectric type unit. A fan located adjacent to the detector provides constant suction from various potential smoke locations through smoke sense inlets. The inlets are located at the sink facial, under the sink, and behind the toilet shroud to provide coverage for the entire lavatory.
- B. An individual test switch, located under the sink in each lavatory is provided to perform an individual smoke detector system functional self test.
- C. The lavatory smoke detection system is equipped with multiple annunciators to alert the crew of a possible smoke, or fire danger.

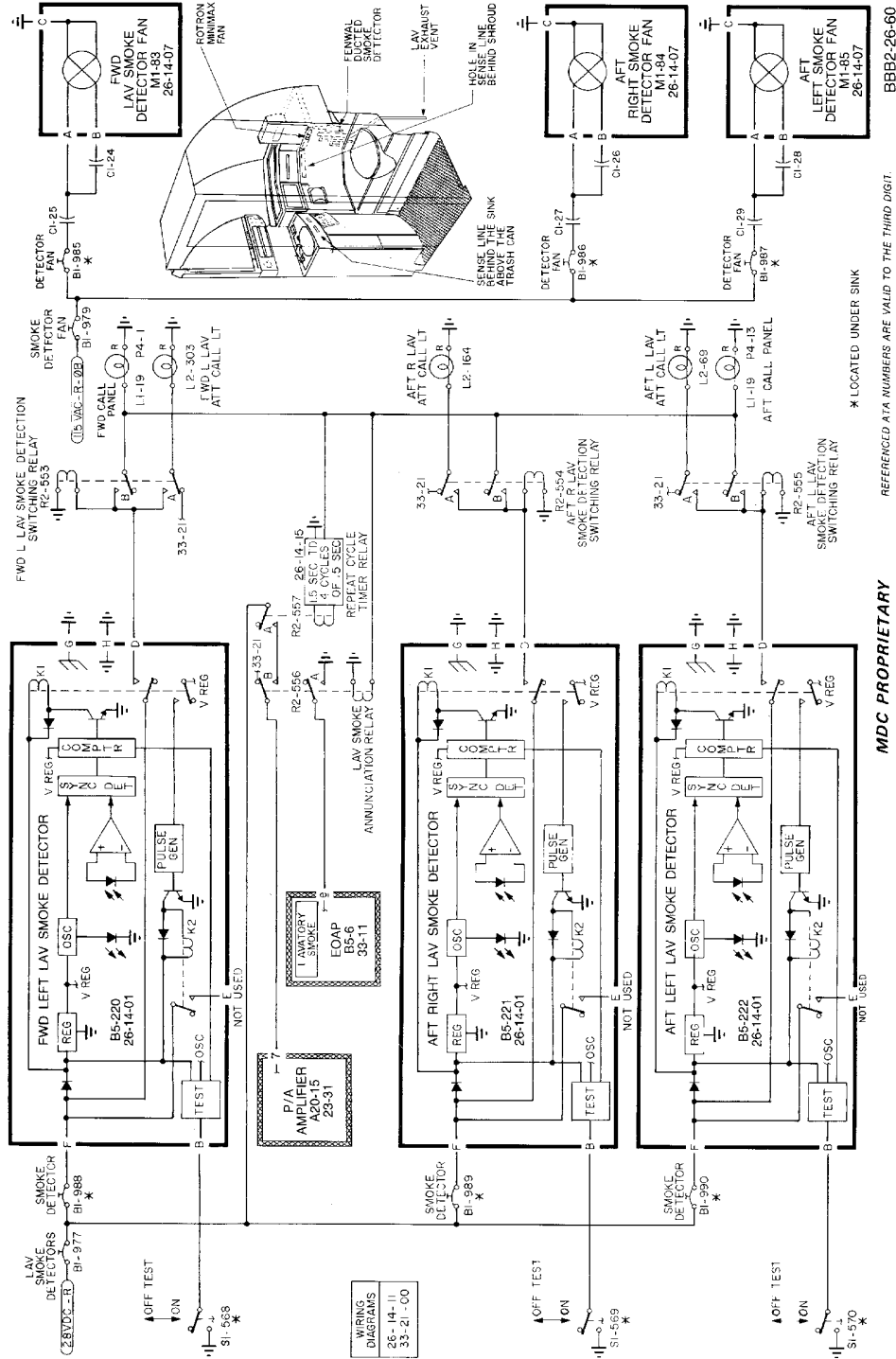
3. Operation

- A. The smoke detector operates on 28 VDC, with the fan operating on 115 volt AC.
- B. Upon smoke detection, the detector will actuate the following indications:
 - (1) The call system activates the cabin chimes in a single series of four chimes, 1.5 seconds apart.
 - (2) A red master call light will illuminate on the ceiling on both forward and aft attendant call light fixtures.
 - (3) A red master call light will illuminate on the ceiling on forward attendant call light fixture.
 - (4) A red call light will illuminate on the ceiling outside the lavatory door with the smoke condition.
 - (5) An amber LAVATORY SMOKE caution light will illuminate on the overhead annunciator panel in the cockpit.

NOTE: On applicable aircraft equipped with an EOAP (Electronic Overhead Annunciator Panel), a LAVATORY SMOKE caution display will come on in lieu of a LAVATORY SMOKE caution light.

NOTE: All lights are non-resettable and will remain illuminated until smoke condition has dissipated.

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MDC PROPRIETARY

REFERENCED ATA NUMBERS ARE VALID TO THE THIRD DIGIT.

BBB2-26-60

Lavatory Smoke Detector -- Schematic
Figure 1/26-14-00-990-801

EFFECTIVITY
WJE 401-404, 412, 414, 875-879

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LAVATORY SMOKE DETECTOR - MAINTENANCE PRACTICES

1. General

- A. This maintenance practice provides removal/installation and adjustment/test procedures for the lavatory smoke detector and smoke detector fan.
- B. The smoke detector and fan are located above the toilet, behind the toilet shroud. Access to the detector and fan is by removal of the toilet shroud.
- C. Removal/installation procedures are typical for all smoke detectors and fans.
- D. Adjustment/test procedures are provided to check the integrity of the lavatory smoke detection system for proper detector operation, power supply and annunciation.

2. Equipment and Materials

NOTE: Equivalent substitute may be used instead of the following listed item:

Table 201

Name and Number	Manufacturer
Smoke detector tester (SDT1)	Seton New Haven, CT

3. Removal/Installation Lavatory Smoke Detector

A. Remove Smoke Detector

- (1) Remove lavatory waste container to gain access to secondary smoke detector circuit breaker.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

EFFECTIVITY
WJE 401-404, 412, 414, 875-879

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WJE 401-404, 412, 414, 875-879

- (3) Remove toilet shroud to gain access to smoke detector.
- (4) Disconnect electrical connector from smoke detector and install dust caps.
- (5) Remove screws securing detector to mounting bracket.
- (6) Loosen clamp securing hose to inlet side of detector air tube.
- (7) Remove detector.

B. Install Smoke Detector

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1- NONUM	SECONDARY DETECTOR FAN
		B1- NOMUM	SECONDARY SMOKE DETECTOR

LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>	
WJE 401-404, 412, 414, 875, 876, 878, 879	R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (2) Position detector on mounting bracket and connect inlet side of detector air tube to hose.
- (3) Install clamp.
- (4) Install screws.
- (5) Remove dust caps and connect electrical connector to smoke detector.
- (6) Remove the safety tags and close these circuit breakers:

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1- NONUM	SECONDARY DETECTOR FAN
		B1- NOMUM	SECONDARY SMOKE DETECTOR

EFFECTIVITY
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LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (7) Test smoke detector using self test switch located adjacent to secondary smoke detector circuit breaker. (Paragraph 5.)
- (8) Test smoke detector fan. (Paragraph 6.)
- (9) Install waste container.
- (10) Install toilet shroud.

4. Removal/Installation Lavatory Smoke Detector Fan

A. Remove Detector Fan

- (1) Remove lavatory waste container to gain access to secondary detector fan circuit breaker.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (3) Remove toilet shroud to gain access to detector fan.
- (4) Disconnect electrical connector from fan.
- (5) Tag and disconnect electrical wiring from connector plug.
- (6) Loosen coupling mating fan housing to air tube leading to detector.

EFFECTIVITY
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- (7) Remove clamp securing air tube to clip.
- (8) Loosen hose clamp and rotate air tube to gain access to fan and wiring.
- (9) Remove fan and wiring from housing.

B. Install Detector Fan

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (2) Feed electrical wiring through fan housing grommet and install fan in housing.
- (3) Remove tags and connect electrical wiring to connector plug.
- (4) Mate air tube to fan housing and tighten coupling.
- (5) Install clamp securing air tube to clip and tighten hose clamp.
- (6) Connect electrical connector.
- (7) Remove the safety tags and close these circuit breakers:

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (8) Test smoke detector fan. (Paragraph 6.)
- (9) Test smoke detector. (Paragraph 5.)
- (10) Install waste container.
- (11) Install toilet shroud.

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5. Adjustment/Test Lavatory Smoke Detector

A. Test Lavatory Smoke Detector

NOTE: Testing of individual smoke detector is provided by a TEST switch located on the sink cabinet partition behind the trash container at each lavatory.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (2) Place detector TEST switch in ON position. Cabin chimes should chime in single series of four chimes 1.5 seconds apart and following lights should come on:

NOTE: For aircraft with Service Bulletin 26-036 incorporated, indications occur approximately 5 seconds after TEST switch is placed to ON position.

- (a) Red call light outside applicable lavatory.
- (b) Red master call light on ceiling at both forward and aft attendant call light fixtures.
- (c) Amber LAVATORY SMOKE caution light on overhead annunciator panel.

NOTE: On applicable aircraft equipped with an EOAP (Electronic Overhead Annunciator Panel), a LAVATORY SMOKE caution display will come on in lieu of a LAVATORY SMOKE caution light.

NOTE: All lights are non-resettable and will remain illuminated until TEST switch is placed in OFF position.

- (3) Place TEST switch in OFF position. Red call light and red master call light should go off.

6. Adjustment/Test Lavatory Smoke Detector Fan

A. Test Smoke Detector Fan

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

- (2) Check following indications:
- Fan noise should sound.
 - Air flow should be felt through sense inlet of sink facial.
- NOTE: Cycle secondary detector fan circuit breaker to determine fan noise and air flow suction, if necessary.

7. Lavatory Smoke Detector System (Air Flow Restriction Check)

A. Check Lavatory Smoke Detection System

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NONUM	SECONDARY DETECTOR FAN
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

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- (2) Close following circuit breakers applicable to lavatory smoke detector being checked:

Table 202

Circuit Breaker	Panel Location	Panel Area
FWD LEFT SECONDARY SMOKE DETECTOR	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink
FWD LEFT SECONDARY DETECTOR FAN	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink
AFT RIGHT SECONDARY SMOKE DETECTOR	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink

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Table 202 (Continued)

Circuit Breaker	Panel Location	Panel Area
AFT RIGHT SECONDARY DETECTOR FAN	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink
AFT LEFT SECONDARY SMOKE DETECTOR	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink
AFT LEFT SECONDARY DETECTOR FAN	Inside Lavatory Sink Cabinet	Cabinet Partition Below Sink.

- (3) Spray smoke detector tester from distance of 1 foot (304.8 mm) at sense inlet of sink facial for 5 seconds.
- (4) Within 10 seconds, call system should chime in single series of four chimes 1.5 seconds apart and following lights should illuminate:
 - (a) Red call light outside applicable lavatory.
 - (b) Red master call light on ceiling at both forward and aft attendant call light fixtures.
 - (c) Amber LAVATORY SMOKE caution light on overhead annunciator panel.

NOTE: All lights will remain on until smoke condition clears.

NOTE: On EOAP (Electronic Overhead Annunciator Panel), LAVATORY SMOKE caution will display.
- (5) If system fails to detect:
 - (a) Check for blockage from sense line inlet to outlet of smoke detector.
 - (b) Refer to Paragraph 5. and Paragraph 6. for lavatory smoke detector and lavatory smoke detector fan tests.

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LAVATORY SMOKE DETECTOR - REMOVAL/INSTALLATION

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-14-00-901-801

2. Discard the Lavatory Smoke Detector Battery (If Installed)

A. Discard Lavatory Smoke Detector Battery

SUBTASK 26-14-00-901-001

- (1) Remove lavatory smoke detector battery.
- (2) Discard lavatory smoke detector battery.
- (3) Install serviceable lavatory smoke detector battery.

B. Job Close-up

SUBTASK 26-14-00-942-002

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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LAVATORY SMOKE DETECTOR - ADJUSTMENT/TEST

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-14-00-710-801

2. Operational Check of the Lavatory Smoke Detection System and Alerts

A. Lavatory Smoke Detection System and Alerts Operational Check

SUBTASK 26-14-00-710-001

- (1) Do an operational check of the lavatory smoke detector.

- (a) Place detector TEST switch in ON position. Make sure cabin chimes chime in single series of four chimes and following light comes on:

NOTE: Testing of individual smoke detector is provided by a TEST switch located on the sink cabinet partition behind the trash container at each lavatory.

NOTE: For aircraft with Service Bulletin 26-036 incorporated, indications occur approximately 5 seconds after TEST switch is placed to ON position.

- 1) Red call light outside applicable lavatory
- 2) Red master call light on ceiling at both forward and aft attendant call light fixtures
- 3) Amber LAVATORY SMOKE caution light on overhead annunciator panel.

NOTE: On applicable aircraft equipped with an Electronic Overhead Annunciator Panel (EOAP), a LAVATORY SMOKE caution display will come on in lieu of a LAVATORY SMOKE caution light.

NOTE: All lights are non-resettable and will remain illuminated until TEST switch is placed in OFF position.

- (b) Place TEST switch in OFF position. Red call light and red master call light go off.

SUBTASK 26-14-00-710-002

- (2) Do an operational check of the lavatory smoke detector fan.

- (a) Check following indications:

- 1) Fan noise sounds
- 2) Air flow should be felt through sense inlet of sink fascia.

NOTE: Cycle secondary detector fan circuit breaker to determine fan noise and air flow suction, if necessary.

B. Job Close-up

SUBTASK 26-14-00-942-001

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

———— **END OF TASK** ————

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LAVATORY SMOKE DETECTOR - CLEANING/PAINTING

1. General

A. This procedure contains BCA recommended task card data.

TASK 26-14-00-160-801

2. Clean the Lavatory Smoke Detector Box, Fan and Ducting Assembly

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
26-14-00 P/B 201 Config 1	LAVATORY SMOKE DETECTOR - MAINTENANCE PRACTICES

B. Tools/Equipment

Reference	Description
STD-133	Brush - Stiff Bristle, Non-metallic

C. Consumable Materials

NOTE: Equivalent replacements are permitted for the items that follow.

NOTE: It is possible that some materials in the Consumable Materials chart cannot be used for some or all of the necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Reference	Description	Specification
B60087	Solvent - Cleaning	DPM 518 (MIL-PRF-680, Type 1)
B60095	Solvent - Isopropyl Alcohol	DPM 530 (TT-I-735, Grade A)
G60037	Air - Pure Dry	DPM 5148
G60427	Wipers - Cleaning	DMS 1820 T1A1

D. Prepare to Clean the Lavatory Smoke Detector Box, Fan, and Ducting Assembly

SUBTASK 26-14-00-865-001

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1- NONUM	SECONDARY DETECTOR FAN
		B1- NOMUM	SECONDARY SMOKE DETECTOR

LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS

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LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

WJE 401-404, 412, 414, 875-879

SUBTASK 26-14-00-010-001

- (2) Remove toilet shroud to gain access to smoke detector and fan.
- (3) Disconnect electrical connector from smoke detector and fan and install dust caps.
- (4) Loosen clamp securing hose to inlet side of detector air tube.
- (5) Loosen coupling mating fan housing to air tube leading to detector.
- (6) Remove clamp securing air tube to clip.
- (7) Loosen hose clamp and rotate air tube to gain access to fan and wiring.
- (8) Remove fan, and grommet from housing. (If applicable for cleaning)

E. Clean the Lavatory Smoke Detector Box, Fan, and Ducting Assembly

SUBTASK 26-14-00-160-001

- (1) Clean the lavatory smoke detector box, fan, and ducting assembly. (LAVATORY SMOKE DETECTOR - MAINTENANCE PRACTICES, PAGEBLOCK 26-14-00/201 Config 1, Component Maintenance Manual - 26-17-01)

WARNING: MIL-PRF-680 TYPE 1 SOLVENT IS AN AGENT THAT IS FLAMMABLE AND POISONOUS. MAKE SURE ALL PERSONS OBEY ALL OF THE PRECAUTIONS WHEN MIL-PRF-680 TYPE 1 SOLVENT IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET MIL-PRF-680 TYPE 1 SOLVENT IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

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(WARNING PRECEDES)

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIERS MSDS FOR:

- MORE PRECAUTIONARY DATA.
- APPROVED SAFETY EQUIPMENT.
- EMERGENCY MEDICAL AID.
- TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- (a) Clean non-electrical parts with cleaning solvent, B60087 using brush, STD-133 if necessary.
- (b) Dry parts thoroughly with clean, dry cleaning wipers, G60427 or pure dry air, G60037.

NOTE: Parts must be free of dirt, grease, oil, and other contaminants.

WARNING: USE THE HAZARDOUS MATERIAL WARNING GIVEN BELOW FOR THE STEPS THAT FOLLOW: HAZMAT 1030, ISOPROPYL ALCOHOL (DPM 530) (OR EQUIV.) HAZMAT 2000, REFER TO MSDS (OR EQUIV.).

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIERS MSDS FOR:

- MORE PRECAUTIONARY DATA.
- APPROVED SAFETY EQUIPMENT.
- EMERGENCY MEDICAL AID.
- TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- (c) Clean electrical parts with cleaning wipers or brush moistened with isopropyl alcohol solvent, B60095.
- (d) Immediately wipe parts dry with clean, dry cleaning wipes or pure dry air.
- (e) Check parts for cracks, corrosion, gouges, wear and deterioration.
- (f) Check electrical wires for kinks, sharp bends, and damaged or burned insulation.
- (g) Check fan and plug for damage.

F. Job Close-up

SUBTASK 26-14-00-430-001

- (1) Assemble smoke detector system assembly.
 - (a) Install fan and grommet into support housing and tighten coupling. (if removed)
 - (b) Install and tighten hose clamps.
 - (c) Connect electrical connectors.

SUBTASK 26-14-00-865-002

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

INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1- NONUM	SECONDARY DETECTOR FAN

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INSIDE LAVATORY SINK CABINET

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-NOMUM	SECONDARY SMOKE DETECTOR

LEFT CONSOLE, GROUND SERVICE BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
		B1-376	AFT LEFT LAV MIRROR LIGHTS
		B1-7	AFT RIGHT LAV MIRROR LIGHT
		B1-522	LAVATORY MIRROR LIGHTS - FWD LEFT

LOWER EPC, MISCELLANEOUS LEFT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	37	B1-8	CALL SYSTEM

LOWER EPC, MISCELLANEOUS RIGHT DC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE 401-404, 412, 414, 875, 876, 878, 879			
R	34	B1-977	LAV SMOKE DETECTOR

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SUBTASK 26-14-00-741-001

- (3) Test smoke detector fan and smoke detector. (LAVATORY SMOKE DETECTOR - MAINTENANCE PRACTICES, PAGEBLOCK 26-14-00/201 Config 1)

SUBTASK 26-14-00-410-001

- (4) Install waste container and toilet shroud.

————— **END OF TASK** —————

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WJE CARGO COMPARTMENT SMOKE DETECTION SYSTEM - DESCRIPTION AND OPERATION

WJE 1. General

- WJE A. The Lower Cargo Compartment Smoke Detection is designed to detect and provide aural and visual
WJE annunciation to the flight crew of a smoke and /or fire condition in either the forward, mid, or aft
WJE cargo compartment.
- WJE B. The system operates in conjunction with the Lower Cargo Compartment Fire Suppression System
WJE (LOWER CARGO COMPARTMENT FIRE SUPPRESSION SYSTEM, SUBJECT 26-22-00). The
WJE system is a dual loop, triple redundant design comprised of a control panel, a fault annunciation
WJE panel, smoke detectors, and necessary interconnection wiring (Figure 1).

WJE 2. Control Panel

WJE (Figure 2)

- WJE A. The Control Panel is located in the cockpit overhead switch panel. The control panel is divided into
WJE three (3) sections: Forward, Mid, and Aft cargo compartments. Each section is divided into two (2)
WJE loops A, and B.
- WJE B. Each section of the control panel contains Light Emitting Diode (LED) indicators that provide for
WJE detection and failure annunciations as well as Suppression System component status.
- WJE C. The panel is mounted with four quick release Dzus-type fasteners and is connected to the System
WJE with a single Bayonet-style electrical connector.

WJE 3. Fault Annunciation Panel

WJE (Figure 3)

- WJE A. The Fault Annunciation Panel is located in the Electronics and Equipment Compartment. It contains
WJE a test switch and an LED fault indicator for each smoke detector in the system.
- WJE B. As with the control panel, the fault panel is divided into three sections, one for each cargo
WJE compartment. It is equipped with twelve (12) LED indicators, one for each detector. Each LED
WJE indicator is labeled as to which detector it represents to allow for quick for quick determination of a
WJE faulty detector.
- WJE C. The fault panel is mounted to the aircraft with four Dzus-type quick-release fasteners. A single
WJE floating D-type multi-pin connector provides electrical connection. It is also equipped with a TEST
WJE switch to ensure all detector LEDs are operational.

WJE 4. Aural Warning Horn

WJE (Figure 2)

- WJE A. The Aural Warning Horn is located in Cockpit Overhead Switch Panel. It is piezo-electric device
WJE which emits a beeping tone during a system test or when the system goes into alarm.

WJE 5. Smoke Detector

WJE (Figure 4)

- WJE A. The smoke detectors are self-contained, and microprocessor controlled, continuously monitored,
WJE and ambient-type detectors. They require no forced airflow over the sensing element.
- WJE B. Each cargo compartment is equipped with four (4) strategically located detectors connected in two
WJE (2) loops. This provides redundancy, dispatch flexibility, and greatly reduces the probability of false
WJE alarms.
- WJE C. Each detector operates independently of the others and provides the control panel with signals for
WJE smoke condition and fault status. In addition, because each detector is independent of the others,
WJE they can be replaced individually.

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WJE 6. Normal Operation

- WJE A. In normal operating mode, the Smoke Detection System is completely transparent to the flight crew.
WJE Since the aircraft has three (3) lower cargo compartments, the system is essentially divided into
WJE three (3) systems, one for the Forward Compartment, one for the Mid Compartment, and one for the
WJE Aft Compartment. The three compartments are monitored independently of each other.

WJE 7. Power Supply Operation

- WJE A. The System operates from 28 VDC supplied by the DC Transfer Bus. Three 5 Ampere circuit
WJE breakers control the power:
WJE (1) SMK DET PNLS in Lower EPC at S42
WJE (2) SMOKE A LOOP in Lower EPC at S41
WJE (3) SMOKE B LOOP in Lower EPC at T41
WJE B. Lighting is provided by the OVERHEAD PANEL INTEGRAL LIGHTS AFT circuit breaker in Upper
WJE EPC and the Aft Overhead Lighting Control Panel.
WJE

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WJE 8. Advisory Condition

- WJE** A. An advisory condition is initiated if one or more detectors of ONE loop (A or B) in the SAME
WJE compartment (forward, mid, or aft) sends an alert signal to the control panel. An advisory condition
WJE will result in the following:
- WJE** (1) The DET LED(s), on the control panel, representing the alarming detector loop(s) will come on.
WJE (2) The "SMOKE DET LOOP" lamp on the Overhead Annunciator Panel will come on.
WJE (3) The MASTER CAUTION lamps on the Captain's and First Officer's Glareshields will come on.
- WJE** B. As long as an advisory condition exists, all visual annunciations (except the Master Caution, which
WJE may be reset), will remain on. If an advisory is initiated in more than one compartment, the
WJE annunciators listed above will occur for each compartment. When the advisory condition is no longer
WJE present all annunciations will go off and the system will automatically reset itself to the normal
WJE monitoring mode of operation.

WJE 9. Warning Condition

- WJE** A. A warning condition is initiated if one or more detectors of BOTH loops (A and B) in the SAME
WJE compartment (forward, mid or aft) send an alert signal to the control panel. A warning condition will
WJE result in the following:
- WJE** (1) The DET LEDs, on the control panel, representing the alarming detector loops will come on.
WJE (2) The red "FIRE" LED, on the control panel will come on.
WJE (3) The green squib LEDs, on the control panel, representing the BTL1, BTL2, and alarming
WJE compartment diverter valve will come on.
WJE (4) The "SMOKE DET LOOP" lamp on the Overhead Annunciator Panel will come on.
WJE (5) The "CARGO FIRE" lamp on the Overhead Annunciator Panel will come on.
WJE (6) Both MASTER CAUTION lamps on the Captain's and First Officer's Glareshields will come on.
WJE (7) Both MASTER WARNING lamps on the Captain's and First Officer's Glareshields will come on.
WJE (8) A distinctive aural "beep-beep" tone will be generated by and emitted from the aural warning
WJE horn.
- WJE** B. As with the advisory condition, as long as the warning condition exists all visual and aural
WJE annunciations will remain on, except for the Master Caution and Master Warning, which may be
WJE reset by the flight crew. The aural warning horn may be silenced by momentarily depressing the
WJE HORN RESET switch on the control panel.
- WJE** C. If the other detectors in the alarming compartment initiate an alarm condition, the aural warning horn
WJE will not sound again. If, however, a warning condition is initiated in one compartment while another is
WJE already in alarm, the aural warning horn WILL sound until silenced by the HORN RESET switch or
WJE either Master Warning Light reset. In addition, the MASTER CAUTION and MASTER WARNING
WJE lamps will come on until reset.
- WJE** D. When the warning condition is no longer present (the smoke density of the compartment has
WJE reduced to below the threshold level) the system will automatically reset itself to the normal
WJE monitoring mode of operation. Also, due to the physical nature of smoke, the system may cycle
WJE between warning and advisory, warning and normal monitoring, or a combination of the three.

WJE 10. Fault Annunciation

- WJE** A. If a fault is detected by one of the detectors, it will send a fault signal to the control panel. This will
WJE result in the following:
- WJE** (1) The "FAIL" LED, on the control panel, representing the failed detector loop and compartment
WJE will come on.
WJE (2) The "SMOKE DET LOOP" lamp on the Captain's Instrument Panel will come on.

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- WJE (3) The MASTER CAUTION lamps on the Captain's and First Officer's Glareshields will come on.
- WJE (4) The LED representing the failed detector on the Fault Annunciator Panel will come on.
- WJE B. If a detector fails the System will automatically switch to a single-loop mode of operation, but only for
- WJE the other detector in the same enclosure. All other detectors will continue to operate in the normal
- WJE dual-loop mode of operation, regardless of compartment location.
- WJE C. In a single-loop mode of operation, an alarm signal from the operable detector will initiate a
- WJE WARNING condition for that compartment, with all annunciations as described in paragraph 9.

WJE **11. System Test**

- WJE A. When the TEST switch is depressed on the control panel, the following annunciations are produced
- WJE after a minimum of three (3) to five (5) seconds:
 - WJE (1) All LEDs on the control panel (except the "DSCH" lamps).
 - WJE (2) The "SMOKE DET LOOP" lamp on the Overhead Annunciator Panel will come on.
 - WJE (3) The "CARGO FIRE" lamp on the Overhead Annunciator Panel will come on.
 - WJE (4) Both MASTER CAUTION and MASTER WARNING lamps on the Captain's and First Officer's
 - WJE Glareshields will come on.
 - WJE (5) The aural warning horn sounds.
- WJE B. When the TEST switch is released, all annunciations go off. If a loop has been disabled, its "FAIL"
- WJE LED will remain on.
- WJE C. Each detector is continuously performing a self-test using its Built-In-Test (BIT) capability, regardless
- WJE of the TEST switch position. A fault condition can therefore be initiated at any time while the Smoke
- WJE Detection System is operating.
- WJE D. The Fault Annunciator Panel is also equipped with a TEST switch. When its TEST switch is
- WJE depressed, all detector LEDs come on and the FAIL LEDs on the Cargo Detection and Suppression
- WJE Control Panel will come on.

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WJE **CARGO COMPARTMENT SMOKE DETECTION SYSTEM - TROUBLE SHOOTING**

WJE **1. Fault Indicator**

- WJE** A. If a Fault Indicator on the control panel illuminates, one or more detector(s) has determined through
WJE the BIT program that it is no longer able to reliably provide smoke detection capability. In such case,
WJE the failed detector can be isolated by inspecting the Fault Annunciation Panel in the E&E
WJE compartment. On the Fault Annunciator Panel an LED will illuminate for each failed detector.
- WJE** B. Each LED is labeled as to which detector it represents in order to provide quick identification . Refer
WJE to CARGO COMPARTMENT SMOKE DETECTORS, SUBJECT 26-16-04 for detector removal/
WJE installation procedures. Once the fault detector has been replaced, the fault indicators on the Fault
WJE Annunciator Panel and System Control Panel will extinguish.

WJE **2. Annunciators**

- WJE** A. Power to the System is provided by three (3) circuit breakers connected to the 28 VDC Transfer
WJE Bus. The circuit breakers are labeled:
- WJE** (1) SMK DET PNLS
 - WJE** (2) SMOKE A LOOP
 - WJE** (3) SMOKE B LOOP
- WJE** B. In addition, control panel background lighting is provided the Aft Overhead Panel Integral Lights
WJE circuit, and controlled from the Aft Overhead Panel Integral Light Control Panel.
- WJE** C. All control panel annunciators are illuminated through circuitry internal to the control panel. If an
WJE annunciator fails to illuminate in either test, advisory, warning, or fault mode the likely cause will be
WJE one of the following:
- WJE** (1) Lamp bulb(s) burned out
 - WJE** (2) Internal failure of the control panel
 - WJE** (3) No power to the system
 - WJE** (4) Fault Control Panel ground
 - WJE** (5) Faulty lamp/switch assembly
- WJE** NOTE: The Control Panel is tied to the Master Caution Light Test System. A lamp test is
WJE performed when the Master Lamp Test Switch is pressed. Failure of a lamp to
WJE illuminate during a lamp test indicates a burned out bulb, except for the green squib
WJE LEDs (LOWER CARGO COMPARTMENT FIRE SUPPRESSION SYSTEM,
WJE SUBJECT 26-22-00, Trouble Shooting).
- WJE** D. The overhead annunciator panel lamps, "SMOKE DET LOOP" and "CARGO FIRE", and the Master
WJE Caution and Master Warning lamps are illuminated by signals generated from the smoke detection
WJE control panel to the Master Caution/Warning Controller. If any of these lamps fail to illuminate in test,
WJE advisory, warning, or fault mode, the likely cause will be one or more of the following:
- WJE** (1) Lamp bulb(s) burned out
 - WJE** (2) Faulty Master Caution/Warning Controller
 - WJE** (3) Faulty Overhead Annunciator Panel
 - WJE** (4) No power to the System
 - WJE** (5) Faulty lamp/switch assembly
 - WJE** (6) Faulty interconnection wiring

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WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE
WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO
WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE (4) Open this circuit breaker and install safety tag:

WJE **LOWER EPC, XFER BUS**
WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP

WJE (5) Press and hold TEST switch on CDSCP. Verify following:

- WJE** (a) FWD, MID, and AFT A and B loop FAIL LEDs come on.
- WJE** (b) FWD, MID, and AFT A loop DET LEDs stay off.
- WJE** (c) FWD, MID, and AFT B loop FAIL LEDs go off as corresponding DET LEDs come on.
- WJE** (d) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels come on.
- WJE** (e) FWD ARM, MID ARM, AFT ARM, and BTL1 ARM, and BTL2 ARM LEDs come on.
- WJE** (f) FIRE LED comes on then starts to flash.
- WJE** (g) BTL1 and BTL2 DSCH lamps come on.
- WJE** (h) Aural warning horn sounds and is silenced when HORN RESET switch is depressed.

WJE (6) Release TEST switch. Verify following:

- WJE** (a) FWD, MID, and AFT A loop FAIL LEDs stay on.
- WJE** (b) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels stay on.
- WJE** (c) All other LEDs and lamps go off.

WJE (7) Press and release MASTER CAUTION lamp. Observe both MASTER CAUTION lamps go off.

WJE (8) Press and release MASTER WARNING lamp. Observe both MASTER WARNING lamps go off.

WJE (9) Remove the safety tag and close this circuit breaker:

WJE **LOWER EPC, XFER BUS**
WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP

WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE
WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO
WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE (10) Open this circuit breaker and install safety tag:

WJE **LOWER EPC, XFER BUS**
WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
T	41	B1-9102	SMOKE B LOOP

WJE (11) Press and hold TEST switch on CDSCP. Verify the following:

- WJE** (a) FWD, MID, AFT A and B loop FAIL LEDs come on.
- WJE** (b) FWD, MID, AFT B loop DET LEDs stay off.

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- WJE (c) FWD, MID, AFT A loop FAIL LEDs go off as DET LEDs come on.
- WJE (d) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
- WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
- WJE glareshield panels come on.
- WJE (e) FWD ARM, MID ARM, AFT ARM, BTL1 ARM, and BTL2 ARM LEDs come on.
- WJE (f) FIRE LED comes on then starts to flash.
- WJE (g) BTL1 and BTL2 DSCH lamps come on.
- WJE (h) Aural warning horn sounds and is silenced when HORN RESET switch is depressed.
- WJE (12) Release TEST switch. Verify the following:
- WJE (a) FWD, MID, AFT B loop FAIL LEDs stay on.
- WJE (b) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
- WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
- WJE glareshield panels stay on.
- WJE (c) All other LEDs and lamps go off.
- WJE (13) Press and release MASTER CAUTION lamp. Observe both MASTER CAUTION lamps go off.
- WJE (14) Press and release MASTER WARNING lamp. Observe both MASTER WARNING lamps go
- WJE off.
- WJE (15) Remove the safety tag and close this circuit breaker:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
T	41	B1-9102	SMOKE B LOOP

- WJE (16) Press and hold TEST switch on (CDSCP) for at least 3 seconds.
- WJE (a) Verify all FWD, MID, and AFT FAIL LEDs come on.
- WJE (b) Verify all FWD, MID, and AFT DET LEDs come on.
- WJE (c) Verify FWD, MID, and AFT FAIL LEDs go off as corresponding DET LEDs come on.
- WJE (d) Verify aural warning horn sounds.
- WJE (e) Silence aural warning horn with HORN RESET switch on CDSCP. Verify FWD ARM, MID
- WJE ARM, AFT ARM, BTL1 ARM, and BTL2 ARM LEDs come on.
- WJE (f) Verify FIRE LED comes on then starts to flash.
- WJE (g) Verify BTL1 and BTL2 DSCH lamps come on.
- WJE (h) Verify SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
- WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
- WJE glareshield panels come on.

B. Smoke Test

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP

- (2) Press and hold TEST switch on (CDSCP). Verify the following:

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- WJE (a) A loop DET (FWD, MID, and AFT) LEDs do not come on.
- WJE (b) A loop FAIL and B loop FAIL LEDs come on.
- WJE (c) As B loop DET LEDs come on corresponding B loop FAIL LEDs go off.
- WJE (d) FWD ARM, MID ARM, AFT ARM, BTL1 ARM, and BTL2 ARM LEDs come on.
- WJE (e) FIRE LED comes on and starts to flash.
- WJE (f) BTL1 and BTL2 DSCH lamps come on.
- WJE (g) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels come on.
- WJE (h) Aural warning horn sounds and is silenced when HORN RESET switch is pressed.
- WJE (3) Release TEST switch. Verify the following:
 - WJE (a) FWD, MID, and AFT loop FAIL LEDs stay on.
 - WJE (b) MASTER CAUTION and MASTER WARNING lamps stay on and are turned off when either MASTER CAUTION and MASTER WARNING lamp is pressed.
 - WJE (c) All other LEDs and lamps go off.
- WJE (4) Introduce simulated smoke with an aerosol spray (GAS1000-1) into B detector of forward detector pair in forward compartment. B detector is always the rear detector in each enclosure. Verify the following:
 - WJE (a) B loop DET LED comes on.
 - WJE (b) Aural warning horn sounds.
 - WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels come on.
 - WJE (d) FIRE LED comes on.
 - WJE (e) FWD, ARM and BTL1 ARM LEDs come on.
 - WJE (f) Pressing HORN RESET switch silences aural warning horn.
 - WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
 - WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (5) Clear smoke from B detector in forward compartment. Verify the following:
 - WJE (a) SMOKE DET LOOP and CARGO FIRE lamps go off.
 - WJE (b) All other LEDs and lamps go off.
- WJE (6) Introduce simulated smoke with an aerosol spray (GAS1000-1) into B detector of forward detector pair in mid compartment. B detector is always the rear detector in each enclosure. Verify the following:
 - WJE (a) B loop DET LED comes on.
 - WJE (b) Aural warning horn sounds.
 - WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels come on.
 - WJE (d) FIRE LED comes on.
 - WJE (e) MID ARM and BTL1 ARM LEDs come on.
 - WJE (f) Pressing HORN RESET switch silences aural warning horn.

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- WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
- WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (7) Clear smoke from B detector in mid compartment. Verify the following:
 - WJE (a) SMOKE DET LOOP and CARGO FIRE lamps go off.
 - WJE (b) All other LEDs and lamps go off.
- WJE (8) Introduce simulated smoke with an aerosol spray (GAS1000-1) into B detector of forward detector pair in AFT compartment. B detector is always rear detector in each enclosure. Verify the following:
 - WJE (a) B loop DET LED comes on.
 - WJE (b) Aural warning horn sounds.
 - WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's glareshield panels come on.
 - WJE (d) FIRE LED comes on.
 - WJE (e) AFT ARM and BTL1 ARM LEDs come on.
 - WJE (f) Pressing HORN RESET switch silences aural warning horn.
 - WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
 - WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (9) Clear smoke from B detector in aft compartment. Verify the following:
 - WJE (a) SMOKE DET LOOP and CARGO FIRE lamps go off.
 - WJE (b) All other LEDs and lamps go off.
- WJE (10) Repeat Paragraph 3.B.(4) through Paragraph 3.B.(9) for remaining B detectors in forward, mid, and aft compartments.
- WJE (11) Remove the safety tag and close this circuit breaker:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- WJE (12) Open this circuit breaker and install safety tag:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
T	41	B1-9102	SMOKE B LOOP

- WJE (13) Press and hold TEST switch on (CDSCP). Verify the following:
 - WJE (a) B loop DET (FWD, MID, and AFT) LEDs do not come on.
 - WJE (b) A loop FAIL and B loop FAIL LEDs come on
 - WJE (c) As A loop DET LEDs go on corresponding A loop FAIL LEDs go off.
 - WJE (d) FWD ARM, MID ARM, AFT ARM, BTL1 ARM, and BTL2 ARM LEDs come on.
 - WJE (e) FIRE LED comes on and starts to flash.
 - WJE (f) BTL1 and BTL2 DSCH lamps come on.

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- WJE (g) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
WJE glareshield panels come on.
- WJE (h) Aural warning horn sounds and is silenced when HORN RESET switch is pressed.
- WJE (14) Release TEST switch. Verify the following:
- WJE (a) FWD, MID, and AFT PIT B loop FAIL LEDs stay on.
- WJE (b) MASTER CAUTION and MASTER WARNING lamps stay on and are turned off when
WJE MASTER CAUTION and MASTER WARNING lamp is pressed.
- WJE (c) All other LEDs and lamps go off.
- WJE (15) Introduce simulated smoke with an aerosol spray (GAS1000-1) into A detector of forward
WJE detector pair in forward compartment. A detector is always the front detector in each enclosure.
WJE Verify the following:
- WJE (a) A loop DET LED comes on.
- WJE (b) Aural warning horn sounds.
- WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
WJE glareshield panels come on.
- WJE (d) FIRE LED comes on.
- WJE (e) FWD ARM and BTLI ARM LEDs come on.
- WJE (f) Pressing HORN RESET switch silences aural warning horn.
- WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
- WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (16) Clear smoke from A detector in forward compartment. Verify the following:
- WJE (a) MASTER CAUTION and MASTER WARNING lamps go off.
- WJE (b) All other LEDs and lamps go off.
- WJE (17) Introduce simulated smoke with an aerosol spray (GAS1000-1) into A detector of forward
WJE detector pair in mid compartment. A detector is always the front detector in each enclosure.
WJE Verify the following:
- WJE (a) A loop DET LED comes on.
- WJE (b) Aural warning horn sounds.
- WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
WJE glareshield panels come on.
- WJE (d) FIRE LED comes on.
- WJE (e) MID ARM and BTLI ARM LEDs come on.
- WJE (f) Pressing HORN RESET switch silences aural warning horn.
- WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
- WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (18) Clear smoke from A detector in mid compartment. Verify the following:
- WJE (a) MASTER CAUTION and MASTER WARNING lamps go off.
- WJE (b) All other LEDs and lamps go off.

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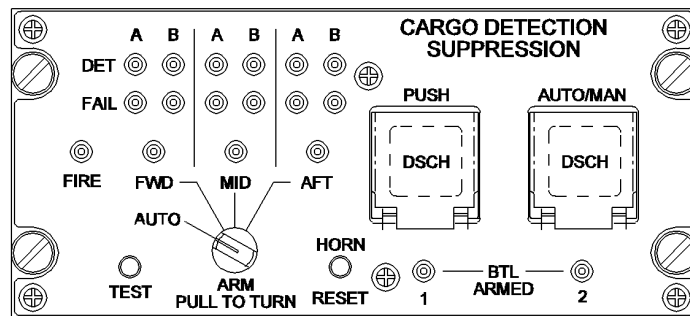
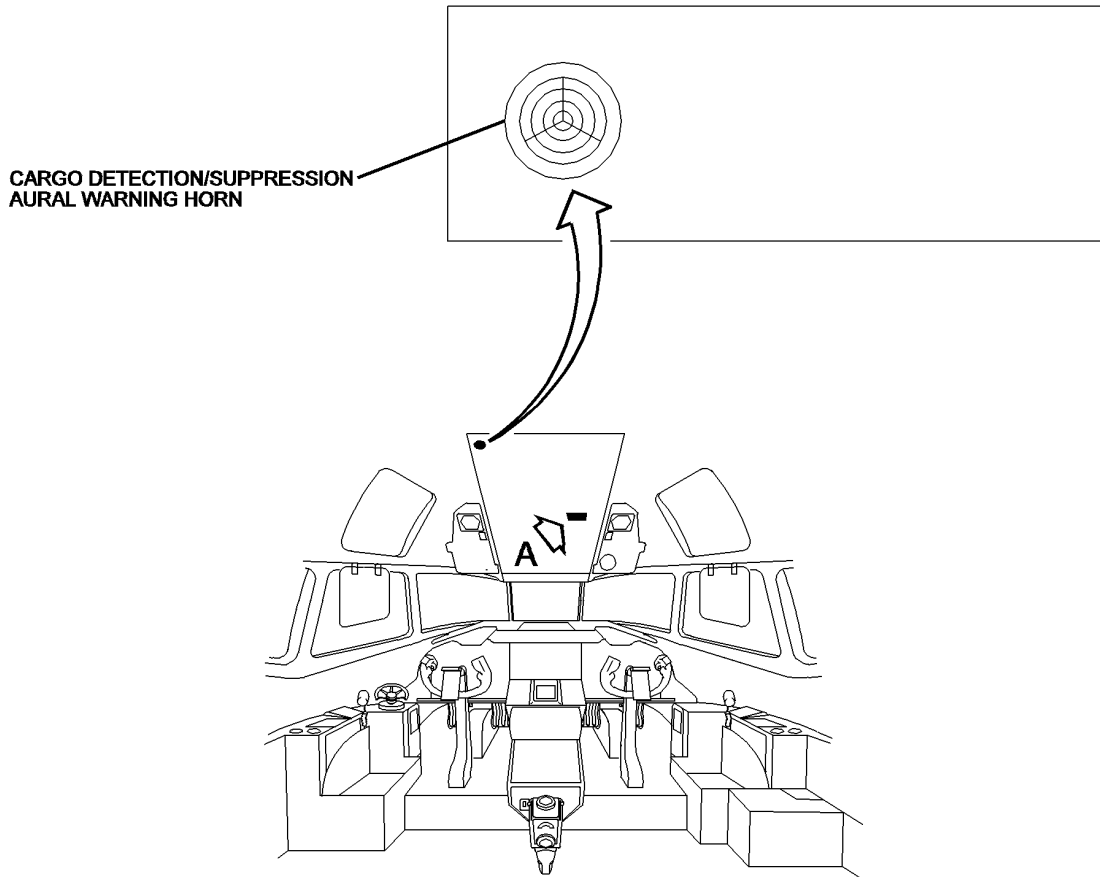
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- WJE (19) Introduce simulated smoke with an aerosol spray (GAS1000-1) into A detector of forward
WJE detector pair in AFT compartment. A detector is always the front detector in each enclosure.
WJE Verify the following:
- WJE (a) A loop DET LED comes on.
 - WJE (b) Aural warning horn sounds.
 - WJE (c) SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
WJE glareshield panels come on.
 - WJE (d) FIRE LED comes on.
 - WJE (e) AFT ARM and BTLI ARM LEDs come on.
 - WJE (f) Pressing HORN RESET switch silences aural warning horn.
 - WJE (g) Pressing MASTER CAUTION lamp makes both lamps go off.
 - WJE (h) Pressing MASTER WARNING lamp makes both lamps go off.
- WJE (20) Clear smoke from A detector in aft compartment. Verify the following:
- WJE (a) MASTER CAUTION and MASTER WARNING lamps go off.
 - WJE (b) All other LEDs and lamps go off.
- WJE (21) Repeat Paragraph 3.B.(17) through Paragraph 3.B.(20) for remaining A detectors in forward,
WJE mid, and aft compartments.
- WJE (22) Remove the safety tag and close this circuit breaker:
- LOWER EPC, XFER BUS**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|--------------|
| T | 41 | B1-9102 | SMOKE B LOOP |
- WJE (23) Press and hold TEST switch on (CDSCP) for at least 3 seconds.
- WJE (a) Verify all FWD, MID, and AFT FAIL LEDs come on.
 - WJE (b) Verify all FWD, MID, and AFT DET LEDs come on.
 - WJE (c) Verify FWD, MID, and AFT FAIL LEDs go off as corresponding DET LEDs come on.
 - WJE (d) Verify aural warning horn sounds.
 - WJE (e) Silence aural warning horn with HORN RESET switch on CDSCP.
 - WJE (f) Verify FWD ARM, MID ARM, AFT ARM, BTLI ARM, and BTL2 LEDs come on.
 - WJE (g) Verify FIRE LED comes on then starts to flash.
 - WJE (h) Verify BTL1 and BTL2 DSCH lamps come on.
 - WJE (i) Verify SMOKE DET LOOP and CARGO FIRE lamps (on Captain's Instrument Panel), and
WJE MASTER CAUTION and MASTER WARNING lamps on Captain's and First Officer's
WJE glareshield panels come on.

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CARGO DETECTION/SUPPRESSION CONTROL PANEL

VIEW A

BBB2-26-302
S0000219897V1

WJE
WJE

**Detection System Cockpit Control Location
Figure 501/26-16-00-990-808**

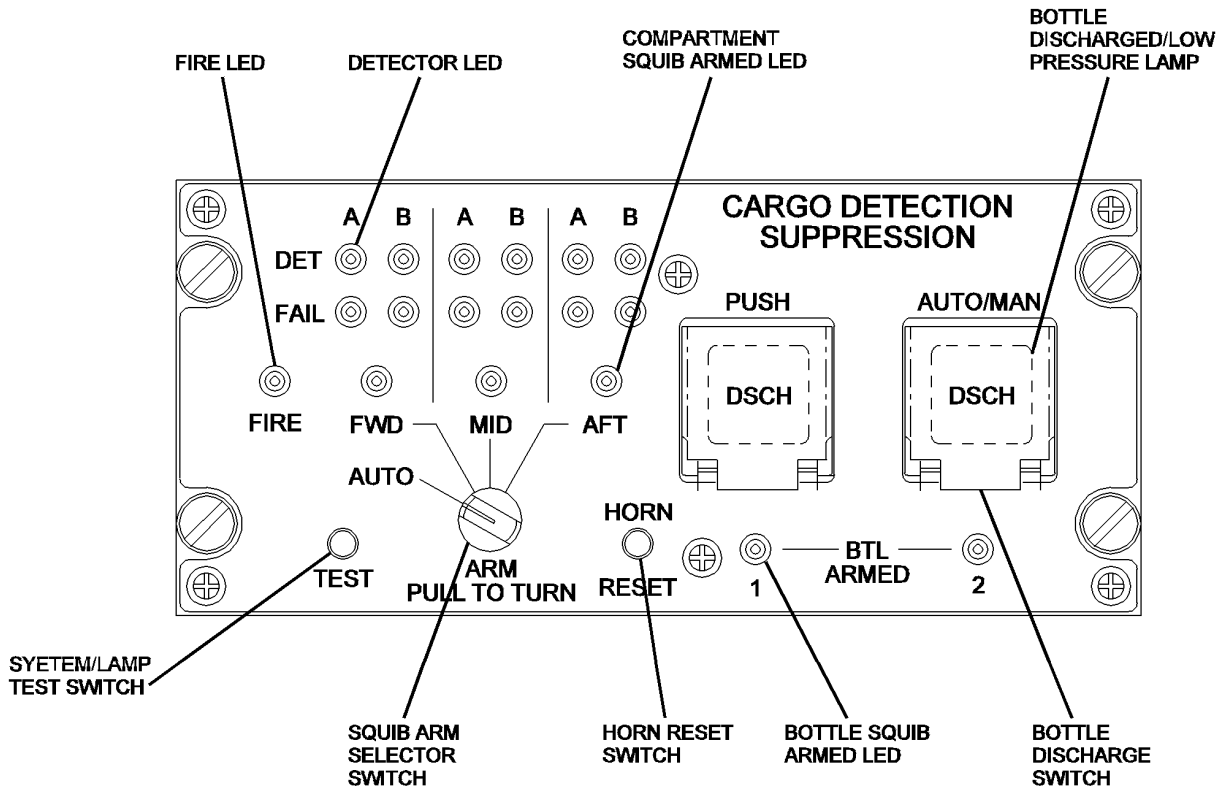
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BBB2-26-301
S0000219900V1

**Cargo Detection and Suppression Control Panel
Figure 502/26-16-00-990-809**

WJE
WJE

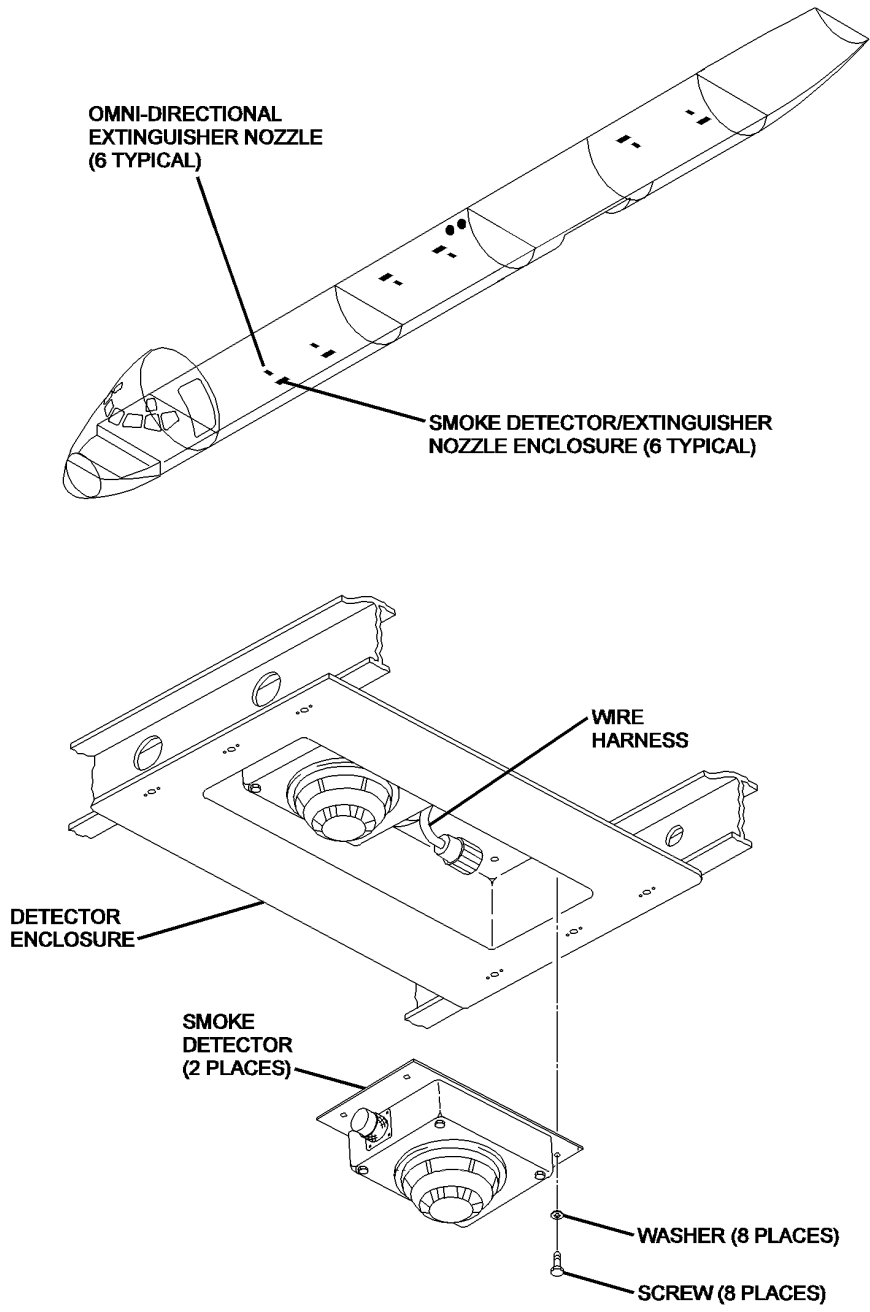
EFFECTIVITY
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BBB2-26-300
S0000219902V1

WJE
WJE

Smoke Detector Locations
Figure 503/26-16-00-990-810

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WJE SMOKE DETECTION CONTROL PANEL - MAINTENANCE PRACTICES

WJE 1. General

WJE A. The Smoke Detection Control Panel is located in the Cockpit, on the upper right-hand corner of the
WJE Aft Overhead Switch Panel, just below the Engine/APU Fire Loop Light Panel. (Figure 201)

WJE 2. Removal/Installation of Control Panel

WJE A. Removal

WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE
WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO
WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE (1) Open these circuit breakers and install safety tags:

WJE **LOWER EPC, XFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE **UPPER EPC, LIGHTS - LEFT AC BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE (2) Release the control panel from the switch panel by turning the four (4) Dzus fasteners 1/4 turn
WJE counterclockwise (ccw).

WJE (3) Remove the control panel from the switch panel and disconnect the electrical connector.

WJE B. Installation

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

WJE **LOWER EPC, XFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE **UPPER EPC, LIGHTS - LEFT AC BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE (2) Connect the electrical connector and position the control panel in the overhead switch panel.

WJE (3) Secure the panel in place by turning the four (4) Dzus fasteners 1/4 turn clockwise (cw).

WJE (4) Remove the safety tags and close these circuit breakers:

WJE **LOWER EPC, XFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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WJE
WJE

UPPER EPC, LIGHTS - LEFT AC BUS

WJE

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

WJE

K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT
---	----	--------	------------------------------------

WJE

(5) Perform a functional test of the System as per the Adjustment/Test procedure that follows.

WJE

3. Adjustment/Test of the Control Panel

WJE

NOTE: Refer to Figure 202 and Figure 203.

WJE

A. Make sure that these circuit breakers are closed:

WJE

LOWER EPC, XFER BUS

WJE

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

WJE

S	41	B1-9101	SMOKE A LOOP
---	----	---------	--------------

WJE

S	42	B1-9103	SMOKE DETECT PANELS
---	----	---------	---------------------

WJE

T	41	B1-9102	SMOKE B LOOP
---	----	---------	--------------

WJE

UPPER EPC, LIGHTS - LEFT AC BUS

WJE

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

WJE

K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT
---	----	--------	------------------------------------

WJE

WJE

B. Verify that NO System annunciators are illuminated.

WJE

C. Set the compartment arming switch to the AUTO position.

WJE

D. Press and hold the control panel TEST switch. Verify the "FAIL" LEDs illuminate. Verify the following annunciators occur after 3 seconds:

WJE

(1) All six (6) "DET" LEDs illuminate.

WJE

(2) All six (6) "FAIL" LEDs illuminate.

WJE

(3) FWD, MID, and AFT compartment squib LEDs illuminate.

WJE

(4) "FIRE" LED illuminates.

WJE

(5) "BTL1" and "BTL2" squib LEDs illuminate.

WJE

(6) MASTER CAUTION and MASTER WARNING lamps illuminate on the Captain's and First Officer's Glareshields.

WJE

(7) For the DC-9-80 and MD-88 Series aircraft, the "SMOKE DET LOOP" on the Overhead Annunciator Panel illuminates.

WJE

(8) The "CARGO FIRE" lamp on the Overhead Annunciator Panel illuminates.

WJE

(9) Warning horn sounds.

WJE

CAUTION: WHEN THE SYSTEM IS IN THE TEST MODE, THE BTL1 AND BTL2 SQUIBS ARE ARMED. DO NOT PRESS THE BTL1 OR BTL2 "DSCH" SWITCHES WHILE THE SYSTEM IS IN THE TEST MODE. DOING SO WILL DISCHARGE THE EXTINGUISHING BOTTLE(S).

WJE

E. While continuing to hold the TEST switch, press and release the "HORN RESET" switch on the control panel and verify that the horn has silenced. Verify that all other annunciators remain.

WJE

F. Release the TEST switch. Verify that all annunciators extinguish.

WJE

G. Press the "Warning and Caution Test" switch on the Overhead Annunciator Panel. Verify that all control panel LEDs and the BTL1 and BTL2 "DSCH" lamps illuminate.

WJE

H. Release the "Warning and Caution Test" switch and verify that all control panel LEDs and lamps extinguish.

WJE

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SMOKE DETECTOR FAULT PANEL - MAINTENANCE PRACTICES

WJE

1. General

WJE

- A. The Smoke Detector Faults Annunciation Panel is located in the Electrical and Equipment (E&E) compartment, on the aft left or aft right equipment rack (Figure 201).

WJE

WJE

2. Removal/Installation of Faults Annunciation Panel

WJE

- A. Removal

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

WJE

UPPER EPC, LIGHTS - LEFT AC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE

WJE

WJE

WJE

- (2) Release the fault annunciator panel from its mount by turning the four (4) Dzus fasteners 1/4 turn counterclockwise (CCW).

WJE

WJE

- (3) Remove the fasteners securing the electrical harness to the panel.

WJE

- (a) Disconnect the electrical connector from the panel and remove the panel from the rack.

WJE

- B. Installation

WJE

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

WJE

WJE

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

WJE

WJE

UPPER EPC, LIGHTS - LEFT AC BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE

WJE

- (2) Connect the electrical connector to the panel and secure it to the rear of the panel.

WJE

- (3) Secure the panel in place by turning the four (4) Dzus fasteners 1/4 turn clockwise (CW).

WJE

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

WJE

WJE

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS

WJE

WJE

WJE

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WJE (Continued)

WJE **LOWER EPC, XFER BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	T	41	B1-9102	SMOKE B LOOP

WJE **UPPER EPC, LIGHTS - LEFT AC BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE (5) Perform a functional test of the System as per the Adjustment/Test procedures that follow.

WJE **3. Adjustment/Test of Faults Annunciation Panel**

WJE A. Make sure that these circuit breakers are closed:

WJE **LOWER EPC, XFER BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	S	41	B1-9101	SMOKE A LOOP
WJE	S	42	B1-9103	SMOKE DETECT PANELS
WJE	T	41	B1-9102	SMOKE B LOOP

WJE **UPPER EPC, LIGHTS - LEFT AC BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	K	17	B1-315	INTEGRAL LIGHTS OVERHEAD PANEL AFT

WJE B. Press and hold the fault annunciator panel TEST switch. Verify that all twelve (12) detector LEDs illuminate.

WJE C. Release the TEST switch and verify that all twelve (12) detector LEDs extinguish.

WJE

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SMOKE DETECTOR ENCLOSURE - MAINTENANCE PRACTICES

WJE

1. General

WJE

A. Six (6) smoke detector enclosures are installed in the aircraft, two (2) in each of the forward, mid and aft cargo compartments (Figure 201). Each enclosure is strategically located in the ceiling of the compartment to provide the quickest smoke detection possible.

WJE

WJE

WJE

B. The procedures to remove and install an enclosure is the same for all enclosures

WJE

2. Removal/Installation of Smoke Detector Enclosure

WJE

A. Removal (Figure 201)

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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WJE

(2) Remove the screws securing the detector guard bar assembly to the enclosure and remove the guard bar assembly. Retain the hardware and guard bar for reinstallation.

WJE

WJE

(3) Remove any fire-proofing tape from around the enclosure opening.

WJE

(4) Remove the screws securing the detector to the enclosure.

WJE

(a) Disconnect the electrical connector from the detector and remove the detector.

WJE

(b) Repeat this procedure for the other detector.

WJE

(c) Retain the hardware and detectors for reinstallation.

WJE

(5) Remove the screws securing the ceiling liner to the enclosure. Retain the hardware for reinstallation.

WJE

WJE

(6) Carefully remove the ceiling liner from the enclosure and fold it back so as to completely expose the enclosure, its extinguishing nozzle supply line, and its wiring harness pass-thru.

WJE

WJE

(7) Disconnect the nozzle supply line.

WJE

(8) Remove the screws securing the wire harness pass-thru to the enclosure and carefully pull the wire harness out of the enclosure.

WJE

WJE

(a) If the wire harness is clamped to the enclosure, remove the clamps.

WJE

(b) Retain all hardware for reinstallation.

WJE

(9) Remove the screws securing the enclosure to the floor beams and remove the enclosure from the enclosure from the aircraft. Retain all hardware for reinstallation.

WJE

WJE

B. Installation

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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- WJE (2) Position the enclosure on the floor beams so the nozzle supply fitting aligns with the nozzle
WJE supply line and loosely secure the enclosure to the floor beams.
- WJE (3) Secure the nozzle supply line to the nozzle fitting.
- WJE (4) Run the detector wire harness through the pass-thru, providing enough slack to reach each
WJE detector, then secure the wire harness and pass-thru to the enclosure.
- WJE (5) Secure the enclosure to the floor beams using hardware retained from the removal.

CAUTION: THE "A" LOOP DETECTOR MUST BE FORWARD DETECTOR IN EACH
ENCLOSURE. REFER TO THE SYSTEM WIRING DIAGRAMS FOR CONNECTOR
IDENTIFICATION.

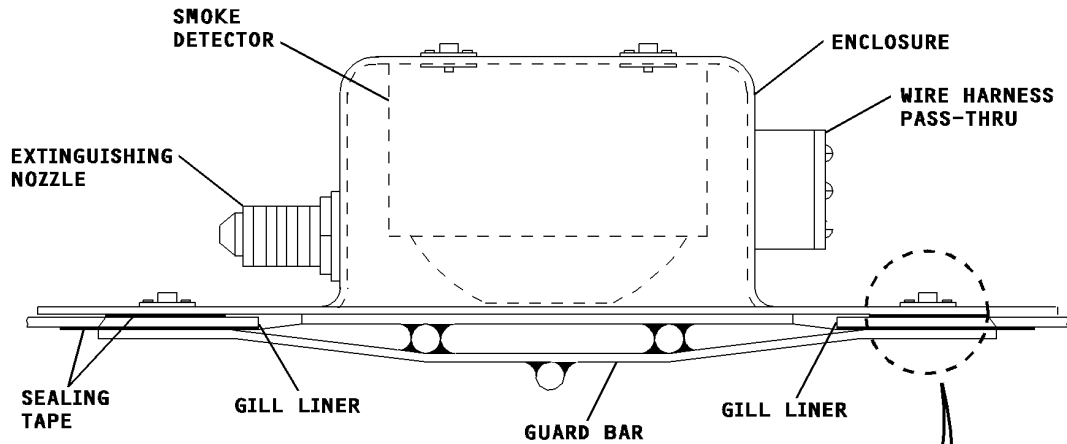
- WJE (6) Position and secure each detector in the enclosure, so the electrical connectors are in the
WJE center of the enclosure, using the hardware retained from removal.
- WJE (7) Tape the ceiling liner to the enclosure as shown in Figure 201, using approved fire-proof cargo
WJE bin tape.
- WJE (a) Secure the ceiling liner to the enclosure using the hardware retained from the removal.
- WJE (b) Then tape over the ceiling-to-liner enclosure seam as shown in Figure 201.
- WJE (8) Secure the Guard Bar Assembly to the enclosure using the hardware retained from removal.
- WJE (9) Remove the safety tags and close these circuit breakers:

LOWER EPC, XFER BUS

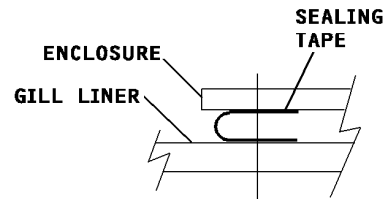
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

- WJE (10) Perform a functional check of the system as per Adjustment/Test on Control Panel (SMOKE
WJE DETECTION CONTROL PANEL - MAINTENANCE PRACTICES,
WJE PAGEBLOCK 26-16-01/201 Config 1
WJE

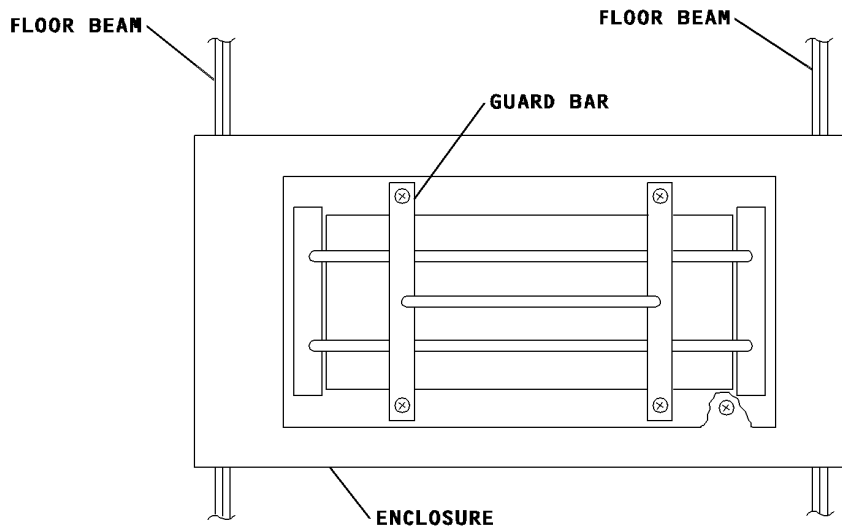
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**VIEW LOOKING FROM END
(FLOOR BEAMS NOT SHOWN FOR CLARITY)**



(TYPICAL ALL MOUNTING HOLES)



VIEW LOOKING UP

BBB2-26-257
S0000145141V1

**Smoke Detector Enclosure
Figure 201/26-16-03-990-801**

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WJE

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SMOKE DETECTOR- MAINTENANCE PRACTICES

WJE

1. General

WJE

A. Twelve (12) smoke detectors are installed in the aircraft, four (4) in each cargo compartment (forward, mid, and aft). Each detector may be replaced individually.

WJE

B. The procedures of this section are applicable to all smoke detectors.

WJE

2. Removal/Installation of the Smoke Detector

WJE

A. Removal (Figure 201)

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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(2) Remove the screws securing the guard bar assembly to the detector enclosure and remove guard bar assembly. Retain the attaching hardware for reinstallation.

WJE

WJE

(3) Remove the screws securing the detector to the enclosure.

WJE

(a) Lower the detector to gain access to its electrical connector.

WJE

(b) Disconnect the electrical connector, then remove the detector from the aircraft.

WJE

B. Installation (Figure 201)

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

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WJE

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

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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WJE

(2) Connect the electric connector to the detector.

WJE

(3) Position and secure the detector to the enclosure, so the electrical connector is in the center of the enclosure, using the hardware retained from the removal.

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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- (5) Perform a functional check of the system as per Adjustment/Test of Control Panel (SMOKE DETECTION CONTROL PANEL - MAINTENANCE PRACTICES, PAGEBLOCK 26-16-01/201 Config 1).

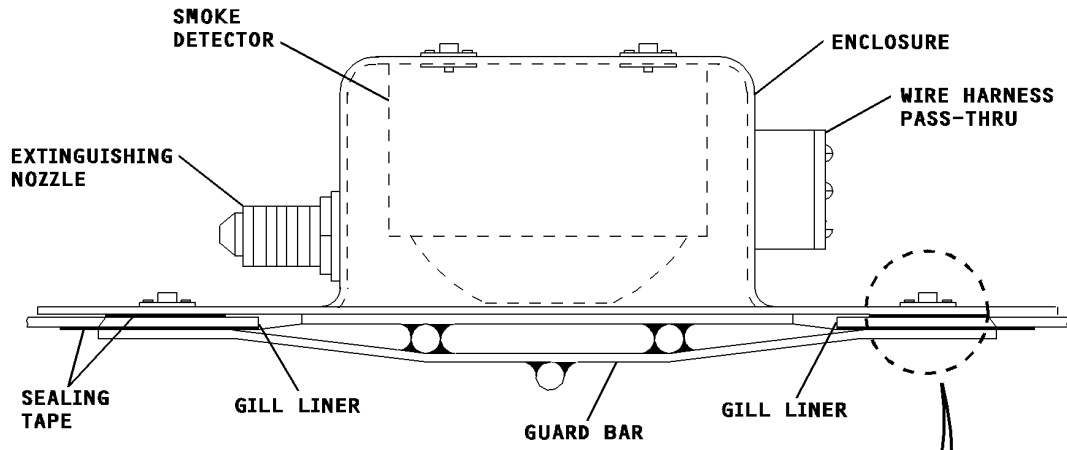
EFFECTIVITY
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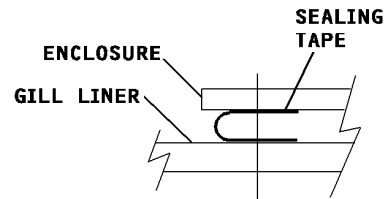
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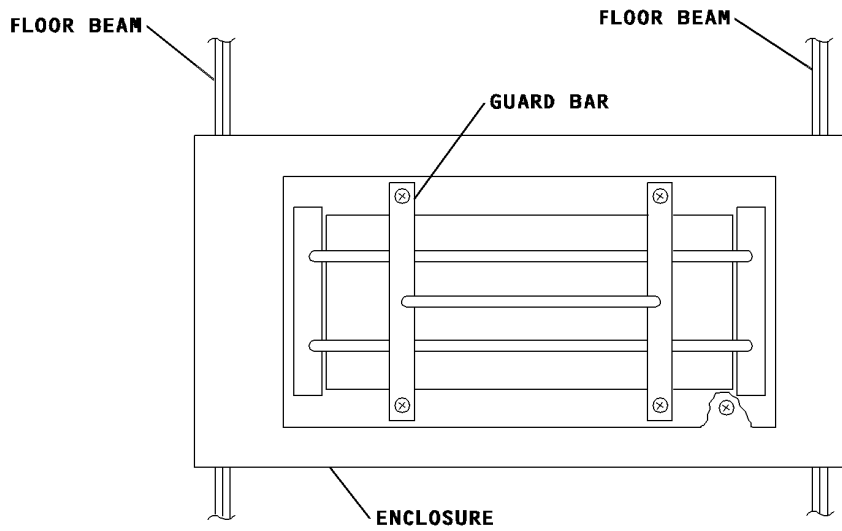
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**VIEW LOOKING FROM END
(FLOOR BEAMS NOT SHOWN FOR CLARITY)**



(TYPICAL ALL MOUNTING HOLES)



VIEW LOOKING UP

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**Smoke Detector - Removal/Installation
Figure 201/26-16-04-990-801**

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CEILING LINER, SMOKE DETECTORS - MAINTENANCE PRACTICES

WJE

1. General

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2. Equipment and Materials

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NOTE: Equivalent substitutes may be used instead of the following listed items:

NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your location. Persons in each location must make sure they are permitted to use these materials. All persons must obey all applicable federal, state, local, and provincial regulations for their location.

Table 201

Name and Number	Manufacturer
Fire Resistant Tape Polyken 290	

WJE

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3. Liner Installation

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A. Install Liner

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

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(2) Ensure that both the lower surfaces around the detector enclosure and the mating surfaces of the ceiling liner are clean and free of debris (i.e. oil, tape particles, glue residue etc.).

(3) Cut a length of fire resistant tape equal to the length of the detector enclosure opening and fold it, sticky-side-out, to form a tube.

(4) Position the tape on the lower surface of the detector enclosure over one row of mounting holes for the ceiling liner and press to secure it in place. The tape must completely cover the mounting holes.

(5) Repeat Paragraph 3.A.(3) and Paragraph 3.A.(4) for the other row of ceiling liner mounting holes.

(6) Cut a length of fire resistant tape equal to the width of the detector enclosure opening and fold it, sticky-side-out, to form a tube.

(7) Position the tape on the lower surface of the detector enclosure across one end of the enclosure opening and press to secure it in place. The tape should overlap the two longer pieces.

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- WJE (8) Repeat Paragraph 3.A.(6) and Paragraph 3.A.(7) for the other end of the detector enclosure.
- WJE (9) Position the ceiling liner over the detector enclosure so the opening in the liner matches the enclosure opening and press the liner firmly around the opening to secure it in place.
- WJE (10) Install the screws and washers that secure the liner to the enclosure. Do not install the screws for the guard bar at this time.
- WJE (11) Cut a length of tape equal to the length of the enclosure opening. Install the tape so it covers the screws and washers and extends up into the enclosure opening. The tape must cover the seam between the liner and the enclosure.
- WJE (12) Repeat Paragraph 3.A.(11) for the other three sides of the enclosure.
- WJE (13) Install the guard bar with screws and washers.
- WJE (14) Remove the safety tags and close these circuit breakers:

LOWER EPC, XFER BUS

	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	S	41	B1-9101	SMOKE A LOOP
WJE	S	42	B1-9103	SMOKE DETECT PANELS
WJE	T	41	B1-9102	SMOKE B LOOP

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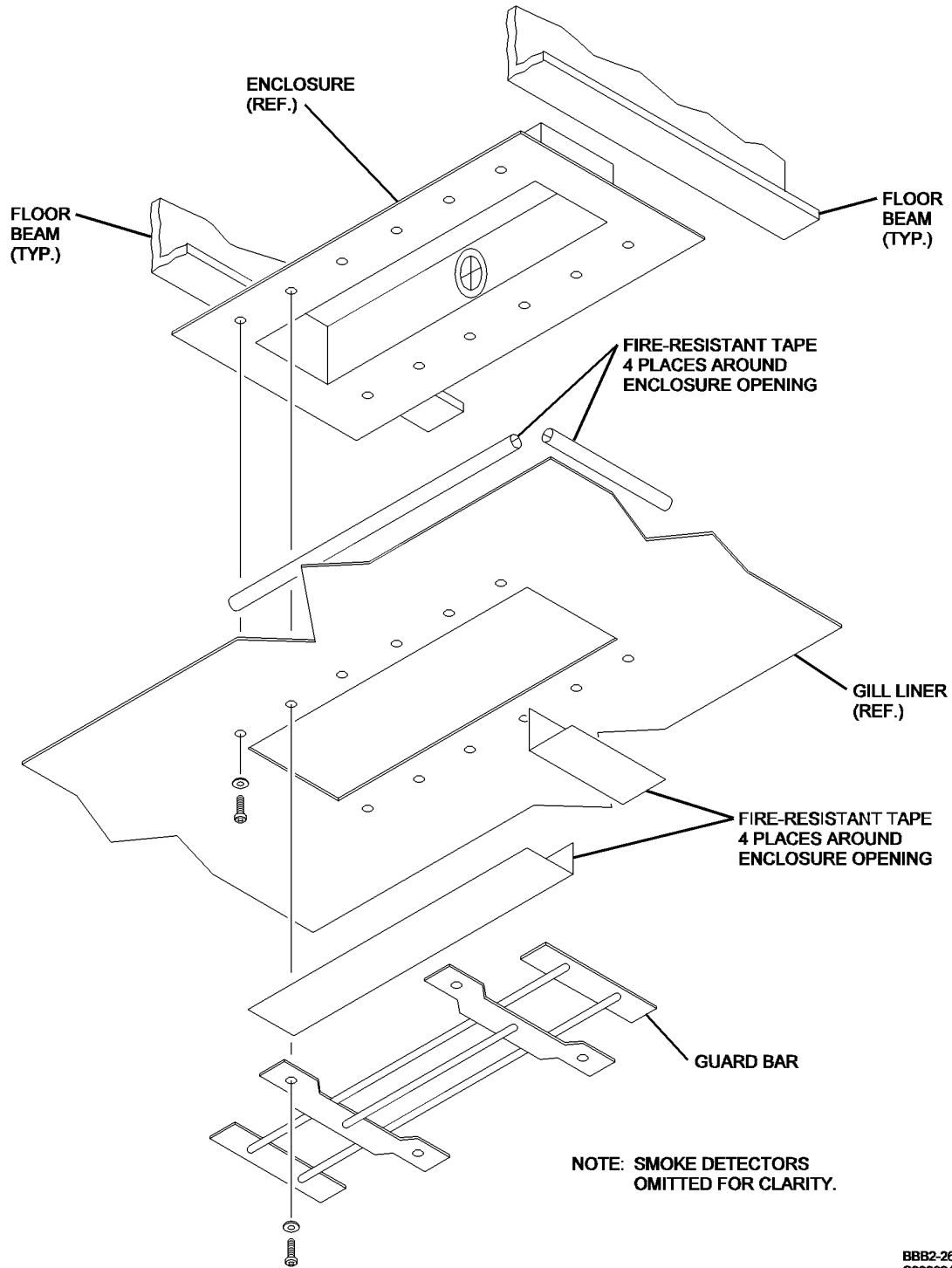
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Typical Ceiling Liner Installation
Figure 201/26-16-05-990-802

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EXTINGUISHING - DESCRIPTION AND OPERATION

1. General

- A. The extinguishing system consists of a fixed fire extinguishing system and portable fire extinguishers. The fixed system is used to extinguish fires in the engine and APU compartments. The system consists of two fire extinguisher containers, fire extinguishing agent deployment lines, fire extinguishing discharge controls and circuits, and the low agent indicating lights. The portable fire extinguishers are hand operated and used to extinguish fires in the flight compartment, passenger compartment, or areas accessible from the compartments.

2. Fixed Fire Extinguishing System Components

A. Fire Extinguisher Containers

- (1) The two 536 cubic inch (8785.04 cubic centimeter) fire extinguisher containers are installed in the aircraft aft accessory compartment. The containers are charged with 14.6(±1) pounds (6.6(±.454) kg) of bromochlorodifluoromethane extinguishing agent at 600 (+25, -0) psig at 70 degrees Fahrenheit (21.1 degrees Celsius). Each container provides one extinguishing shot. The containers are identical, and consist of a spherical steel container and a pressure switch. Three outlet ports on the container provide for agent release to any one of the fire areas. A discharge valve bonnet is installed on each outlet port. The discharge valves serve as an adapter between the container and deployment lines, and provide for installation of the explosive cartridge. Each outlet port is sealed by a seal disc to retain the pressurized extinguishing agent. The fully charged containers (less discharge heads and cartridges, and with protective caps) weighs 22.95 pounds (10.4 kg).
- (2) A pressure switch is installed in the container. The pressure switch will close and activate the low agent indicating lights when the container is discharged.

B. Fire Extinguisher Explosive Cartridges

- (1) The fire extinguisher explosive cartridges are electrically fired and provide the force to rupture the seals in the fire extinguisher containers for extinguishing agent release. An explosive cartridge is installed in each discharge head on the fire extinguisher containers. Each cartridge contains two squibs (powder charges). Electrical power to fire the cartridges is supplied to each squib through a two-pin electrical connector on the cartridge. When the fire extinguisher container seal disc is ruptured the extinguishing agent is released.

C. Fire Extinguishing Deployment Lines

- (1) The fire extinguishing deployment lines disperse the released extinguishing agent from the containers to the selected fire area. Each right and left engine, and APU compartment fire areas, are served by an individual deployment line system, consisting of two flexible hoses, a wye unit, and rigid metal tubing. Each hose is connected between the respective discharge head on one of the fire extinguisher containers and the system wye unit. The wye unit is a junction point which receives the released agent from either container and deploys it into a rigid metal line routed to the fire area.
- (2) The deployment lines to the engine areas terminate at five discharge outlets. One outlet is located at the forward end of the pylon and one outlet in the aft end of the pylon. The other three outlets are located strategically between the closing rib and the firewall in the pylon. The outlets disperse the extinguishing agent directly into the engine area at a proper rate for effective extinguishing.
- (3) The APU deployment line terminates at two different sized outlets on the left side of the APU compartment. The extinguishing agent is dispersed directly on the auxiliary power unit.

D. Fire Extinguishing Discharge Controls

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- (1) Fire extinguishing discharge controls provide the crew with the means to select and initiate fire extinguishing agent discharge from either fire extinguisher container to any one of the three fire areas. The left and right engine fire control handles are located on the upper instrument panel in the flight compartment. To initiate discharge action for an engine area, the respective handle is pulled full out and turned counterclockwise to activate fire extinguisher container 1 (bottle 1) or turned clockwise to fire container 2 (bottle 2). The handles are spring-loaded to the center position. The initial pullout action of a handle will close the respective engine fuel, hydraulic, and pneumatic cross-feed valve, open the generator field and open the aural fire warning circuit. When the handle is returned to the normal in position, the fuel and hydraulic valves will open. The pneumatic valve must be opened by the control on the center pedestal. The generator field circuit will close when the generator control switch is momentarily placed in the reset position. The aural warning circuit will return to a normal closed circuit. (ELECTRICAL POWER, CHAPTER 24)
- (2) There are four fire extinguishing discharge switches for the APU compartment. Two are located on the overhead switch panel in the flight compartment and two on the APU ground fire control panel in the aft exterior fuselage. The switches are off, momentary on switches and each switch fires one of the two fire extinguisher containers when actuated to the agent DISCH position (circuit armed).
- (3) A fire control switch is located adjacent to the discharge switches in the flight compartment. The switch has a NORMAL, and an APU OFF & AGENT ARM position. Before discharge action, the fire control switch must be placed in the APU OFF and AGENT ARM position. This will arm the discharge switches and close an electrical holding circuit to the fire shutdown relay.

NOTE: The APU fire shutdown relay is automatically energized by a fire signal relay when a fire condition is detected in the APU compartment. The energized relay will cause the APU fuel and pneumatic valves to close and will open the APU control and ignition circuits. The holding circuit is provided to keep the relay energized until the APU MASTER switch is placed in OFF position.

- (4) An APU SHUTOFF switch is located adjacent to the APU discharge switches on the APU ground fire control panel. The switch has a NORMAL and SHUTOFF position. Before discharge action from the APU ground fire control panel, the switch must be placed in the APU SHUTOFF position to place the electrical holding circuit on the fire shutdown relay. The discharge switches on the APU ground fire control panel are armed for operation when the fire control switch, in the flight compartment, is in NORM position.
- (5) The APU fire shutdown relay and fire signal relay are located on the relay panel in the electrical/electronics compartment. The fire signal relay is energized by the APU compartment sensing elements when a fire condition is detected. The energized fire signal relay energizes the APU fire shutdown relay.
- (6) The engine generator field shutoff switches are located in the aft lower part of the center pedestal. The switches are actuated when the respective engine fire control handle is pulled full out.

E. Low Agent Indicating Lights

- (1) There are four AGENT LOW indicating lights. Two are located on the upper instrument panel in the flight compartment and two on the APU ground fire control panel. Each of the two lights on the panels represents one of the two fire extinguisher containers. When a container is discharged or pressure drops to below sufficient operating psi, the corresponding AGENT LOW indicating lights will come on.

F. Portable Fire Extinguishers

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WJE ALL

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WJE 401-404, 412, 414-427, 429, 861-866, 868, 869, 871-879, 891-893

- (1) Portable fire extinguishers are located in the flight and passenger compartments. The extinguishers are of the halon and water types. The extinguishers are mounted in individual supports and held in position in the supports by quick-action release straps.
 - (a) Water Fire Extinguisher: The water extinguishers when fully charged contain 1 3/8 quarts (44 ounces)(1.3 liters) of water, with or without an antifreeze agent, and weigh approximately 7 pounds (3.17 kg). A carbon dioxide cartridge, located inside a holder on the discharge head, is used to pressurize the cylinder when use is required. Twisting the cartridge holder in the direction indicated by an arrow on the holder will puncture the cartridge and pressurize the cylinder. Depressing the lever on the discharge head allows the pressure to force the water out the discharge nozzle. Discharge time is between 30 and 45 seconds. Range of discharge is approximately 20 feet (6.1 meters).

WJE 405-412, 414, 880, 881, 883, 884, 886, 887

- (2) Portable fire extinguishers are located in the flight and passenger compartments. The extinguishers are of the carbon dioxide and water types. The extinguishers are mounted in individual supports and held in position in the supports by quick-action release straps.

WJE 405-411, 880, 881, 883, 884

- (a) Carbon Dioxide Extinguisher: On aircraft 101-103 carbon dioxide fire extinguishers use carbon dioxide as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 6.5 pounds (2.95 Kg) fully charged. To discharge the carbon dioxide, move the discharge horn to the full up position and then depress the trigger located in the handle. If excessive pressure develops in an extinguisher due to overcharging or heat, a safety seal disc in the valve body will rupture and the carbon dioxide will be discharged.
- (b) Halon Extinguisher: On aircraft 104-130, 151-999 halon fire extinguishers use bromochlorodifluoromethane as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 3.93 pounds (1.75 kg) fully charged. The halon extinguisher is discharged by pulling the locking pin and squeezing the lever. The discharge time is approximately 10 seconds with a range of 13 feet (4 meters).

WJE 886, 887

- (c) Carbon Dioxide Extinguisher: On aircraft 101-108 carbon dioxide fire extinguishers use carbon dioxide as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 6.5 pounds (2.95 kg) fully charged. To discharge the carbon dioxide, move the discharge horn to the full up position and then depress the trigger located in the handle. If excessive pressure develops in an extinguisher due to overcharging or heat, a safety seal disc in the valve body will rupture and the carbon dioxide will be discharged.

WJE 412, 414

- (d) Carbon Dioxide Extinguisher: The carbon dioxide fire extinguishers use carbon dioxide as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 6.5 pounds (2.95 Kg) fully charged. To discharge the carbon dioxide, move the discharge horn to the full up position and then depress the trigger located in the handle. If excessive pressure develops in an extinguisher due to overcharging or heat, a safety seal disc in the valve body will rupture and the carbon dioxide will be discharged.

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WJE ALL

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WJE 412, 414 (Continued)

- (e) Halon Extinguisher: On aircraft 109-112, 401-402 halon fire extinguishers use bromochlorodifluoromethane as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 3.93 pounds (1.75 kg) fully charged. The halon extinguisher is discharged by pulling the locking pin and squeezing the lever. The discharge time is approximately 10 seconds with a range of 13 feet (4 meters).

WJE 886, 887

- (f) Halon Extinguisher: On aircraft 151-154 halon fire extinguishers use bromochlorodifluoromethane as an extinguishing agent, and are located in the flight compartment and passenger compartment. The extinguishers weigh approximately 3.93 pounds (1.75 kg) fully charged. The halon extinguisher is discharged by pulling the locking pin and squeezing the lever. The discharge time is approximately 10 seconds with a range of 13 feet (4 meters).

WJE ALL

3. Operation

A. Engine Areas Fire Extinguishing Operation

Procedure		Resulting Action
(1)	Pull applicable engine fire control handle to full out position.	Cable attached to control handle shaft is moved. Cable action closes engine fuel and hydraulic valves, closes pneumatic crossfeed valve, opens aural fire warning circuit and actuates generator shutoff switch which opens the engine generator field circuit.
(2)	Rotate control handle counterclockwise or clockwise.	Cam on control handle shaft rotates and actuates discharge switch for fire extinguisher container. Switch closes electrical circuit to explosive cartridge in container; cartridge fires and ruptures container seal disc; an agent is released to fire area through deployment lines. Corresponding AGENT LOW indicating lights for discharged container will come on.
NOTE: Counterclockwise rotation will discharge container 1 (bottle 1). Clockwise rotation will discharge container 2 (bottle 2).		
(3)	Make certain control handle is returned to full in position.	Engine fuel and hydraulic valves will open, generator shutoff switches will be released and aural fire warning circuit will return to normal closed.
(4)	Place applicable L GEN or R GEN switch momentarily to reset position.	Generator field circuit will close. (ELECTRICAL POWER, CHAPTER 24)
(5)	Open pneumatic crossfeed valve with control on center pedestal.	Pneumatic crossfeed valve opens.
NOTE: Crossfeed valve is normally in closed position.		

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B. APU Compartment Fire Extinguishing Operation (Flight Compartment)

NOTE: Initial fire detection in the APU compartment by the sensing elements will automatically energize the fire signal relay. The energized fire signal relay will energize the fire shutdown relay which will cause the APU fuel and pneumatic valves to close and will open the APU control and ignition circuits. After fire extinguishing the fire signal relay will automatically deenergize when sensing element temperature returns to below actuating value. The holding circuits for the fire shutdown relay are provided to keep the relay energized until the APU MASTER switch is returned to OFF position.

	Procedure	Resulting Action
<p>CAUTION: WHEN FIRE CONTROL SWITCH IS PLACED IN APU OFF & AGENT ARM POSITION, IT WILL OPEN ARMING CIRCUIT TO APU FIRE EXTINGUISHING SWITCHES ON APU GROUND FIRE CONTROL PANEL.</p>		
(1)	Place FIRE CONT switch in OFF & AGENT ARM position.	Switch will close electrical arming circuit to APU fire extinguishing discharge switches and close an electrical holding circuit to fire shutdown relay.
(2)	Place FIRE AGENT 1 or FIRE AGENT 2 switch in DISCHARGE position until AGENT LOW light comes on.	Switch will close electrical circuit to explosive cartridge on fire extinguisher container. Explosive cartridge will fire; container seal disc will rupture and extinguishing agent is released to APU compartment through deployment lines. AGENT LOW indicating lights for corresponding discharged fire extinguisher container will come on.
<p>NOTE: FIRE AGENT NO. 1 switch discharges container 1; FIRE AGENT NO. 2 switch discharges container 2.</p>		
(3)	Place APU MASTER switch in OFF position.	Returns APU run/start circuits to open status to prevent restart cycle when APU fire shutdown relay is released.
(4)	Place FIRE CONT switch in NORM position.	Electrical holding circuit to fire shutdown relay will be opened and relay will release.

C. APU Compartment Fire Extinguishing Operation (GND APU Panel)

	Procedure	Resulting Action
(1)	Momentarily place APU switch in SHUTOFF position.	An electrical holding power circuit will be closed from the APU MASTER switch (in RUN/START position) to energizing coil of fire shutdown relay; circuit will hold relay energized until APU MASTER switch is moved to OFF position.
(2)	Place FIRE AGENT 1 or FIRE AGENT 2 switch in DISCHARGE position and hold until applicable AGENT LOW light comes on.	Switch will close an electrical circuit to explosive cartridge on fire extinguisher container (switch 1 container 1)(switch 2 container 2). Explosive cartridge will fire and rupture container seal disc to release extinguishing agent to APU compartment through deployment lines. AGENT LOW indicating lights for corresponding discharged container will come on.
(3)	Place APU MASTER switch in OFF position.	Electrical holding circuit to fire shutdown relay will be opened and relay will be released to normal position.

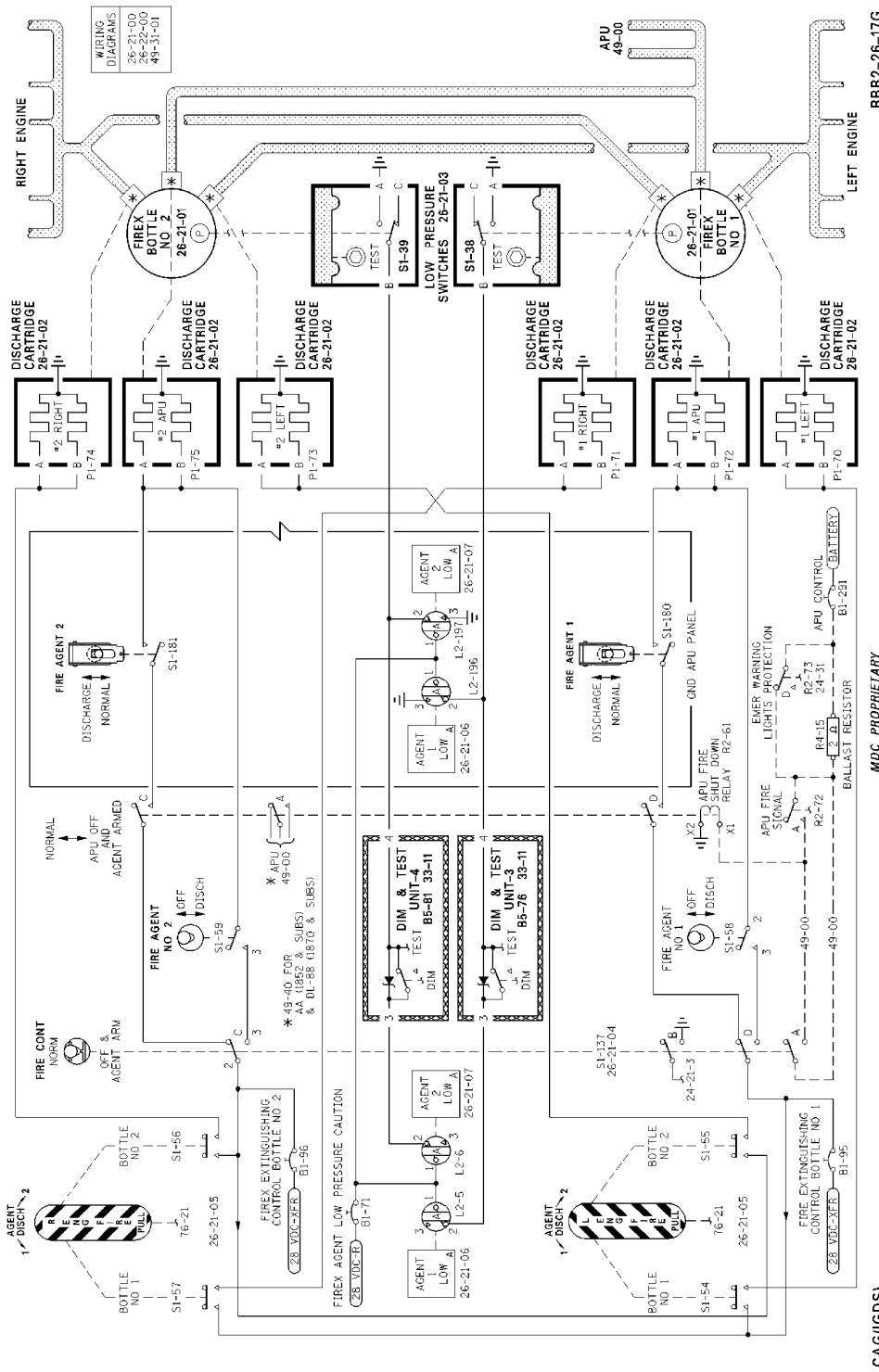
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Extinguishing System -- Engine/APU
Figure 1/26-20-00-990-801

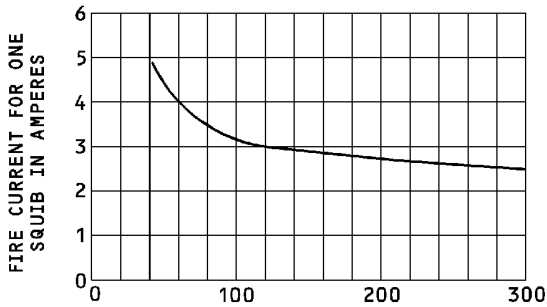
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***TOTAL FIRING TIME VS FIRING CURRENT
CARTRIDGE FIRED IN AIR AT 80°F**



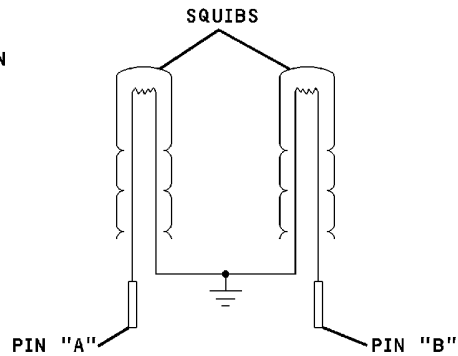
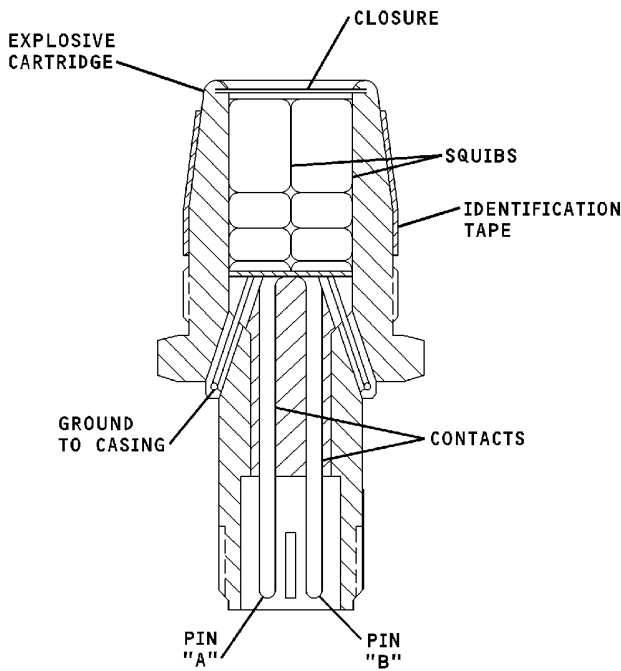
TOTAL FIRING TIME IN MILLISECONDS
 *(TOTAL FIRING TIME-TIME FROM APPLI-
 CATION OF CURRENT UNTIL FIRING OF
 SQUIB IS COMPLETED.)
 MAX. NO-FIRING CURRENT=1 AMP. PER
 SQUIB

**TEMPERATURE EXPOSURE LIMITS,
ACCUMULATED TIME AT TEMPERATURE YEARS**



EXPOSURE TIME IN 6 YEARS
 SERVICE LIFE AT 160°F - 2 YEARS
 SERVICE LIFE AT 100°F - 6 YEARS

MAXIMUM LIFE 10 YEARS
 (SERVICE AND STORAGE TOTAL ACCUMULATED)



ELECTRICAL SCHEMATIC

CAG(IGDS)

BBB2-26-39B

**Fire Extinguishing Explosive Cartridge (Aircraft with Cartridge P/N 876296 Installed)
Figure 2/26-20-00-990-804**

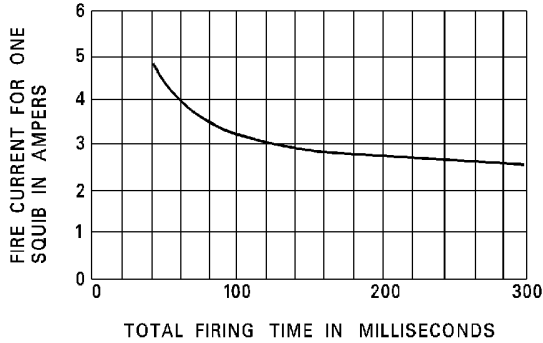
EFFECTIVITY
WJE ALL

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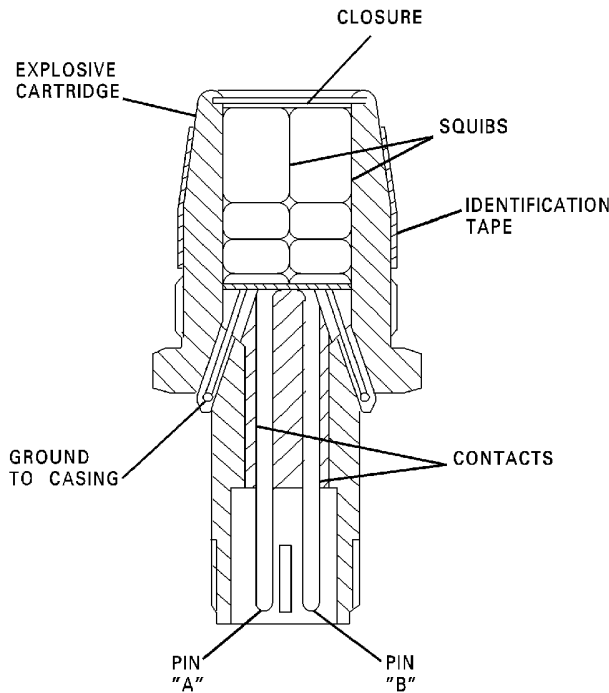
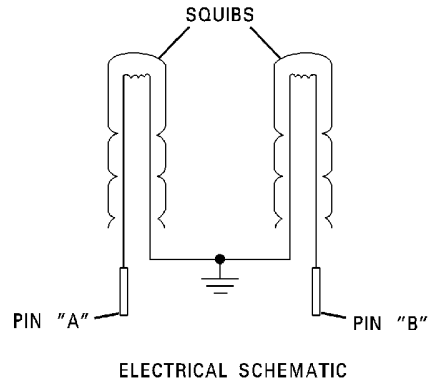
*TOTAL FIRING TIME VS FIRING CURRENT
CARTRIDGE FIRED IN AIR AT 80° F



* (TOTAL FIRING TIME—TIME FROM APPLICATION OF CURRENT UNTIL FIRING OF SQUIB IS COMPLETED.)

MAX. NO-FIRING CURREN=1 AMP. PER SQUIB

MAXIMUM SERVICE LIFE 10 YEARS
FROM DATE OF MANUFACTOR



CAG(IGDS)

BBB2-26-226

**Fire Extinguishing Explosive Cartridge (Aircraft with Cartridge P/N 876296-2 Installed)
Figure 3/26-20-00-990-805**

EFFECTIVITY
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EXTINGUISHING SYSTEM - TROUBLE SHOOTING

1. General

A. Trouble shooting procedures are applicable to both right and left engine and the APU compartments fire extinguishing systems.

WARNING: WHEN FIRE EXTINGUISHER DISCHARGE SWITCHES MUST BE OPERATED FOR A TROUBLESHOOTING PROCEDURE, MAKE CERTAIN ALL CIRCUITS ARE ISOLATED FROM THE CONTAINER EXPLOSIVE CARTRIDGES TO PREVENT CONTAINERS FROM BEING DISCHARGED.

B. Trouble shooting procedures for electrical circuits exclude the electrical power system and buses.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed item.

Table 101

Name and Number	Manufacturer
Multimeter Model 2000	Dana

3. Trouble Shooting

A. FIRE EXTINGUISHER CONTAINER DOES NOT DISCHARGE.

	Possible Causes	Isolation Procedure	Correction
(1)	Defective cartridge	Disconnect electrical connector from cartridge, install test light on connector from power pin to ground and operate respective fire extinguisher discharge switch.	If test light comes on, replace cartridge.
(2)	Electrical circuit open between 28-volt dc transfer bus and cartridge electrical connector	Disconnect electrical connector from cartridge, operate and hold respective fire extinguisher discharge switch and check continuity between bus and connector pin. (Ref. Figure 101)	If continuity does not exist, isolate open circuit by point to point continuity check; repair or replace defective wire, component, or connection.
(3)	Cam lobe attached to forward end of ENG FIRE control handle shaft positioned incorrectly	Disconnect electrical connector from cartridge, operate and hold respective fire extinguisher discharge switch and check continuity between bus and connector pins. (Ref. Figure 101)	If continuity does not exist, reposition cam lobe to point outboard to ensure that lobe activates agent discharge switches when handle is operated.

NOTE: The following steps are applicable only to APU fire extinguishing circuit.

(4)	Defective FIRE CONT switch	Check continuity across terminals of switch.	If defective continuity, replace switch.
(5)	Defective APU fire shutdown relay	Place FIRE CONT switch in OFF & AGENT ARM position and check relay for operation.	If relay does not operate and power is present at terminal X1 and ground at X2, replace relay.
(6)	Defective wiring or connections between bottle 1, bottle 2 circuit breakers and container cartridge connector	Check continuity from circuit breaker through FIRE CONT switch and APU shutdown relay to cartridge connector.	Repair or replace defective wiring or connections.

B. CONTAINER EXPLOSIVE CARTRIDGE FIRES WITH FIRE AGENT SWITCHES OFF.

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Possible Causes		Isolation Procedure	Correction
(1)	Defective FIRE AGENT switch	With FIRE AGENT switch in off position, check continuity across switch terminals.	If continuity across switch terminals exists, replace switch.

C. EXTINGUISHING AGENT DISCHARGED TO WRONG AREA.

Table 102

Possible Causes		Isolation Procedure	Correction
(1)	Electrical connectors not connected to correct cartridges	Visually check electrical connections to cartridges.	Connect correct connectors to cartridges.
(2)	Discharge hoses incorrectly connected between containers and wye assemblies	Visually check hose connections between containers and wye assemblies.	Connect hoses correctly between containers and wye assemblies.
(3)	Wire connections crossed at connection point between switches and cartridge electrical connectors	Make continuity check between switches and each connection point in circuit to connectors.	Correct defective connections.

D. INSUFFICIENT OR NO DISCHARGED AGENT ENTERS FIRE AREA.

Possible Causes		Isolation Procedure	Correction
(1)	Low pressure or discharged container	If low pressure or discharged condition of container was not indicated by low agent warning lights, low agent warning system should be checked for malfunction.	Replace container.
(2)	Leak in deployment lines	Visually check lines for open connection, perform leakage test on lines.	Connect open lines; tighten loose connections; and replace damaged lines.
(3)	Plugged screen in discharge valve	Remove discharge head from container and check screen for foreign objects and corrosion or damage.	Remove foreign objects, clean screen; if screen is corroded or damaged, replace discharge head and install cartridge.
(4)	Plugged deployment line	Remove hose from discharge head outlet and blow air through lines to dislodge restriction or determine point of restriction.	If air will not clear restriction from line, remove line and clear restriction or replace line.

E. LOW AGENT INDICATING LIGHT COMES ON.

Possible Causes		Isolation Procedure	Correction
(1)	Low pressure or discharged fire extinguisher container		If pressure is low or container discharged, replace container.
(2)	Faulty pressure switch on container	Check pressure switch.	If pressure switch defective, replace container.
(3)	Ground short in low agent indicating circuit between warning light and electrical connector to pressure switch	Disconnect electrical connector from gage and check circuit from indicating light to plug for point of ground short.	Replace or repair wiring, connections, or components, at ground fault point.

F. LOW AGENT WARNING LIGHT INOPERATIVE.

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Possible Causes		Isolation Procedure	Correction
(1)	Faulty bulb (GND. APU. PANEL)	Press low agent indicating light cap.	If light does not come on, replace bulb.
(2)	Faulty bulb	Press "ANNUN/DIGITAL LTS TEST" switch.	If light does not come on, replace bulb.
(3)	Faulty pressure switch in container	Disconnect electrical connector from pressure switch and connect a jumper wire from pin B to ground.	If low agent indicating light comes on, replace container.
(4)	Open in low agent indicating circuit between the light and electrical connector on the pressure switch on container	Disconnect electrical connector from pressure gage and check circuit continuity from light to plug.	Replace or repair wiring, connections, or components at point of open circuit.
<p>NOTE: For problems encountered in the mechanical rigging or operation of the fire control handles. (Refer to EMERGENCY SHUTDOWN, SUBJECT 76-20-00)</p>			

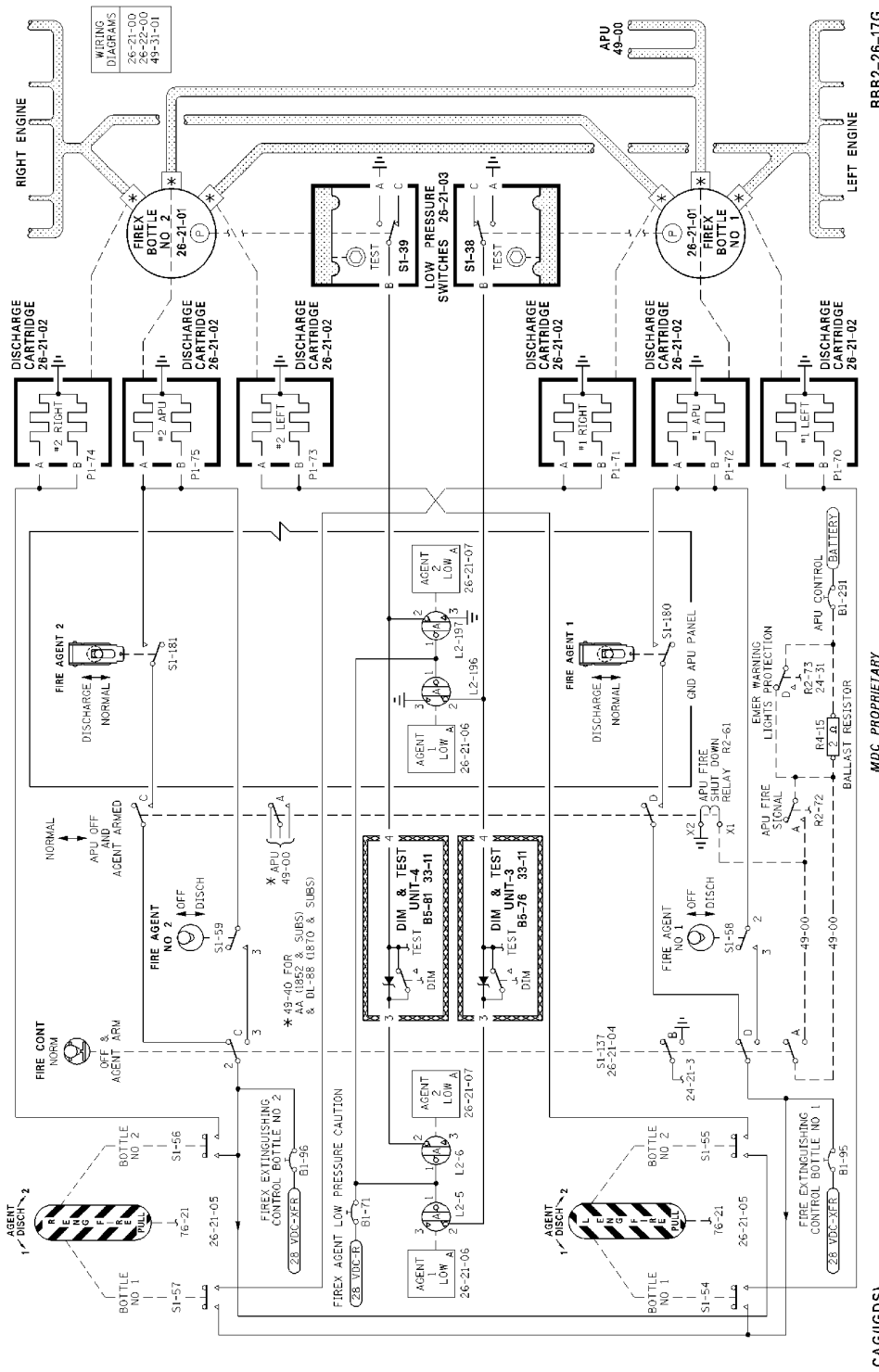
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Fire Extinguishing System -- Wiring Schematic
Figure 101/26-20-00-990-806

MDC PROPRIETARY
CAG(I/GDS)

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EXTINGUISHING - MAINTENANCE PRACTICES

1. General

- A. The following test will check the fire extinguishing circuits without discharging the fire extinguisher containers.
- B. For maintenance practices on the fire control handles, refer to CHAPTER 76.

WARNING: EXPLOSIVE CARTRIDGES ARE ELECTRICALLY FIRED AND WHEN FIRED EXPEL POTENTIALLY HAZARDOUS SHOCKWAVE. MAKE CERTAIN ALL SOURCES OF ELECTRICAL POWER ARE REMOVED FROM CARTRIDGE AND PROTECTIVE CAP IS INSTALLED ON ELECTRICAL RECEPTACLE WHENEVER CARTRIDGE IS NOT INSTALLED IN FIRE EXTINGUISHER CONTAINER. STORE REMOVED CARTRIDGES IN AN AREA DESIGNATED FOR EXPLOSIVES STORAGE.

- C. The fire extinguisher containers are located in the aft accessory compartment and are accessible through the tailcone access door.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

Table 201

Name and Number	Manufacturer
Allen wrench, 3/32 inch	
<p><u>CAUTION:</u> EXPLOSIVE CARTRIDGE TEST FIXTURES ARE DESIGNED TO CHECK ELECTRICAL CONTINUITY THROUGH CARTRIDGES WITHOUT FIRING CARTRIDGES. DO NOT USE SUBSTITUTE FOR FIXTURE DESIGNATED.</p>	
Explosive cartridge test fixture (6 required) (one test fixture can be rotated) Ref. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)	
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not specified
Multimeter Model 2000	Dana
<p><u>NOTE:</u> If explosive cartridge test fixture is not available the circuits can be checked to the cartridges by disconnecting the electrical connectors from the cartridges and installing a 28 volt lamp between each electrical connector pin and ground. Test indications will be identical.</p>	

3. Adjustment/Test Extinguishing Circuits

WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- A. Test Extinguishing Circuits

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WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893 (Continued)

WARNING: TAG AND SAFETY CIRCUIT BREAKERS.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Disconnect aircraft harness electrical connectors from all explosive cartridges on both fire extinguisher containers.

WARNING: BEFORE INSTALLING EXPLOSIVE CARTRIDGE TEST LIGHT FIXTURE BETWEEN AIRCRAFT HARNESS ELECTRICAL CONNECTOR AND EXPLOSIVE CARTRIDGE RECEPTACLE, CHECK EXPLOSIVE CARTRIDGE RECEPTACLE, AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND EXPLOSIVE CARTRIDGE TEST LIGHT FIXTURE CONNECTOR AND RECEPTACLE FOR FOREIGN PARTICLES THAT MAY CAUSE AN ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTOR WITH MULTIMETER TO MAKE CERTAIN NO VOLTAGE IS PRESENT AT CONNECTOR.

- (3) Install explosive cartridge test light fixtures between aircraft harness electrical connectors and explosive cartridges.
- (4) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (5) Pull left engine fire control handle full out and rotate handle CCW to AGENT DISCHARGE 1 position and hold. Test lights, at left engine area explosive cartridge electrical connector on fire extinguisher container number 1 (BOTTLE 1), should come on.
 - (6) Rotate control handle CW. Test lights at number 1 container should go off, and test lights at left engine area explosive cartridge electrical connector on container number 2 (BOTTLE 2) should come on.
 - (7) Place left engine control handle to normal position (full in). Test lights, for left engine area at both containers, should be off.
 - (8) Place L GEN switch momentarily to RESET position.
- NOTE:** When engine fire control handle is actuated, generator field circuit is opened. Generator control switch must be reset to close generator field circuit.
- (9) Repeat Paragraph 3.A.(5) through Paragraph 3.A.(8) for right engine area substituting right for left in steps.
 - (10) Place FIRE CONT switch, on overhead switch panel, in OFF & AGENT ARM position.
 - (11) Place APU FIRE AGENT NO. 1 switch, on overhead switch panel, to DISCH position and hold for 5 seconds minimum. Test lights at APU area explosive cartridge electrical connector on container number 1 (BOTTLE 1) should come on.
 - (12) Release discharge switch. Test lights should go off.
 - (13) Repeat Paragraph 3.A.(11) and Paragraph 3.A.(12) with FIRE AGENT NO. 2 switch in DISCH position. Test lights for APU area on container number 2 should come on and go off.

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WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893 (Continued)

- (14) Place FIRE CONT switch in NORM position.
- (15) Place and hold both FIRE AGENT switches, on overhead switch panel, in DISCH position. Test lights on number 1 and number 2 containers should not come on.

CAUTION: DO NOT PLACE APU MASTER SWITCH IN START POSITION.

- (16) Place BATT switch on overhead switch panel in ON position and APU MASTER switch in RUN position.
- (17) Place APU switch, on GND APU panel, in SHUTOFF position, hold momentarily.
- (18) Place FIRE AGENT switch NO. 1, on APU ground fire control panel, in DISCH position. Test lights, at APU area explosive cartridge electrical connector on container 1, should come on.
- (19) Release switch. Test lights should go off.
- (20) Repeat Paragraph 3.A.(18) and Paragraph 3.A.(19) with FIRE AGENT switch NO. 2 on APU ground fire control panel. Test lights for APU area, on number 2 container, should come on and go off.
- (21) Place FIRE CONT switch, in flight compartment, in OFF & AGENT ARM position.
- (22) Place and hold FIRE AGENT NO. 1 and FIRE AGENT NO. 2 switches, on APU ground fire control panel, in DISCHARGE position. Test lights for APU area, on container 1 and container 2, should not come on. Release switches.
- (23) Place FIRE CONT switch in NORM position.
- (24) Place APU MASTER switch in OFF position.
- (25) Place BATT switch in OFF position.

WARNING: TAG AND SAFETY CIRCUIT BREAKERS.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (27) Remove fire extinguisher explosive test fixtures.

WARNING: BEFORE CONNECTING AIRCRAFT HARNESS ELECTRICAL CONNECTORS TO EXPLOSIVE CARTRIDGE RECEPTACLES, CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS AND EXPLOSIVE CARTRIDGE RECEPTACLES FOR FOREIGN PARTICLES THAT MAY CAUSE ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS WITH MULTIMETER TO MAKE CERTAIN NO VOLTAGE IS PRESENT AT CONNECTORS.

- (28) Connect aircraft harness electrical connectors to respective explosive cartridges on fire extinguisher containers and safety with lockwire to deployment line. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (29) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

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WJE 412, 414

WJE B. Ajustment/Test Extingishing Circuits

WJE (1) Do the Adjustment/Test Firex Electrical Circuits test. (FIRE EXTINGUISHER EXPLOSIVE
WJE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)

WJE WJE ALL

C. Test Low Agent Indicating Lights Circuits

- (1) Using 3/32 inch allen wrench, turn pressure switch socket on fire extinguishing container-1 and hold; AGENT 1 LOW indicating lights on upper instrument panel and on APU emergency fire shutoff panel AGENT 1 LOW lights should come on.
- (2) Release allen wrench, light should go off.
- (3) Repeat Paragraph 3.C.(1) and Paragraph 3.C.(2) on fire extinguishing container-2, AGENT 2 LOW indicating lights should come on and go off.
- (4) Release and remove allen wrench from pressure switch socket.

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FIRE EXTINGUISHER CONTAINER - MAINTENANCE PRACTICES

1. General

- A. Two 536 cubic inch (8785.04 cubic centimeters) fire extinguisher containers are installed in the aircraft and located in the aft accessory compartment. Access to the containers is through the tailcone access door.
- B. If a fire extinguisher container is being replaced due to a discharge event (either by command or due to the overpressurization of a fire bottle resulting in a thermal discharge), do a routing and leak check of the engine and APU fire extinguisher deployment lines. (FIRE EXTINGUISHING DEPLOYMENT LINE ROUTING AND LEAK CHECK - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-04/201)

NOTE: A five flight-cycle allowance is permitted so that the aircraft can return to a facility or base that is equipped to perform the routing and leak check on the engine and APU fire extinguishing deployment lines.

WARNING: BROMOTRIFLUOROMETHANE IS AN AGENT THAT IS A COMPRESSED GAS AND POISONOUS. MAKE SURE ALL PERSONS OBEY ALL OF THE PRECAUTIONS WHEN BROMOTRIFLUOROMETHANE IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET BROMOTRIFLUOROMETHANE IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR:

- MORE PRECAUTIONARY DATA.
- APPROVED SAFETY EQUIPMENT.
- EMERGENCY MEDICAL AID.
- TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- C. Removal and installation procedures are identical for each container.

NOTE: The discharge of fire agent, bromotrifluoromethane leaves no residue which would require a subsequent clean up or wash down of exposed hardware.

- D. Discharged or low-pressure containers should be replaced with a fully charged container. Fully charged containers airborne weight, as installed on aircraft including cartridges are as follows:

- 898150 22.950 lb (10.410 kg) max
- 898150-1 24.300 lb (11.022 kg) max
- 898150-2 24.000 lb (10.886 kg) max.

NOTE: Do not attempt to charge a discharged or low-pressure container while installed on the aircraft.

- E. Remove explosive cartridge. (PAGEBLOCK 26-20-03/201)
- F. Remove discharge valve. (PAGEBLOCK 26-20-02/201)

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2. Equipment and Materials

WARNING: EXPLOSIVE CARTRIDGES ARE ELECTRICALLY FIRED AND WHEN FIRED EXPEL POTENTIALLY HAZARDOUS SHOCKWAVE. MAKE CERTAIN ALL SOURCES OF ELECTRICAL POWER ARE REMOVED FROM CARTRIDGE AND PROTECTIVE CAP IS INSTALLED ON CARTRIDGE RECEPTACLE WHENEVER CARTRIDGE IS NOT INSTALLED IN FIRE EXTINGUISHER CONTAINER. STORE REMOVED CARTRIDGES IN AREA DESIGNATED FOR EXPLOSIVES STORAGE.

NOTE: Equivalent substitutes may be used instead of the following listed item.

Table 201

Name and Number	Manufacturer
Multimeter Model 2000	Dana
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not specified

3. Removal/Installation Fire Extinguisher Container

A. Remove Container

WARNING: TAG AND SAFETY CIRCUIT BREAKERS.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Disconnect electrical connectors from explosive cartridges and low agent indicating switch.
- (3) Remove explosive cartridges. (PAGEBLOCK 26-20-03/201)
- (4) Disconnect flexible hose from discharge valves.
- (5) Remove discharge heads. (PAGEBLOCK 26-20-02/201)

WARNING: FIRE EXTINGUISHER PROTECTIVE CAPS MUST BE INSTALLED DURING CONTAINER REMOVAL/INSTALLATION TO PREVENT DAMAGE TO DISCHARGE DIAPHRAGM WHICH COULD RESULT IN INJURY TO PERSONNEL.

- (6) Install protective cap on fire extinguisher container outlet.
- (7) Support container and remove nuts and bolts attaching container to support.

B. Install Container

NOTE: Before installing container, make certain container is fully charged and protective caps are installed.

WARNING: TAG AND SAFETY CIRCUIT BREAKERS.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

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(Continued)

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Place container in support and install attaching bolts and nuts.
- (3) Remove protective caps.
- (4) Install discharge heads. (PAGEBLOCK 26-20-02/201)
- (5) Connect flexible hoses to respective discharge valves. (Figure 201)
- (6) Connect low agent indicating electrical connector to pressure switch.
- (7) Install explosive cartridge. (PAGEBLOCK 26-20-03/201)

WARNING: BEFORE CONNECTING AIRCRAFT HARNESS ELECTRICAL CONNECTORS TO EXPLOSIVE CARTRIDGE RECEPTACLES, CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS AND EXPLOSIVE CARTRIDGE RECEPTACLES FOR FOREIGN PARTICLES THAT MAY CAUSE ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS WITH MULTIMETER TO MAKE CERTAIN NO VOLTAGE IS PRESENT AT CONNECTORS.

CAUTION: ENSURE THAT ELECTRICAL CONNECTORS ARE CONNECTED TO PROPER EXPLOSIVE CARTRIDGE. (FIGURE 201) .

- (8) Connect electrical connectors to respective explosive cartridges and safety with .020 corrosion resistant steel (CRES) lockwire, G60794 or .020 inconel lockwire, G60166 to deployment line. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (9) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (10) Press and hold ANNUN/DIGITAL LTS TEST switch on overhead panel.
- (11) Make certain both AGENT LOW indicating lights on upper instrument panel come on.
- (12) Release switch. Lights should go off.
- (13) Press and hold both AGENT LOW indicating lights on APU ground control panel. Lights should come on.
- (14) Release lights. Lights should go off.

WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (15) Do the complete check of AGENT LOW indicating lights circuits and cartridge firing circuits. (EXTINGUISHING - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-00/201)

WJE 412, 414

- WJE
WJE
- (16) Do the Adjustment/Test Firex Electrical Circuits test. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)

WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- (17) Test the explosive cartridges. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)

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- (18) Return aircraft to required configuration.
- C. Check Firex Bottle for Hydrostatic Date
 - (1) If less than one month remains (Hydrostatic Test Date), remove and replace with serviceable firex bottle.

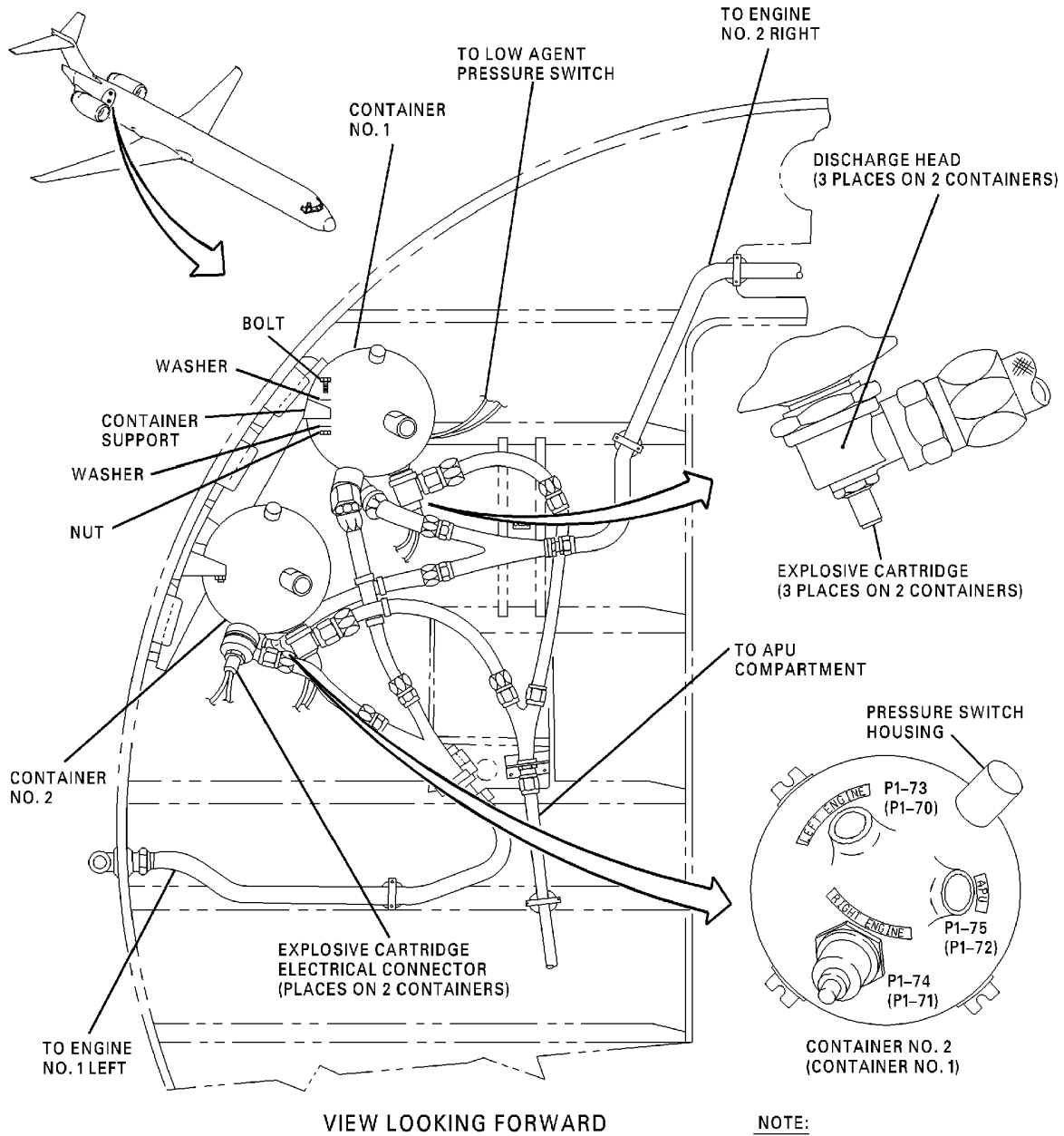
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NOTE:
ENSURE PLUGS ARE INSTALLED
TO CORRECT CONNECTOR.

CAG(IGDS)

BBB2-26-15D

**Fire Extinguisher Containers -- Installation
Figure 201/26-20-01-990-801**

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FIRE EXTINGUISHING CONTAINERS - REMOVAL/INSTALLATION

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-20-01-901-801

2. Discard the Fire Extinguisher Bottles

A. References

Reference	Title
26-20-01 P/B 201	FIRE EXTINGUISHER CONTAINER - MAINTENANCE PRACTICES

B. Discard the Fire Extinguisher Bottles

SUBTASK 26-20-01-901-001

- (1) Remove fire extinguisher bottles. (FIRE EXTINGUISHER CONTAINER - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-01/201)
- (2) Discard bottles.
- (3) Install serviceable bottles. (FIRE EXTINGUISHER CONTAINER - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-01/201)

C. Job Close-up

SUBTASK 26-20-01-942-002

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

———— **END OF TASK** ————

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FIRE EXTINGUISHING CONTAINERS - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-20-01-710-801

2. Operational Check of the Fire Extinguishing Bottle Low Pressure Switches and Lights by Manual Test

A. Prepare for the Fire Extinguishing Bottle Low Pressure Switches and Lights Operational Check by Manual Test

SUBTASK 26-20-01-010-001

(1) Open access panel.

B. Fire Extinguishing Bottle Low Pressure Switches and Lights Operational Check by Manual Test

SUBTASK 26-20-01-710-001

(1) Using 1/16 inch allen wrench, turn pressure switch socket on fire extinguishing container-1 and hold.

(2) AGENT 1 low indicating lights on upper instrument panels and on Auxiliary Power Unit (APU) emergency fire shutoff panel AGENT 1 low lights come on.

(3) Release allen wrench. Lights should go off.

(4) Using 1/16 inch allen wrench, turn pressure switch socket on fire extinguishing container-2 and hold.

(5) AGENT 2 low indicating lights on upper instrument panels and on APU emergency fire shutoff panel AGENT 2 low lights come on.

(6) Release allen wrench. Lights should go off.

(7) Remove allen wrench from pressure switch socket.

C. Job Close-up

SUBTASK 26-20-01-410-001

(1) Close access door.

SUBTASK 26-20-01-942-001

(2) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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DISCHARGE HEAD - MAINTENANCE PRACTICES

1. General

A. The discharge heads are installed on the outlet ports of the fire extinguisher container. Access to the containers is through the tail cone access door.

WARNING: EXPLOSIVE CARTRIDGES ARE ELECTRICALLY FIRED, AND WHEN FIRED EXPEL A POTENTIALLY HAZARDOUS SHOCKWAVE. MAKE CERTAIN ALL SOURCES OF ELECTRICAL POWER ARE REMOVED FROM CARTRIDGE AND PROTECTIVE CAP IS INSTALLED ON ELECTRICAL RECEPTACLE WHEN CARTRIDGE IS NOT INSTALLED IN FIRE EXTINGUISHER CONTAINER.

B. Removal and installation procedures are identical for all discharge heads.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

NOTE: It is possible that some materials in the Equipment and Materials List cannot be used for some or all of their necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Table 201

Name and Number	Manufacturer
Dust caps, electrical connector MS90376	
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not Specified
Torque wrench 750-1500 inch pounds	
Silicone grease, high temperature, Versalube G/300 or G/351	General Electric Silicone Products

3. Removal/Installation Discharge Head

A. Remove Discharge Head

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(2) Disconnect electrical connector from explosive cartridge and cap connectors.

(3) Remove explosive cartridge. (PAGEBLOCK 26-20-03/201)

(4) Remove deployment line from discharge head.

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- (5) Identify position of discharge head outlet.
- (6) Loosen discharge head nut with a wrench and then unscrew nut to remove discharge head.

B. Install Discharge Head

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Apply lubricant (Versalube G/300 or G/351) sparingly to threads of discharge head retaining nut.
- (3) Engage discharge head retaining nut to container outlet port. Position discharge head outlet to properly engage deployment line and hand-tighten retaining nut.
- (4) Secure discharge head outlet in position. Tighten retaining nut to torque value of 960-1200 inch-pounds (109-135 N·m).

WARNING: MAKE SURE THAT THE DEPLOYMENT LINES ARE CONNECTED TO THE CORRECT DISCHARGE HEAD. IF NOT CONNECTED TO THE CORRECT HEAD, LOSS OF LIFE OR THE AIRCRAFT CAN OCCUR.

- (5) Connect deployment line to discharge head outlet.
- (6) Install explosive cartridge. (PAGEBLOCK 26-20-03/201)

WARNING: BEFORE CONNECTING AIRCRAFT HARNESS ELECTRICAL CONNECTORS TO EXPLOSIVE CARTRIDGE RECEPTACLES, CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS AND EXPLOSIVE CARTRIDGE RECEPTACLES FOR FOREIGN PARTICLES THAT MAY CAUSE ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS WITH MULTIMETER TO MAKE CERTAIN NO VOLTAGE IS PRESENT AT CONNECTORS

- (7) Make sure that a continuity test was done on the installed explosive cartridge. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)

NOTE: Only one of the continuity tests is necessary after a cartridge is installed. Either test may be done.

- (8) Remove dust caps and check each electrical connector and receptacle for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
- (9) Connect each connector and safety with lockwire. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (10) Make sure that the connection of the fire discharge cartridge to the applicable fire bottle is grounded as follows:
 - (a) Put the digital volt meter leads between the outer cover of the cartridge and the aircraft structure.
 - (b) The digital volt meter must read 1 ohm or less.

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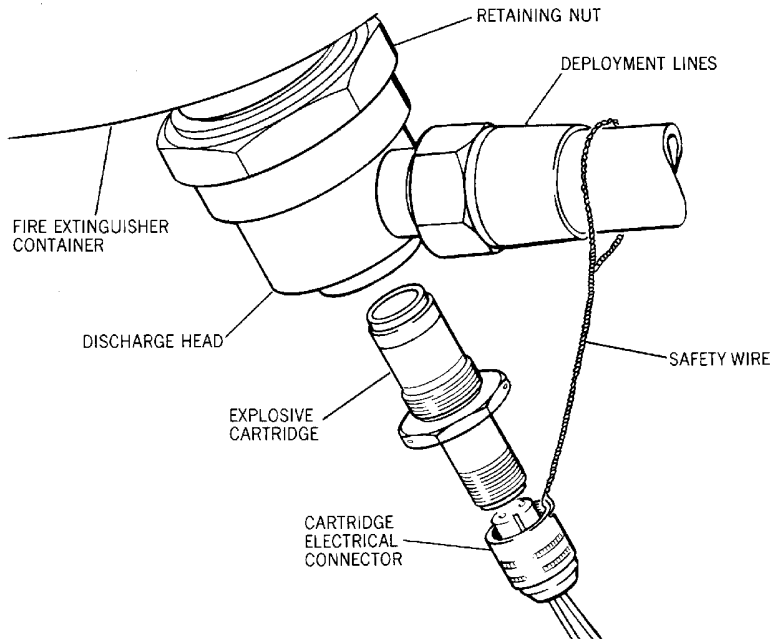
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(11) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2



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Discharge Head
Figure 201/26-20-02-990-801

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FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES

1. General

- A. Fire extinguisher explosive cartridges are installed in each discharge head on the fire extinguisher containers (three per container). The fire extinguisher containers are located in the aft accessory compartment and are accessible through the tailcone access door.
- B. Removal and installation procedures are identical for all explosive cartridges.

WARNING: EXPLOSIVE CARTRIDGES ARE ELECTRICALLY FIRED, AND WHEN FIRED EXPEL POTENTIALLY HAZARDOUS SHOCKWAVE. MAKE CERTAIN ALL SOURCES OF ELECTRICAL POWER ARE REMOVED FROM CARTRIDGE AND PROTECTIVE CAP IS INSTALLED ON ELECTRICAL RECEPTACLE WHEN CARTRIDGE IS NOT INSTALLED IN FIRE EXTINGUISHER CONTAINER. STORE REMOVED CARTRIDGES IN AN AREA DESIGNATED FOR EXPLOSIVES STORAGE.

- C. The explosive cartridge test checks electrical continuity through the cartridges to ground without firing the cartridges.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

NOTE: It is possible that some materials in the Equipment and Materials List cannot be used for some or all of their necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Table 201 Tools and Material Table

Name and Number	Manufacturer
<u>CAUTION:</u> EXPLOSIVE CARTRIDGE TEST FIXTURE IS DESIGNED TO CHECK ELECTRICAL CONTINUITY THROUGH CARTRIDGES WITHOUT FIRING CARTRIDGES; DO NOT USE SUBSTITUTE FOR FIXTURE DESIGNATED.	
Firex discharge cartridge test set DZZ7703-501	
Grease, general purpose MIL-G-81322 (for use on HTL fire extinguishers) DPM 5348	
Grease, general purpose MIL-G-81322 DPM 5348	
Multimeter	Not specified
Inconel Lockwire 0.020 in NASM20995N20, DPM 684	Not specified
Corrosion Resistant Steel Lockwire 0.020 in NASM20995C20, DPM 5865	Not Specified
Torque wrench 0 in-lb (0.0 N·m) to 300 in-lb (33.9 N·m) range	
Tags, DO NOT OPERATE	

3. Removal/Installation Explosive Cartridges

- A. Remove Cartridge

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WARNING: DELIVER REMOVED SQUIB(S)/CARTRIDGES TO THE ENVIRONMENTAL COORDINATOR AT YOUR STATION.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Remove aircraft harness electrical connector from cartridge.
- (3) Install protective cap on cartridge receptacle.
- (4) Remove cartridge from discharge head.

B. Install Cartridge

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

WARNING: GREASE LUBRICANT IS AN AGENT THAT IS AN IRRITANT. MAKE SURE ALL PERSONS OBEY ALL OF THE PRECAUTIONS WHEN GREASE LUBRICANT IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT IN USE.
- DO NOT GET GREASE LUBRICANT IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIERS MSDS FOR:

- MORE PRECAUTIONARY DATA.
- APPROVED SAFETY EQUIPMENT.
- EMERGENCY MEDICAL AID.
- TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- (2) Apply grease (MIL-G-81322) sparingly to explosive cartridge threads and install cartridge.

NOTE: Before installing cartridge, check date on cartridge to make certain in-service life is sufficient (EXTINGUISHING - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-00/201). Make certain cartridge has protective cap installed on electrical receptacle.

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- (3) If a Walter Kidde fire bottle cartridge is used, install cartridge and tighten cartridge to torque value of 150 in-lb (16.9 N·m) to 200 in-lb (22.6 N·m). If a Pacific Scientific fire bottle cartridge is used, install cartridge and tighten cartridge to torque value of 90 in-lb (10.2 N·m) to 100 in-lb (11.3 N·m).

WARNING: BEFORE CONNECTING AIRCRAFT HARNESS ELECTRICAL CONNECTORS TO EXPLOSIVE CARTRIDGE RECEPTACLES, CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS AND EXPLOSIVE CARTRIDGE RECEPTACLES FOR FOREIGN PARTICLES THAT MAY CAUSE ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTORS WITH MULTIMETER TO MAKE CERTAIN NO VOLTAGE IS PRESENT AT CONNECTORS

- (4) Test the explosive cartridges. (Paragraph 4.) or (Paragraph 6.)
- (5) Connect aircraft harness electrical connector to cartridge and safety with lockwire to deployment line. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)
- (6) Make sure that the connection of the Firex Discharge Cartridge to the applicable fire bottle is grounded by placing the Digital Volt Meter (DVM) leads between the outside case of the cartridge and the aircraft structure. The DVM must read 1 ohm or less.
- (7) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

4. Adjustment/Test - Continuity Test of Engine/APU Fire Extinguisher System

- A. Left Engine Fire Extinguisher System Continuity Test with a Test Set

WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.
- (4) On the APU switch panel:

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- (a) Make sure that the FIRE CONT switch is in the NORM position.
 - (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
 - (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (5) Disconnect the electrical connectors from the left engine discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)
- (a) Disconnect electrical connector P1-70 from discharge cartridge J1-70 on firex container No.1.
 - (b) Disconnect electrical connector P1-73 from discharge cartridge J1-73 on firex container No. 2.

WARNING: BEFORE YOU INSTALL THE FIREX DISCHARGE CARTRIDGE TESTER, USE A MULTIMETER TO MAKE SURE THERE IS NO VOLTAGE AT THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR. ALSO MAKE SURE THERE ARE NO UNWANTED MATERIALS ON THE DISCHARGE CARTRIDGE RECEPTACLE, THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND THE CONNECTOR AND RECEPTACLE FOR THE TESTER. IF THEY ARE NOT CLEAN OR IF THERE IS VOLTAGE AT THE CONNECTOR, AN ELECTRICAL SHORT CAN OCCUR. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Connect the fire extinguisher discharge cartridge test set to the left engine fire extinguisher system as follows: (Figure 201, Figure 203)

NOTE: The continuity/capability test set has two pairs of electrical connections (P1 / J1 and P2 / J2). In this test, two discharge cartridges are connected to the tester at the same time.

NOTE: The continuity/capability tester is made to measure electrical continuity through the discharge cartridge. The tester use 1819 lamps together with the discharge cartridge to limit the electrical current to not more than 1 Amp used during testing. More than 1 Amp will cause the discharge cartridge to fire and release the fire extinguishing agent.

- (a) Connect the continuity/capability tester to firex container No.1 as follows:
 - 1) Connect the ground wire connector P3 to the aircraft structure.
 - 2) Connect receptacle J1 to electrical connector P1-70.
 - 3) Connect plug P1 to discharge cartridge J1-70.
 - (b) Connect the continuity/capability tester to firex container No. 2 as follows:
 - 1) Connect ground wire connector P4 to the aircraft structure.
 - 2) Connect receptacle J2 to electrical connector P1-73.
 - 3) Connect plug P2 to discharge cartridge J1-73.
 - (c) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.

NOTE: This will prevent false positive indications during the test.
- (7) Set the switches on the continuity/capability tester as follows: (Figure 203)
- (a) Put the CARTRIDGE switch to the IN position.
 - (b) Put the FUNCTION switch to the CONTINUITY position.
 - (c) Put the two LOAD switches to the OFF position.
 - (d) Put the ELEMENT switch to the A or B position.

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

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (9) Do the test as follows: (Figure 203)

- (a) On the instrument panel, pull the L ENG FIRE handle to the full out position
- 1) Make sure that all the lights on the continuity/capability tester are off.
- (b) Turn and hold the L ENG FIRE handle to the AGENT DISCH 1 position.
- 1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester come on.
- (c) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- 1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester go off.

- (d) Turn the L ENG FIRE handle back to the vertical position.
- (e) Close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- 1) Make sure that all the lights on the continuity/capability tester stay off.

- (f) Turn and hold the L ENG FIRE handle to the AGENT DISCH 2 position.
- 1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester come on.
- (g) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- 1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester go off.

- (h) Turn the L ENG FIRE handle back to the vertical position.
- (i) Close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- 1) Make sure that all the lights on the continuity/capability tester stay off.

- (j) Push the L ENG FIRE handle in.

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (11) Disconnect the continuity/capability tester from the left engine fire extinguisher system as follows: (Figure 201, Figure 203)
- (a) Connect ground wire connector P3 and ground wire connector P4 to the aircraft structure.
 - (b) Disconnect the continuity/capability tester from firex container No.1 as follows:
 - 1) Disconnect receptacle J1 from electrical connector P1-70.
 - 2) Disconnect plug P1 from discharge cartridge J1-70.
 - (c) Disconnect the continuity/capability tester from firex container No. 2 as follows:
 - 1) Disconnect plug P2 from discharge cartridge J1-73.
 - 2) Disconnect receptacle J2 from electrical connector P1-73.
 - (d) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.
 - (e) Remove the continuity/capability tester from the aircraft.

WARNING: MAKE SURE THERE IS NO CONTAMINATION IN THE PLUG OR CARTRIDGE BEFORE YOU CONNECT THE PLUG TO THE CARTRIDGE. CONTAMINATION IN THESE AREAS CAN CAUSE AN ELECTRICAL SHORT CIRCUIT. THIS CAN CAUSE A FIRE EXTINGUISHER TO ACCIDENTALLY OPERATE. THE FIRE EXTINGUISHING AGENT CAN CAUSE INJURIES TO PERSONS.

- (12) Connect the electrical connectors to the left engine discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)
- (a) Connect electrical connector P1-70 to discharge cartridge J1-70 on firex container No.1 as follows:
 - 1) Examine electrical connector P1-70 and discharge cartridge J1-70 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-70 to discharge cartridge J1-70.
 - (b) Connect electrical connector P1-73 to discharge cartridge J1-73 on firex container No. 2 as follows:
 - 1) Examine electrical connector P1-73 and discharge cartridge J1-73 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-73 to discharge cartridge J1-73.
- (13) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (14) Remove all the tools and equipment from the work area. Make sure the area is clean.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

B. Right Engine Fire Extinguisher System Continuity Test with a Test Set

WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Open these circuit breakers and install safety tags:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.

(4) On the APU switch panel:

- (a) Make sure that the FIRE CONT switch is in the NORM position.
- (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
- (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.

(5) Disconnect the electrical connectors from the right engine discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)

- (a) Disconnect electrical connector P1-71 from discharge cartridge J1-71 on firex container No.1.
- (b) Disconnect electrical connector P1-74 from discharge cartridge J1-74 on firex container No. 2.

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WARNING: BEFORE YOU INSTALL THE FIREX DISCHARGE CARTRIDGE TESTER, USE A MULTIMETER TO MAKE SURE THERE IS NO VOLTAGE AT THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR. ALSO MAKE SURE THERE ARE NO UNWANTED MATERIALS ON THE DISCHARGE CARTRIDGE RECEPTACLE, THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND THE CONNECTOR AND RECEPTACLE FOR THE TESTER. IF THEY ARE NOT CLEAN OR IF THERE IS VOLTAGE AT THE CONNECTOR, AN ELECTRICAL SHORT CAN OCCUR. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Connect the fire extinguisher discharge cartridge test set to the right engine fire extinguisher system as follows: (Figure 201, Figure 203)

NOTE: The continuity/capability test set has two pairs of electrical connections (P1 / J1 and P2 / J2). In this test, two discharge cartridges are connected to the tester at the same time.

NOTE: The continuity/capability tester is made to measure electrical continuity through the discharge cartridge. The tester use 1819 lamps together with the discharge cartridge to limit the electrical current to not more than 1 Amp used during testing. More than 1 Amp will cause the discharge cartridge to fire and release the fire extinguishing agent.

- (a) Connect the continuity/capability tester to firex container No.1 as follows:
- 1) Connect the ground wire connector P3 to the aircraft structure.
 - 2) Connect receptacle J1 to electrical connector P1-71.
 - 3) Connect plug P1 to discharge cartridge J1-71.
- (b) Connect the continuity/capability tester to firex container No. 2 as follows:
- 1) Connect ground wire connector P4 to the aircraft structure.
 - 2) Connect receptacle J2 to electrical connector P1-74.
 - 3) Connect plug P2 to discharge cartridge J1-74.
- (c) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.

NOTE: This will prevent false positive indications during the test.

- (7) Set the switches on the continuity/capability tester as follows: (Figure 203)

- (a) Put the CARTRIDGE switch to the IN position.
- (b) Put the FUNCTION switch to the CONTINUITY position.
- (c) Put the two LOAD switches to the OFF position.
- (d) Put the ELEMENT switch to the A or B position.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (9) Do the test as follows: (Figure 203)

- (a) On the instrument panel, pull the R ENG FIRE handle to the full out position
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (b) Turn and hold the R ENG FIRE handle to the AGENT DISCH 1 position.

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1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester come on.

(c) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester go off.

(d) Turn the R ENG FIRE handle back to the vertical position.

(e) Close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

1) Make sure that all the lights on the continuity/capability tester stay off.

(f) Turn and hold the R ENG FIRE handle to the AGENT DISCH 2 position.

1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester come on.

(g) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester go off.

(h) Turn the R ENG FIRE handle back to the vertical position.

(i) Close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

1) Make sure that all the lights on the continuity/capability tester stay off.

(j) Push the R ENG FIRE handle in.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(10) Open these circuit breakers and install safety tags:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(11) Disconnect the continuity/capability tester from the right engine fire extinguisher system as follows: (Figure 201, Figure 203)

(a) Connect ground wire connector P3 and ground wire connector P4 to the aircraft structure.

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- (b) Disconnect the continuity/capability tester from firex container No.1 as follows:
 - 1) Disconnect receptacle J1 from electrical connector P1-71.
 - 2) Disconnect plug P1 from discharge cartridge J1-71.
- (c) Disconnect the continuity/capability tester from firex container No. 2 as follows:
 - 1) Disconnect plug P2 from discharge cartridge J1-74.
 - 2) Disconnect receptacle J2 from electrical connector P1-74.
- (d) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.
- (e) Remove the continuity/capability tester from the aircraft.

WARNING: MAKE SURE THERE IS NO CONTAMINATION IN THE PLUG OR CARTRIDGE BEFORE YOU CONNECT THE PLUG TO THE CARTRIDGE. CONTAMINATION IN THESE AREAS CAN CAUSE AN ELECTRICAL SHORT CIRCUIT. THIS CAN CAUSE A FIRE EXTINGUISHER TO ACCIDENTALLY OPERATE. THE FIRE EXTINGUISHING AGENT CAN CAUSE INJURIES TO PERSONS.

- (12) Connect the electrical connectors to the right engine discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)
 - (a) Connect electrical connector P1-71 to discharge cartridge J1-71 on firex container No.1 as follows:
 - 1) Examine electrical connector P1-71 and discharge cartridge J1-71 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-71 to discharge cartridge J1-71.
 - (b) Connect electrical connector P1-74 to discharge cartridge J1-74 on firex container No. 2 as follows:
 - 1) Examine electrical connector P1-74 and discharge cartridge J1-74 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-74 to discharge cartridge J1-74.
- (13) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (14) Remove all the tools and equipment from the work area. Make sure the area is clean.
- (15) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

C. APU Fire Extinguisher System Continuity Test with a Test Set

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WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.
- (4) On the APU switch panel:
 - (a) Make sure that the FIRE CONT switch is in the NORM position.
 - (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
 - (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (5) Disconnect the electrical connectors from the APU discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)
 - (a) Disconnect electrical connector P1-72 from discharge cartridge J1-72 on firex container No.1.
 - (b) Disconnect electrical connector P1-75 from discharge cartridge J1-75 on firex container No. 2.

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WARNING: BEFORE YOU INSTALL THE FIREX DISCHARGE CARTRIDGE TESTER, USE A MULTIMETER TO MAKE SURE THERE IS NO VOLTAGE AT THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR. ALSO MAKE SURE THERE ARE NO UNWANTED MATERIALS ON THE DISCHARGE CARTRIDGE RECEPTACLE, THE AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND THE CONNECTOR AND RECEPTACLE FOR THE TESTER. IF THEY ARE NOT CLEAN OR IF THERE IS VOLTAGE AT THE CONNECTOR, AN ELECTRICAL SHORT CAN OCCUR. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Connect the fire extinguisher discharge cartridge test set to the APU engine fire extinguisher system as follows: (Figure 201, Figure 203)

NOTE: The continuity/capability test set has two pairs of electrical connections (P1 / J1 and P2 / J2). In this test, two discharge cartridges are connected to the tester at the same time.

NOTE: The continuity/capability tester is made to measure electrical continuity through the discharge cartridge. The tester use 1819 lamps together with the discharge cartridge to limit the electrical current to not more than 1 Amp used during testing. More than 1 Amp will cause the discharge cartridge to fire and release the fire extinguishing agent.

- (a) Connect the continuity/capability tester to firex container No.1 as follows:
- 1) Connect the ground wire connector P3 to the aircraft structure.
 - 2) Connect receptacle J1 to electrical connector P1-72.
 - 3) Connect plug P1 to discharge cartridge J1-72.
- (b) Connect the continuity/capability tester to firex container No. 2 as follows:
- 1) Connect ground wire connector P4 to the aircraft structure.
 - 2) Connect receptacle J2 to electrical connector P1-75.
 - 3) Connect plug P2 to discharge cartridge J1-75.
- (c) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.

NOTE: This will prevent false positive indications during the test.

- (7) Set the switches on the continuity/capability tester as follows: (Figure 203)

- (a) Put the CARTRIDGE switch to the IN position.
- (b) Put the FUNCTION switch to the CONTINUITY position.
- (c) Put the two LOAD switches to the OFF position.
- (d) Put the ELEMENT switch to the A or B position.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (9) Do the test from the APU switch panel in the flight compartment as follows: (Figure 203)

- (a) Put the BATT switch to the ON position.

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- 1) Make sure that the APU MASTER switch is in the OFF position.
- (b) Put the APU FIRE CONT switch to NORM.
- (c) Move and hold the FIRE AGENT NO 1 switch to DISCH.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (d) Put the FIRE AGENT NO 1 switch back to OFF.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (e) Move and hold the FIRE AGENT NO 2 switch to DISCH.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (f) Put the FIRE AGENT NO 2 switch back to OFF.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (g) Put the FIRE CONT switch to OFF & AGENT ARM.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
- (h) Move and hold the FIRE AGENT NO 1 switch to DISCH.
 - 1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester come on.
- (i) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- 1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester go off.
- (j) Put the FIRE AGENT NO 1 switch back to OFF.
 - 1) Make sure that all the lights on the continuity/capability tester stay off.
- (k) Close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- 1) Make sure that all the lights on the continuity/capability tester stay off.
- (l) Move and hold the FIRE AGENT NO 2 switch to DISCH.
 - 1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester come on.
- (m) Open this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- 1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester go off.
- (n) Put the FIRE AGENT NO 2 switch back to OFF.
 - 1) Make sure that all the lights on the continuity/capability tester stay off.

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- (o) Close this circuit breaker:
 - LOWER EPC, DC TRANSFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

 - 1) Make sure that all the lights on the continuity/capability tester stay off.
- (p) Put the FIRE CONT switch to NORM.
 - 1) Make sure that all the lights on the continuity/capability tester stay off.
- (q) Put the MASTER switch to the RUN position.
 - 1) Make sure that all the lights on the continuity/capability tester stay off.
- (10) Do the test from the APU ground fire control panel on the left outer aft fuselage as follows: (Figure 203)
 - (a) Move and hold the FIRE AGENT 1 switch in the DISCHARGE position.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
 - (b) Put the FIRE AGENT 1 switch back to NORMAL.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
 - (c) Move and hold the FIRE AGENT 2 switch to DISCHARGE.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
 - (d) Put the FIRE AGENT 2 switch back to NORMAL.
 - 1) Make sure that all the lights on the continuity/capability tester are off.
 - (e) Move and hold the APU SHUT OFF switch to the SHUT OFF position momentarily, then move the APU SHUT OFF switch back to NORMAL.

NOTE: This step will arm the FIRE AGENT 1 DISCHARGE and FIRE AGENT 2 DISCHARGE switches.

 - 1) Make sure that all the lights on the continuity/capability tester are off.
 - (f) Move and hold the FIRE AGENT 1 switch to DISCHARGE.
 - 1) Make sure that the 1A green light, 1B green light, and PWR 1 red light on the continuity/capability tester come on.
 - (g) Put the FIRE AGENT 1 switch back to NORMAL.
 - 1) Make sure that all the lights on the continuity/capability tester go off.
 - (h) Move and hold the FIRE AGENT 2 switch to DISCHARGE.
 - 1) Make sure that the 2A green light, 2B green light, and PWR 2 red light on the continuity/capability tester come on.
 - (i) Put the FIRE AGENT 2 switch back to NORMAL.
 - 1) Make sure that all the lights on the continuity/capability tester go off.
- (11) On the APU switch panel in the flight compartment, do the steps that follow:
 - (a) Put the MASTER switch to the OFF position.
 - (b) Put the BATT switch to the OFF position.

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

- (13) Disconnect the continuity/capability tester from the APU fire extinguisher system as follows: (Figure 201, Figure 203)
- (a) Connect ground wire connector P3 and ground wire connector P4 to the aircraft structure.
 - (b) Disconnect the continuity/capability tester from firex container No.1 as follows:
 - 1) Disconnect receptacle J1 from electrical connector P1-72.
 - 2) Disconnect plug P1 from discharge cartridge J1-72.
 - (c) Disconnect the continuity/capability tester from firex container No. 2 as follows:
 - 1) Disconnect plug P2 from discharge cartridge J1-75.
 - 2) Disconnect receptacle J2 from electrical connector P1-75.
 - (d) Disconnect ground wire connector P3 and ground wire connector P4 from the aircraft structure.
 - (e) Remove the continuity/capability tester from the aircraft.

WARNING: MAKE SURE THERE IS NO CONTAMINATION IN THE PLUG OR CARTRIDGE BEFORE YOU CONNECT THE PLUG TO THE CARTRIDGE. CONTAMINATION IN THESE AREAS CAN CAUSE AN ELECTRICAL SHORT CIRCUIT. THIS CAN CAUSE A FIRE EXTINGUISHER TO ACCIDENTALLY OPERATE. THE FIRE EXTINGUISHING AGENT CAN CAUSE INJURIES TO PERSONS.

- (14) Connect the electrical connectors to the APU discharge cartridges on firex container No.1 and firex container No. 2 as follows: (Figure 201)
- (a) Connect electrical connector P1-72 to discharge cartridge J1-72 on firex container No.1 as follows:
 - 1) Examine electrical connector P1-72 and discharge cartridge J1-72 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-72 to discharge cartridge J1-72.
 - (b) Connect electrical connector P1-75 to discharge cartridge J1-75 on firex container No. 2 as follows:
 - 1) Examine electrical connector P1-75 and discharge cartridge J1-75 for damage and unwanted material. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
 - 2) Install electrical connector P1-75 to discharge cartridge J1-75.

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- (15) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (16) Remove all the tools and equipment from the work area. Make sure the area is clean.
- (17) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

OVERHEAD BATTERY BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	21	B1-291	APU CONTROL

5. Capability Test of the Firex Electrical Circuits

- A. Capability Test of the Firex Electrical Circuits

NOTE: The use of DZZ7703-501 Firex Discharge Cartridge Test Set is required to accomplish this test. (Figure 203)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

WARNING: BEFORE INSTALLING TEST SET BETWEEN AIRCRAFT HARNESS ELECTRICAL CONNECTOR AND EXPLOSIVE CARTRIDGE RECEPTACLE, CHECK EXPLOSIVE CARTRIDGE RECEPTACLE, AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND TEST SET ELECTRICAL CONNECTORS FOR FOREIGN PARTICLES THAT MAY CAUSE AN ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTOR WITH MULTI-METER TO MAKE CERTAIN THAT NO VOLTAGE IS PRESENT AT CONNECTOR.

- (2) Disconnect and tag aircraft harness electrical connectors from all explosive cartridges on both fire extinguisher containers.

- (3) Place test set FUNCTION switch to CAPABILITY.

NOTE: Test set has the capability to check two extinguishing circuits at once. However, it is recommended that one system be checked at a time.

- (4) Connect multimeter to appropriate VOLTMETER jacks on test set.
- (5) Place ELEMENT switch to position "A".
- (6) Connect one channel of test set between explosive cartridge electrical connector (P1-70) and FIREX BOTTLE NO 1, left engine explosive cartridge.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (8) Pull L ENG FIRE handle and rotate counter-clockwise to AGENT 1 DISCH position.
 (9) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 1. (Figure 204)
 (10) Release L ENG FIRE handle.
 (11) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- (13) Disconnect test set.
 (14) Connect one channel of test set between explosive cartridge electrical connector (P1-71) and FIREX BOTTLE NO 1, right engine explosive cartridge.
 (15) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (16) Pull R ENG FIRE handle and rotate counter-clockwise to AGENT 1 DISCH position.
 (17) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 3. (Figure 206)
 (18) Release R ENG FIRE handle.
 (19) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- (21) Disconnect test set.

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- (22) Connect one channel of test set between explosive cartridge electrical connector (P1-72) and FIREX BOTTLE NO 1, APU explosive cartridge.
- (23) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- (24) Place APU FIRE CONT switch to OFF & AGENT ARM position.

CAUTION: DO NOT HOLD DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (25) Place APU FIRE AGENT 1 switch to DISCHARGE position.
- (26) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 4. (Figure 207)
- (27) Release APU FIRE AGENT 1 switch.
- (28) Place APU FIRE CONT switch to NORM position.
- (29) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)
- (30) Place BATT switch on overhead switch panel to ON position.

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START POSITION.

- (31) Place APU MASTER switch to RUN position.
- (32) Place APU switch on GND APU PANEL to SHUTOFF position. Hold switch momentarily.

NOTE: GND APU PANEL is located in aft exterior of tail.

CAUTION: DO NOT HOLD DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (33) Place FIRE AGENT 1 switch on GND APU PANEL to DISCHARGE position.
- (34) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 5. (Figure 208)
- (35) Place FIRE AGENT 1 switch on GND APU PANEL to NORMAL position.
- (36) Place APU MASTER switch to OFF position.
- (37) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

- (39) Disconnect test set.
- (40) Connect one channel of test set between explosive cartridge electrical connector (P1-75) and FIREX BOTTLE NO 2, APU explosive cartridge.

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(41) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(42) Place APU FIRE CONT switch to OFF & AGENT ARM position.

CAUTION: DO NOT HOLD DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

(43) Place APU FIRE AGENT 2 switch to DISCHARGE position.

(44) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 6. (Figure 209)

(45) Release APU FIRE AGENT 2 switch.

(46) Place APU FIRE CONT switch to NORM position.

(47) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START POSITION.

(48) Place APU MASTER switch to RUN position.

(49) Place APU switch on GND APU PANEL to SHUTOFF position. Hold switch momentarily.

CAUTION: DO NOT HOLD DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

(50) Place FIRE AGENT 2 switch on GND APU PANEL to DISCHARGE position.

(51) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 7. (Figure 210)

(52) Place FIRE AGENT 2 switch on GND APU PANEL to NORMAL position.

(53) Place APU MASTER switch to OFF position.

(54) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(55) Open this circuit breaker and install safety tag:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(56) Disconnect test set.

(57) Connect one channel of test set between explosive cartridge electrical connector (P1-73) and FIREX BOTTLE NO 2, left engine explosive cartridge.

(58) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

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CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (59) Rotate L ENG FIRE handle clockwise to AGENT 2 DISCH position.
- (60) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 8. (Figure 211)
- (61) Release and stow L ENG FIRE handle.
- (62) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (64) Disconnect test set.
- (65) Connect one channel of test set between explosive cartridge electrical connector (P1-74) and FIREX BOTTLE NO 2, right engine explosive cartridge.
- (66) Remove the safety tag and close this circuit breaker:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (67) Rotate R ENG FIRE handle clockwise to AGENT 2 DISCH position.
- (68) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 9. (Figure 212)
- (69) Release and stow R ENG FIRE handle.
- (70) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 205)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (72) Disconnect test set.

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CAUTION: PRIOR TO CONNECTING FIRE EXTINGUISHER CARTRIDGE CONNECTORS, CHECK THAT NO VOLTAGE IS PRESENT BETWEEN EACH CONNECTOR CONTACT AND GROUND.

- (73) Remove tags and connect aircraft harness electrical connectors to all explosive cartridges on both fire extinguisher containers. Make certain that connectors are not cross connected (Figure 213). Safety connectors with lockwire to deployment lines. (LOCKWIRE SAFETYING - MAINTENANCE PRACTICES, PAGEBLOCK 20-10-18/201)

CAUTION: PRIOR TO REMOVING TAGS AND CLOSING CIRCUIT BREAKERS, MAKE CERTAIN THAT LEFT AND RIGHT ENGINE FIRE HANDLES ARE STOWED, APU FIRE CONTROL SWITCH IS IN NORM POSITION, AND APU FIRE AGENT SWITCHES 1 AND 2 ARE OFF.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (75) If any test fails, troubleshoot associated fire discharge circuit. (PAGEBLOCK 26-20-00/101)

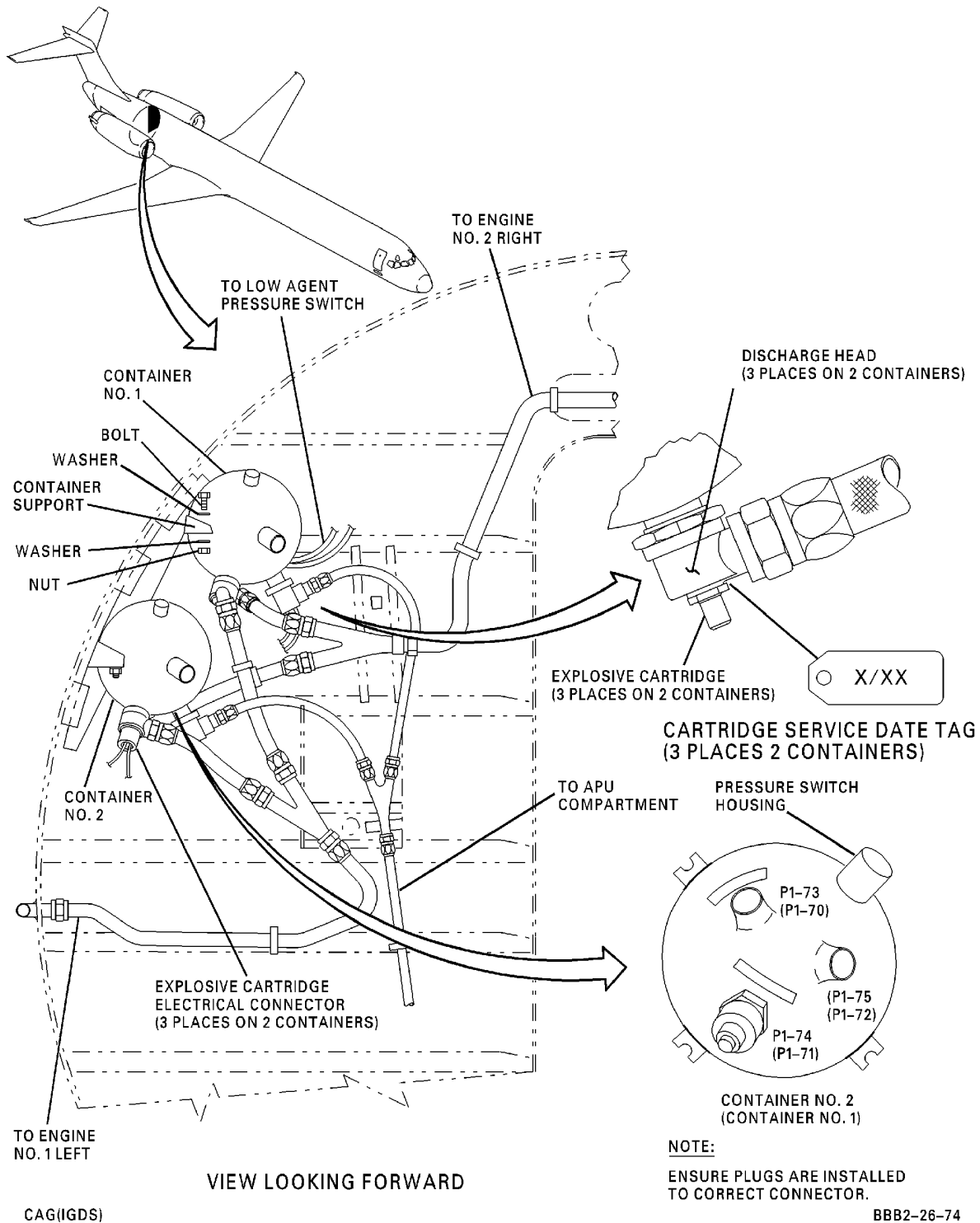
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**Fire Extinguisher Cartridge -- Maintenance Practices
Figure 201/26-20-03-990-801**

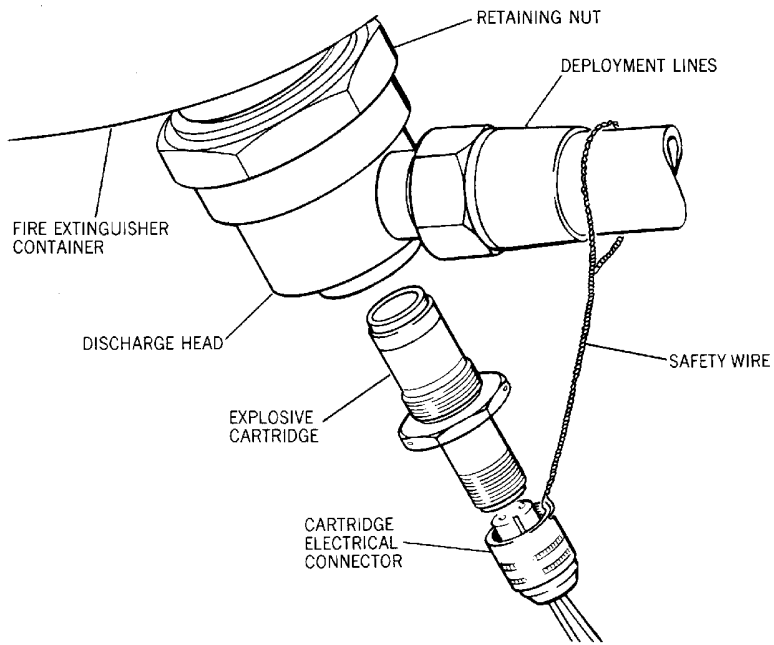
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BBB2-26-13C

Fire Extinguisher Explosive Cartridge - Installation
Figure 202/26-20-03-990-803

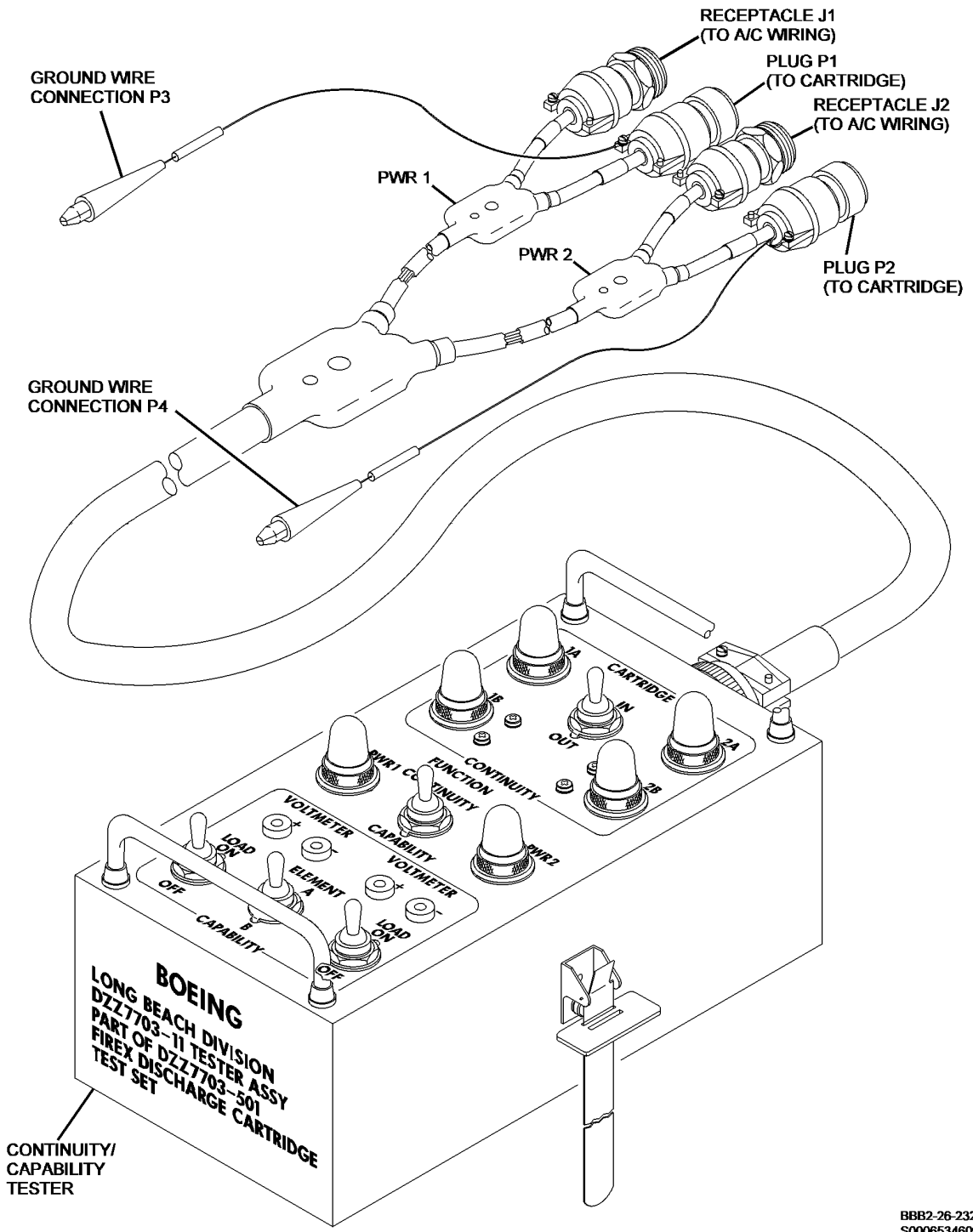
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BBB2-26-232A
S0006534609V2

**DZZ7703-501 Firex Discharge Cartridge Test Set
Figure 203/26-20-03-990-806**

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Table 1 Left Engine Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-233

**Table 1 - Left Engine Agent 1
Figure 204/26-20-03-990-807**

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Table 2 PASS/FAIL CRITERIA	
VOLTAGE READING WITH "LOAD" SWITCH "OFF"	MINIMUM VOLTAGE READING WITH "LOAD" SWITCH "ON"
22.01 - 22.50	14.59
22.51 - 23.00	14.92
23.01 - 23.50	15.24
23.51 - 24.00	15.57
24.01 - 24.50	15.89
24.51 - 25.00	16.22
25.01 - 25.50	16.54
25.51 - 26.00	16.86
26.01 - 26.50	17.19
26.51 - 27.00	17.51
27.01 - 27.50	17.84
27.51 - 28.00	18.16
28.01 - 28.50	18.49
28.51 - 29.00	18.81
29.01 - 29.50	19.14
29.51 - 30.00	19.46
30.01 - 30.50	19.78
30.51 - 31.00	20.11
31.01 - 31.50	20.43
31.51 - 32.00	20.76
32.01 - 32.50	21.08
32.51 - 33.00	21.41

CAG(IGDS)

BBB2-26-234

**Table 2 - Pass/Fail Criteria
Figure 205/26-20-03-990-808**

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Table 3 Right Engine Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-235

**Table 3 - Right Engine Agent 1
Figure 206/26-20-03-990-809**

Table 4 APU Cockpit Control Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-236

**Table 4 - APU Cockpit Control Agent 1
Figure 207/26-20-03-990-810**

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Table 5 APU Ground Control Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-237

**Table 5 - APU Ground Control Agent 1
Figure 208/26-20-03-990-811**

Table 6 APU Cockpit Control Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-238

**Table 6 - APU Cockpit Control Agent 2
Figure 209/26-20-03-990-812**

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Table 7 APU Ground Control Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-239

**Table 7 - APU Ground Control Agent 2
Figure 210/26-20-03-990-813**

Table 8 Left Engine Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-240

**Table 8 - Left Engine Agent 2
Figure 211/26-20-03-990-814**

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Table 9 Right Engine Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-241

**Table 9 - Right Engine Agent 2
Figure 212/26-20-03-990-815**

Table 10 Fire Extinguisher Connector to Bottle Position Chart	
Connector Number	Bottle Position
P1-70	Fire Extinguisher Control Bottle No. 1, Left Engine Discharge Cartridge
P1-71	Fire Extinguisher Control Bottle No. 1, Right Engine Discharge Cartridge
P1-72	Fire Extinguisher Control Bottle No. 1, APU Discharge Cartridge
P1-73	Fire Extinguisher Control Bottle No. 2, Left Engine Discharge Cartridge
P1-74	Fire Extinguisher Control Bottle No. 2, Right Engine Discharge Cartridge
P1-75	Fire Extinguisher Control Bottle No. 2, APU Discharge Cartridge

CAG(IGDS)

BBB2-26-242

**Table 10 - Fire Extinguisher Connector to Bottle Position Chart
Figure 213/26-20-03-990-816**

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6. Continuity Test of the Engine and APU Firex Electrical Circuits (Alternate Test with Multimeter)

NOTE: The following is an alternate test for electrical continuity for the firex electrical circuits.

A. Continuity Test of the Left Engine Firex Electrical Circuits. (Figure 201)

WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.

- (4) On the APU switch panel:

- (a) Make sure that the FIRE CONT switch is in the NORM position.
- (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
- (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.

- (5) Disconnect electrical connector P1-70 from container No. 1.

- (6) Disconnect electrical connector P1-73 from container No. 2.

CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

- (7) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

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- (8) Set the multimeter to Volts Direct Current (VDC) and do a voltage check at each electrical connector, P1-70 and P1-73, contact A and B, and structural ground.
 - (a) Make sure that 0 VDC is shown at each contact.
- (9) Pull the L ENG FIRE handle to the full out position.
 - (a) Make sure that 0 VDC is shown at each contact.
- (10) Turn and hold the L ENG FIRE handle to the AGENT DISCH 1 position.
 - (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (11) Turn the L ENG FIRE handle back to the center position.
 - (a) Make sure that 0 VDC is shown at each contact.
- (12) Turn and hold the L ENG FIRE handle to the AGENT DISCH 2 position.
 - (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (13) Turn the L ENG FIRE handle back to the center position.
 - (a) Make sure that 0 VDC is shown at each contact.
- (14) Do a check for resistance between the outside case of discharge cartridge J1-70 and the aircraft structure and between the outside case of discharge cartridge J1-73 and the aircraft structure.
 - (a) Make sure that the resistance is 1 ohm or less.
- (15) Push the L ENG FIRE handle in.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (16) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (17) Make sure there is no damage or unwanted material in the electrical connectors, P1-70 and P1-73. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
- (18) Connect electrical connector P1-70 to container No. 1.
- (19) Connect electrical connector P1-73 to container No. 2.
- (20) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (21) Remove all the tools and equipment from the work area. Make sure the area is clean.

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CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

(22) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

B. Continuity Test of the Right Engine Firex Electrical Circuits (Figure 201)

WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.

(4) On the APU switch panel:

- (a) Make sure that the FIRE CONT switch is in the NORM position.
- (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
- (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.

(5) Disconnect electrical connector P1-71 from container No. 1.

(6) Disconnect electrical connector P1-74 from container No. 2.

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CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

- (7) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (8) Set the multimeter to VDC and do a voltage check at each electrical connector, P1-71 and P1-74, contact A and B, and structural ground.
- (a) Make sure that 0 VDC is shown at each contact.
- (9) Pull the R ENG FIRE handle to the full out position.
- (a) Make sure that 0 VDC is shown at each contact.
- (10) Turn and hold the R ENG FIRE handle to the AGENT DISCH 1 position.
- (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (11) Turn the R ENG FIRE handle back to the center position.
- (a) Make sure that 0 VDC is shown at each contact.
- (12) Turn and hold the R ENG FIRE handle to the AGENT DISCH 2 position.
- (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (13) Turn the R ENG FIRE handle back to the center position.
- (a) Make sure that 0 VDC is shown at each contact.
- (14) Do a check for resistance between the outside case of discharge cartridge J1-71 and the aircraft structure and between the outside case of discharge cartridge J1-74 and the aircraft structure.
- (a) Make sure that the resistance is 1 ohm or less.
- (15) Push the R ENG FIRE handle in.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (16) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (17) Make sure there is no damage or unwanted material in the electrical connectors, P1-71 and P1-74. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
- (18) Connect electrical connector P1-71 to container No. 1.
- (19) Connect electrical connector P1-74 to container No. 2.

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- (20) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (21) Remove all the tools and equipment from the work area. Make sure the area is clean.

CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

- (22) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

C. Continuity Test of the APU Firex Electrical Circuits. (Figure 201)

WARNING: MAKE SURE ALL PERSONS ARE CLEAR OF THE AREAS NEAR THE ENGINE AND APU COMPARTMENT WHEN YOU DO THIS TEST. DURING THIS TEST, DO NOT REMOVE THE DISCHARGE CARTRIDGES FROM THE FIREX CONTAINERS. THE DISCHARGE CARTRIDGES ARE EXPLOSIVE. ALSO MAKE SURE THERE IS LESS THAN 1 AMP OF ELECTRICAL CURRENT. MORE THAN 1 AMP WILL CAUSE THE DISCHARGE CARTRIDGES TO FIRE AND RELEASE THE FIRE EXTINGUISHING AGENT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Apply external electrical power to aircraft. (EXTERNAL POWER - DESCRIPTION AND OPERATION, PAGEBLOCK 24-40-00/001)

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (3) On the main instrument panel, install DO NOT OPERATE tags on the L ENG FIRE and R ENG FIRE handles.
- (4) On the APU switch panel:
 - (a) Make sure that the FIRE CONT switch is in the NORM position.
 - (b) Make sure that the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches are in the OFF position.
 - (c) Install DO NOT OPERATE tags on the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (5) Disconnect electrical connector P1-72 from container No. 1.
- (6) Disconnect electrical connector P1-75 from container No. 2.

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CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

- (7) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (8) Set the multimeter to VDC and do a voltage check at each electrical connector, P1-72 and P1-75, contact A and B, and structural ground.
- (a) Make sure that 0 VDC is shown at each contact.
- (9) At the APU ground fire control panel, open the switch guard, lift and hold the FIRE AGENT 1 DISCHARGE switch to the DISCHARGE position.
- (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (10) Release the FIRE AGENT 1 DISCHARGE switch and close the switch guard.
- (11) Open the switch guard, lift and hold the FIRE AGENT 2 DISCHARGE switch to the DISCHARGE position.
- (a) Make sure that 22.01 to 33 VDC is shown at each contact.
- (12) Release the FIRE AGENT 2 DISCHARGE switch and close the switch guard.
- (13) Do a check for resistance between the outside case of discharge cartridge J1-72 and the aircraft structure and between the outside case of discharge cartridge J1-75 and the aircraft structure.
- (a) Make sure that the resistance is 1 ohm or less.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (14) Open these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (15) Make sure there is no damage or unwanted material in the electrical connectors, P1-72 and P1-75. (ELECTRICAL CONNECTORS - MAINTENANCE PRACTICES, SWPM 20-31-00)
- (16) Connect electrical connector P1-72 to container No. 1.
- (17) Connect electrical connector P1-75 to container No. 2.
- (18) Remove the DO NOT OPERATE tags from the L ENG FIRE and R ENG FIRE handles and the FIRE AGENT NO 1 and FIRE AGENT NO 2 switches.
- (19) Remove all the tools and equipment from the work area. Make sure the area is clean.

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CAUTION: PRIOR TO CLOSING CIRCUIT BREAKERS FIREX CONTROL AGENT 1 AND FIREX CONTROL AGENT 2, MAKE CERTAIN THAT ENGINES 1, 2, AND 3 FIRE HANDLES ARE IN NORMAL POSITION. MAKE CERTAIN THAT FLIGHT DECK AND GROUND APU FIRE CONTROL AND FIRE AGENT DISCHARGE SWITCHES ARE IN NORM POSITION.

(20) Close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

7. Disposal of Unfired Cartridges

A. Defective or overage cartridges should be disposed of by one of following methods:

(1) Fire cartridge in fixture specifically designed for that purpose.

WARNING: DELIVER REMOVED SQUIB(S)/CARTRIDGES TO THE ENVIRONMENTAL COORDINATOR AT YOUR STATION.

(2) Dispose of cartridge in accordance with local regulations governing disposition of explosives.

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FIRE EXTINGUISHER CARTRIDGE - REMOVAL/INSTALLATION

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-20-03-901-801

2. Discard Discharge Cartridge

NOTE: This procedure is a scheduled maintenance task.

A. **References**

<u>Reference</u>	<u>Title</u>
26-20-03 P/B 201	FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES

B. **Discard Discharge Cartridge**

SUBTASK 26-20-03-901-001

- (1) Remove fire extinguisher cartridges. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)
- (2) Discard removed fire extinguisher cartridges.
- (3) Install serviceable fire extinguisher cartridges. (FIRE EXTINGUISHER EXPLOSIVE CARTRIDGE - MAINTENANCE PRACTICES, PAGEBLOCK 26-20-03/201)

C. **Job Close-up**

SUBTASK 26-20-03-942-001

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

———— **END OF TASK** ————

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FIRE EXTINGUISHER CARTRIDGE - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-20-03-710-801

2. Operational Check of the Agent Discharge System to Check Firing Circuit Integrity

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
26-20-03-990-816	Figure: Table 10 - Fire Extinguisher Connector to Bottle Position Chart (P/B 201)

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt.", which stands for Optional.

Reference	Description
SPL-887	Test Set - Fire Extinguisher Discharge Cartridge MD80-81, -82, -83, -88 Part #: DZZ7703-501 Supplier: 88277
STD-5495	Multimeter - 0-500 ohm range, accurate to ±5%

C. **Consumable Materials**

NOTE: Equivalent replacements are permitted for the items that follow.

NOTE: It is possible that some materials in the Consumable Materials chart cannot be used for some or all of the necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Reference	Description	Specification
G60166	Lockwire - .020 Inconel	DPM 684 (NASM20995N)

D. **Prepare for the Agent Discharge System Operational Check to Check Firing Circuit Integrity**

SUBTASK 26-20-03-865-001

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-010-001

(2) Open access panel.

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E. Agent Discharge System Operational Check to Check Firing Circuit Integrity

SUBTASK 26-20-03-030-001

WARNING: BEFORE INSTALLING TEST SET BETWEEN AIRCRAFT HARNESS ELECTRICAL CONNECTOR AND EXPLOSIVE CARTRIDGE RECEPTACLE, CHECK EXPLOSIVE CARTRIDGE RECEPTACLE, AIRCRAFT HARNESS ELECTRICAL CONNECTOR, AND TEST SET ELECTRICAL CONNECTORS FOR FOREIGN PARTICLES THAT MAY CAUSE AN ELECTRICAL SHORT. CHECK AIRCRAFT HARNESS ELECTRICAL CONNECTOR WITH MULTI-METER TO MAKE CERTAIN THAT NO VOLTAGE IS PRESENT AT CONNECTOR.

- (1) Disconnect and tag aircraft harness electrical connectors from all explosive cartridges on both fire extinguisher containers. (Figure 501 Figure 26-20-03-990-816)

SUBTASK 26-20-03-480-001

- (2) Place fire extinguisher discharge cartridge test set, SPL-887 FUNCTION switch to CAPABILITY.

NOTE: Test set has the capability to check two extinguishing circuits at once. However, it is recommended that one system be checked at a time.

- (3) Connect Multimeter, STD-5495 to appropriate VOLTMETER jacks on test set.
- (4) Place ELEMENT switch to position "A".
- (5) Connect one channel of test set between explosive cartridge electrical connector (P1-70) and FIREX BOTTLE NO 1, left engine explosive cartridge.

SUBTASK 26-20-03-865-002

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-710-001

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (7) Pull L ENG FIRE handle and rotate counter clockwise to AGENT 1 DISCH position.
- (8) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 1. (Figure 504)
- (9) Release L ENG FIRE handle.
- (10) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

SUBTASK 26-20-03-865-003

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-080-001

- (12) Disconnect test set.

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SUBTASK 26-20-03-480-002

- (13) Connect one channel of test set between explosive cartridge electrical connector (P1-71) and FIREX BOTTLE NO 1, right engine explosive cartridge.

SUBTASK 26-20-03-865-004

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-710-002

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (15) Pull R ENG FIRE handle and rotate counter clockwise to AGENT 1 DISCH position.
 (16) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 3. (Figure 506)
 (17) Release R ENG FIRE handle.
 (18) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

SUBTASK 26-20-03-865-005

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-080-002

- (20) Disconnect test set.

SUBTASK 26-20-03-480-003

- (21) Connect one channel of test set between explosive cartridge electrical connector (P1-72) and FIREX BOTTLE NO 1, APU explosive cartridge.

SUBTASK 26-20-03-865-006

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-710-003

- (23) Place APU FIRE CONT switch to OFF & AGENT ARM position.

CAUTION: DO NOT HOLD FIRE AGENT DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING FOLLOWING CHECKS.

- (24) Place APU FIRE AGENT 1 switch to DISCHARGE position.
 (25) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 4. (Figure 507)
 (26) Release APU FIRE AGENT 1 switch.

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- (27) Place APU FIRE CONT switch to NORM position.
- (28) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)
- (29) Place BATT switch on overhead switch panel to ON position.

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START.

- (30) Place APU MASTER switch to RUN position.
- (31) Place Auxiliary Power Unit (APU) switch on GND APU PANEL to SHUTOFF position. Hold switch momentarily.

NOTE: GND APU PANEL is located in aft exterior of tail.

CAUTION: DO NOT HOLD FIRE AGENT DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING FOLLOWING CHECKS.

- (32) Place FIRE AGENT 1 switch on GND APU PANEL to DISCHARGE position.
- (33) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 5. (Figure 508)
- (34) Place FIRE AGENT 1 switch on GND APU PANEL to NORMAL position.
- (35) Place APU MASTER switch to OFF position.
- (36) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

SUBTASK 26-20-03-865-007

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1

SUBTASK 26-20-03-080-003

- (38) Disconnect test set.

SUBTASK 26-20-03-480-004

- (39) Connect one channel of test set between explosive cartridge electrical connector (P1-75) and FIREX BOTTLE NO 2, APU explosive cartridge.

SUBTASK 26-20-03-865-008

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-710-004

- (41) Place APU FIRE CONT switch to OFF & AGENT ARM position.

CAUTION: DO NOT HOLD FIRE AGENT DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING FOLLOWING CHECKS.

- (42) Place APU FIRE AGENT 2 switch to DISCHARGE position.
- (43) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 6. (Figure 509)

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- (44) Release APU FIRE AGENT 2 switch.
- (45) Place APU FIRE CONT switch to NORM position.
- (46) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

CAUTION: DO NOT PLACE APU MASTER SWITCH TO START.

- (47) Place APU MASTER switch to RUN position.
- (48) Place APU switch on GND APU PANEL to SHUTOFF position. Hold switch momentarily.

CAUTION: DO NOT HOLD FIRE AGENT DISCHARGE SWITCH IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING FOLLOWING CHECKS.

- (49) Place FIRE AGENT 2 switch on GND APU PANEL to DISCHARGE position.
- (50) Measure and record voltages with test set ELEMENT switch in positions A and B and LOAD switch in positions ON and OFF. Record voltages using Table 7. (Figure 510)
- (51) Place FIRE AGENT 2 switch on GND APU PANEL to NORMAL position.
- (52) Place APU MASTER switch to OFF position.
- (53) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

SUBTASK 26-20-03-865-009

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-080-004

- (55) Disconnect test set.

SUBTASK 26-20-03-480-005

- (56) Connect one channel of test set between explosive cartridge electrical connector (P1-73) and FIREX BOTTLE NO 2, left engine explosive cartridge.

SUBTASK 26-20-03-865-010

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-710-005

- (58) Rotate L ENG FIRE handle clockwise to AGENT 2 DISCH position.
- (59) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 8. (Figure 511)
- (60) Release and stow L ENG FIRE handle.
- (61) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

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SUBTASK 26-20-03-865-011

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-080-005

- (63) Disconnect test set.

SUBTASK 26-20-03-480-006

- (64) Connect one channel of test set between explosive cartridge electrical connector (P1-74) and FIREX BOTTLE NO 2, right engine explosive cartridge.

SUBTASK 26-20-03-865-012

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-710-006

CAUTION: DO NOT HOLD ENGINE FIRE HANDLE IN DISCHARGE POSITION FOR GREATER THAN 30 SECONDS DURING TEST PROCEDURES.

- (66) Rotate R ENG FIRE handle clockwise to AGENT 2 DISCH position.
 (67) Measure and record voltages with test set ELEMENT switch in positions A and B, and LOAD switch in positions ON and OFF. Record voltages using Table 9. (Figure 512)
 (68) Release and stow R ENG FIRE handle.
 (69) Compare voltages taken with pass/fail criteria shown in Table 2. (Figure 505)

SUBTASK 26-20-03-865-013

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

SUBTASK 26-20-03-080-006

- (71) Disconnect test set.

SUBTASK 26-20-03-430-001

- (72) Remove tags and connect aircraft harness electrical connectors to all explosive cartridges on both fire extinguisher containers. Make certain that connectors are not cross connected. (Figure 26-20-03-990-816)

SUBTASK 26-20-03-430-002

- (73) Safety connectors using .020 inconel lockwire, G60166 to deployment lines.

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F. Job Close-up

SUBTASK 26-20-03-865-016

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

NOTE: Prior to removing tags and closing circuit breakers, make certain that left and right engine fire handles are stowed, APU fire control switch is in norm position, and APU fire agent switches 1 and 2 are off.

SUBTASK 26-20-03-942-002

- (2) Remove all the tools and equipment from the work area. Make sure the area is clean.

SUBTASK 26-20-03-410-001

- (3) Close access panel.

————— **END OF TASK** —————

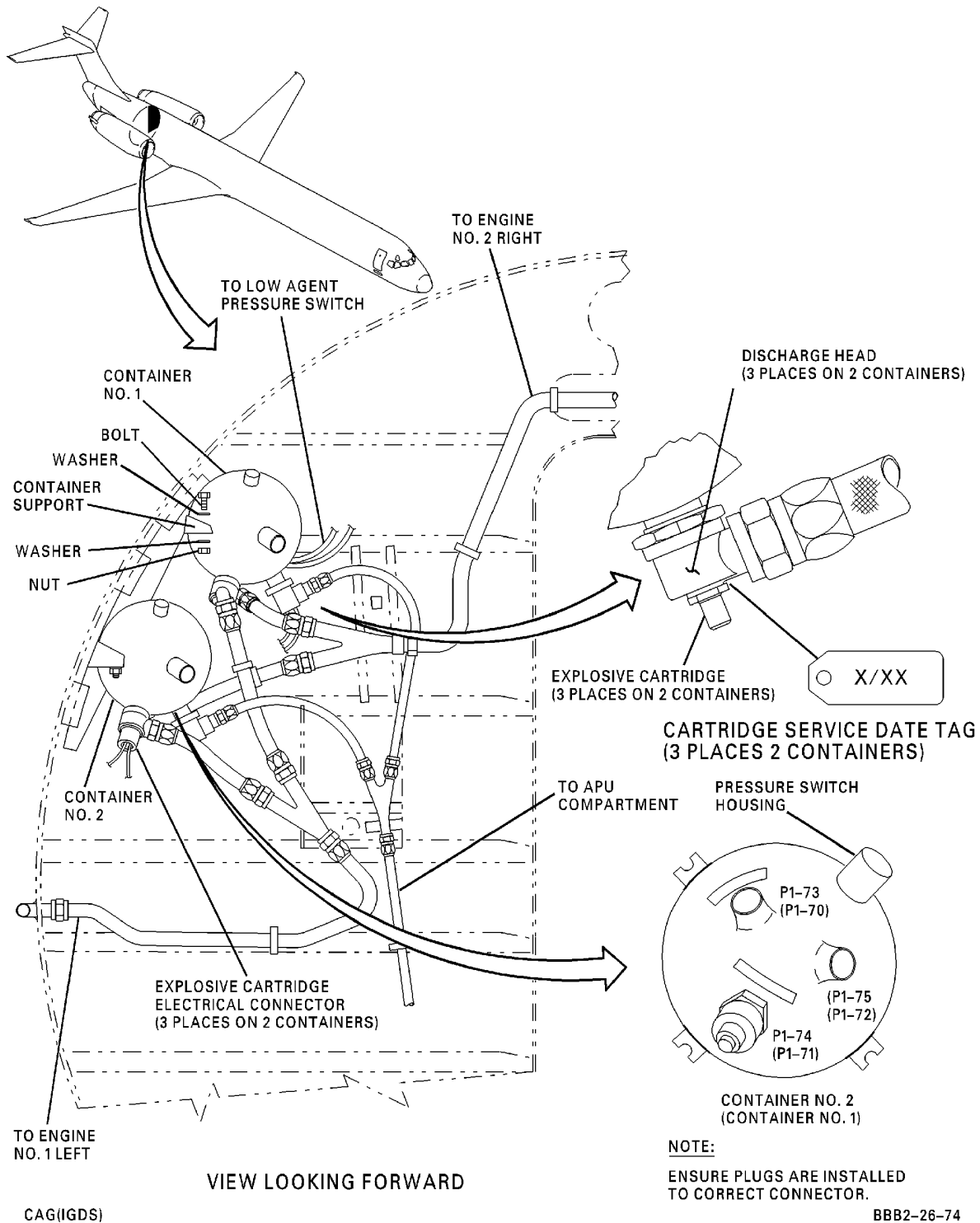
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Fire Extinguisher Cartridge -- Service Date Tag Installation
Figure 501/26-20-03-990-817

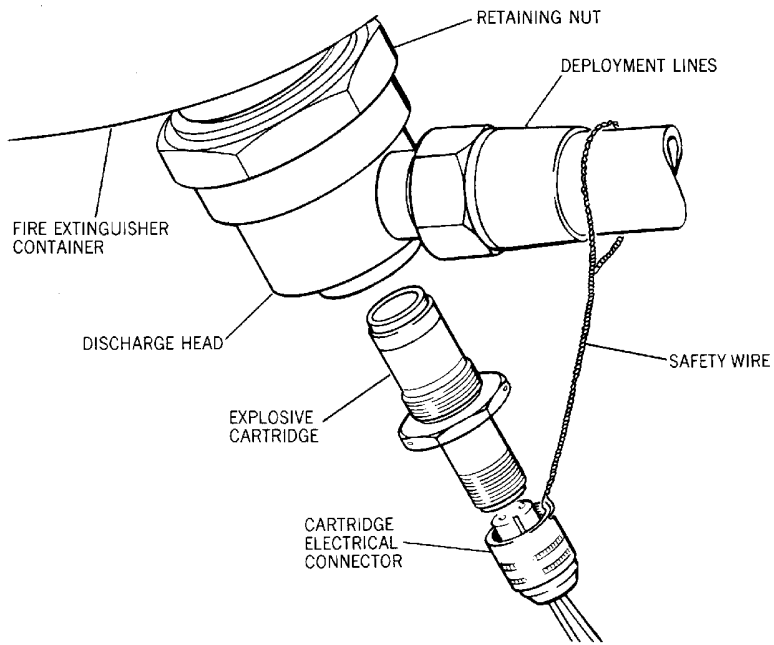
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BBB2-26-13C

**Fire Extinguisher Explosive Cartridge - Installation
Figure 502/26-20-03-990-818**

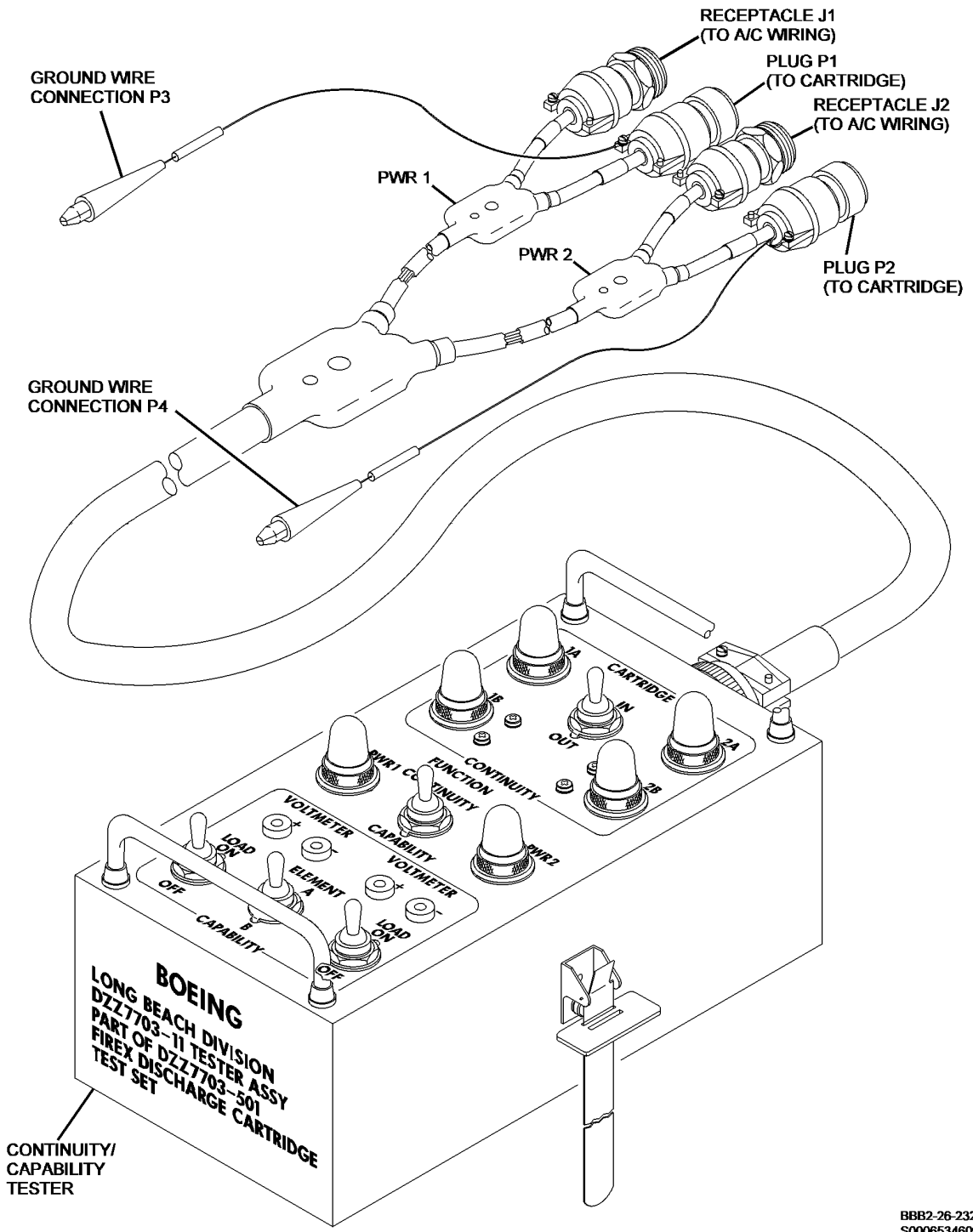
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BBB2-26-232A
S0006534609V2

**DZZ7703-501 Firex Discharge Cartridge Test Set
Figure 503/26-20-03-990-819**

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Table 1 Left Engine Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-233

**Table 1 - Left Engine Agent 1
Figure 504/26-20-03-990-820**

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Table 2 PASS/FAIL CRITERIA	
VOLTAGE READING WITH "LOAD" SWITCH "OFF"	MINIMUM VOLTAGE READING WITH "LOAD" SWITCH "ON"
22.01 - 22.50	14.59
22.51 - 23.00	14.92
23.01 - 23.50	15.24
23.51 - 24.00	15.57
24.01 - 24.50	15.89
24.51 - 25.00	16.22
25.01 - 25.50	16.54
25.51 - 26.00	16.86
26.01 - 26.50	17.19
26.51 - 27.00	17.51
27.01 - 27.50	17.84
27.51 - 28.00	18.16
28.01 - 28.50	18.49
28.51 - 29.00	18.81
29.01 - 29.50	19.14
29.51 - 30.00	19.46
30.01 - 30.50	19.78
30.51 - 31.00	20.11
31.01 - 31.50	20.43
31.51 - 32.00	20.76
32.01 - 32.50	21.08
32.51 - 33.00	21.41

CAG(IGDS)

BBB2-26-234

**Table 2 - Pass/Fail Criteria
Figure 505/26-20-03-990-821**

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Table 3 Right Engine Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-235

**Table 3 - Right Engine Agent 1
Figure 506/26-20-03-990-822**

Table 4 APU Cockpit Control Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-236

**Table 4 - APU Cockpit Control Agent 1
Figure 507/26-20-03-990-823**

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Table 5 APU Ground Control Agent 1			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-237

**Table 5 - APU Ground Control Agent 1
Figure 508/26-20-03-990-824**

Table 6 APU Cockpit Control Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-238

**Table 6 - APU Cockpit Control Agent 2
Figure 509/26-20-03-990-825**

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Table 7 APU Ground Control Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-239

**Table 7 - APU Ground Control Agent 2
Figure 510/26-20-03-990-826**

Table 8 Left Engine Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-240

**Table 8 - Left Engine Agent 2
Figure 511/26-20-03-990-827**

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Table 9 Right Engine Agent 2			
ELEMENT Switch Position	LOAD Switch Position	VOLTAGE Reading	Pass/Fail
A	OFF		
A	ON		
B	OFF		
B	ON		

CAG(IGDS)

BBB2-26-241

**Table 9 - Right Engine Agent 2
Figure 512/26-20-03-990-828**

Table 10 Fire Extinguisher Connector to Bottle Position Chart	
Connector Number	Bottle Position
P1-70	Fire Extinguisher Control Bottle No. 1, Left Engine Discharge Cartridge
P1-71	Fire Extinguisher Control Bottle No. 1, Right Engine Discharge Cartridge
P1-72	Fire Extinguisher Control Bottle No. 1, APU Discharge Cartridge
P1-73	Fire Extinguisher Control Bottle No. 2, Left Engine Discharge Cartridge
P1-74	Fire Extinguisher Control Bottle No. 2, Right Engine Discharge Cartridge
P1-75	Fire Extinguisher Control Bottle No. 2, APU Discharge Cartridge

CAG(IGDS)

BBB2-26-242

**Table 10 - Fire Extinguisher Connector to Bottle Position Chart
Figure 513/26-20-03-990-829**

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FIRE EXTINGUISHING DEPLOYMENT LINE ROUTING AND LEAK CHECK - MAINTENANCE PRACTICES

1. General

- A. This procedure contains the adjustment/test instructions for the engine and APU fire extinguishing (firex) deployment lines.
- B. The firex deployment line test consists of a flow and leak test to make sure the installation is complete, properly connected, and leak tight. This test verifies the integrity of the extinguishing agent deployment lines to the left engine, right engine, and APU.
- C. Access to the deployment lines is through the engine pylon doors, pylon apron doors, APU compartment doors, and tailcone access door.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

Table 201

Name and Number	Manufacturer
Leak Tester DZZ7355-509/523	
Source clean dry air capable of maintaining constant flow at 30(±1) psi (207.0(±6.90) kPa) line pressure	

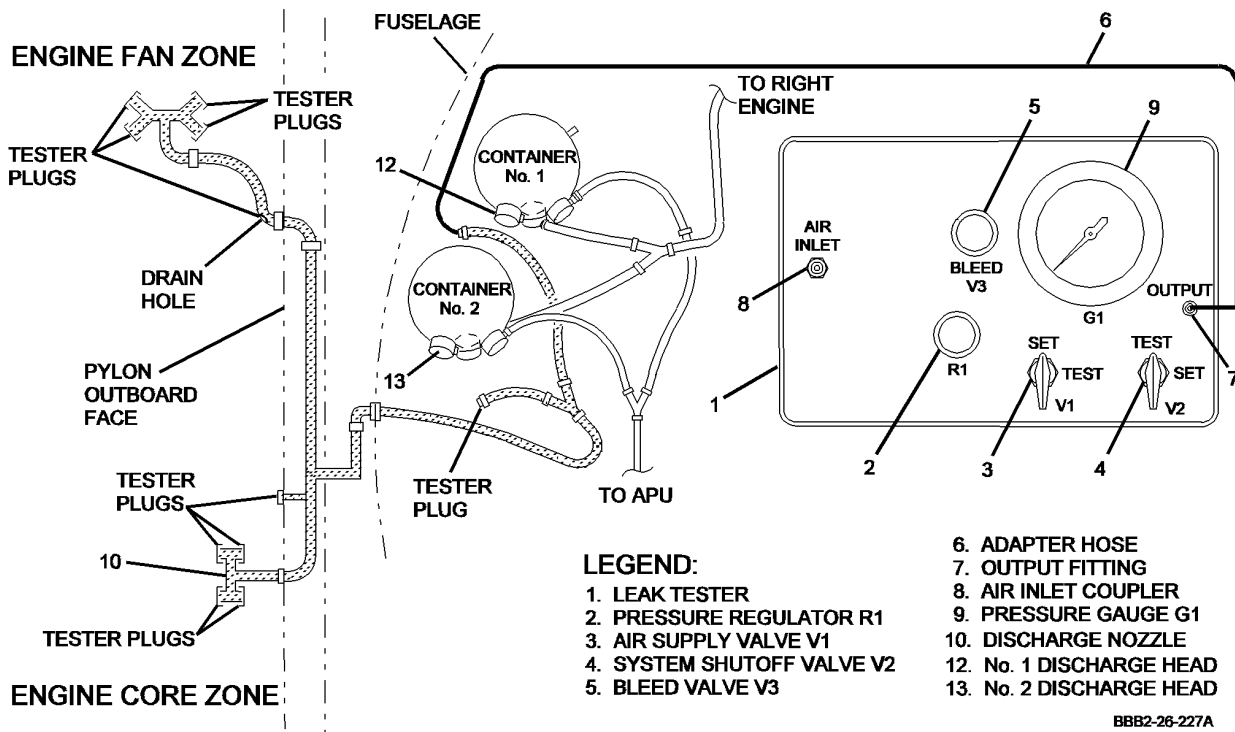
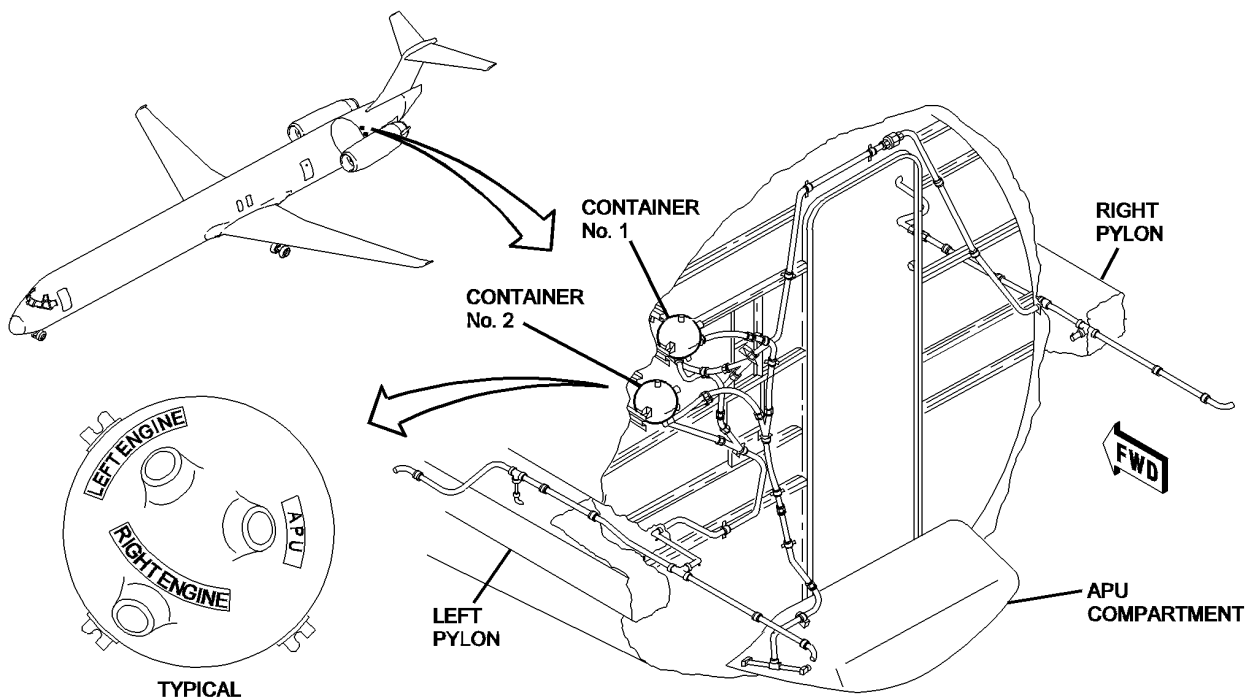
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BBB2-26-227A
S0006534622V2

**Left Engine Firex Leak Test - Test Equipment Installation
Figure 201/26-20-04-990-801**

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3. Adjustment/Test Deployment Lines

A. Leak Test Engine and APU Deployment Lines

WARNING: TAG AND SAFETY CIRCUIT BREAKERS.

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (2) Set leak tester (1) controls to positions that follow: (Figure 201)
- Pressure regulator R1 (2) fully closed (counterclockwise)
 - Air supply valve V1 (3) to SET (open) position
 - System shutoff valve V2 (4) to SET (closed) position
 - Pressure BLEED valve V3 (5) fully closed (clockwise).
- (3) Perform No. 1 engine deployment lines leak test as follows: (Figure 201)
- (a) Connect adapter hose (6) to OUTPUT fitting (7).
 - (b) Connect pressurized air source to leak tester (1) AIR-INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).
 - (c) Disconnect flexible hoses at firex container (No. 1 and No. 2) discharge heads (12 and 13) that lead to left engine.
 - (d) Connect adapter hose (6) to flexible hose from container No. 1 discharge head (12) using a suitable leak tester (1) adapter.
 - (e) Install leak tester (1) plugs or caps as required to close all fire extinguisher plumbing discharge openings in engine and pylon zones.
 - (f) Slowly open pressure regulator R1 (2) clockwise and increase pressure until pressure gauge G1 (9) indicates 30.0 PSI 0.0 +5.0 PSI (206.8 kPa 0.0 +34.4 kPa).
 - (g) Place system shutoff valve V2 (4) in TEST (open) position. Make sure air flows freely from flexible hose disconnected from container No. 2 discharge head (13). Place valve V2 in SET (close) position.
 - (h) Connect flexible hose to container No. 2 left engine discharge head (13).
 - (i) Remove one leak tester (1) plug from one firex discharge outlet in the engine zone. Make sure air flows freely from outlet and install plug. Repeat this step until all five outlets have been tested.
 - (j) Remove one leak tester (1) plug from one of the firex discharge outlets. Make sure air flows freely from the outlet, then re-install plug. Repeat this step on all of the discharge outlets in the engine and pylon zones until all discharge outlets have been tested.
 - (k) Place air supply valve V1 (3) in TEST (closed) position and monitor pressure gauge G1 (9) for 5 minutes. The pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - (l) Open leak tester (1) BLEED valve V3 (5) (counterclockwise) until pressure gauge (9) indication decreases to 0.0 PSI (0.0 kPa) and close valve.
 - (m) Place system shutoff valve V2 (4) in SET (close) position and then place air supply valve V1 (3) in SET (open) position.

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- (n) Remove all leak tester (1) plugs from all fire extinguisher plumbing discharge openings in the engine and pylon zones.
- (o) Remove adapter hose (6) from flexible hose from container No. 1 left engine discharge head (12).
- (p) Connect flexible hose to container No. 1 left engine discharge head (12).
- (4) Perform No. 2 engine deployment lines leak test as follows: (Figure 202)
 - (a) Connect adapter hose (6) to OUTPUT fitting (7).
 - (b) Connect pressurized air source to leak tester (1) AIR-INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).
 - (c) Disconnect flexible hoses at firex container (No. 1 and No. 2) discharge heads (12 and 13) that lead to right engine.
 - (d) Connect adapter hose (6) to flexible hose from container No. 1 discharge head (12) using a suitable leak tester (1) adapter.
 - (e) Install leak tester (1) plugs or caps as required to close all fire extinguisher plumbing discharge openings in engine and pylon zones.
 - (f) Slowly open pressure regulator R1 (2) clockwise and increase pressure until pressure gauge G1 (9) indicates 30.0 PSI 0.0 +5.0 PSI (206.8 kPa 0.0 +34.4 kPa).
 - (g) Place system shutoff valve V2 (4) in TEST (open) position. Make sure air flows freely from flexible hose disconnected from container No. 2 discharge head (13). Place valve V2 in SET (close) position.
 - (h) Connect flexible hose to container No. 2 right engine discharge head (13).
 - (i) Remove one leak tester (1) plug from one firex discharge outlet in the engine zone. Make sure air flows freely from outlet and install plug. Repeat this step until all five outlets have been tested.
 - (j) Remove one leak tester (1) plug from one of the firex discharge outlets. Make sure air flows freely from the outlet, then re-install the plug. Repeat this step on all of the discharge outlets in the engine and pylon zones until all discharge outlets have been tested.
 - (k) Place air supply valve V1 (3) in TEST (closed) position and monitor pressure gauge G1 (9) for 5 minutes. The pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - (l) Open leak tester (1) BLEED valve V3 (5) (counterclockwise) until pressure gauge (9) indication decreases to 0.0 PSI (0.0 kPa) and close valve.
- (m) Place system shutoff valve V2 (4) in SET (close) position and then place air supply valve V1 (3) in SET (open) position.
- (n) Remove all leak tester (1) plugs from all fire extinguisher plumbing discharge openings in the engine and pylon zones.
- (o) Remove adapter hose (6) from flexible hose from container No. 1 right engine discharge head (12).
- (p) Connect flexible hose to container No. 1 right engine discharge head (12).
- (5) Perform APU deployment lines leak test as follows: (Figure 203)
 - (a) Connect adapter hose (6) to OUTPUT fitting (7).
 - (b) Connect pressurized air source to leak tester (1) AIR INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).

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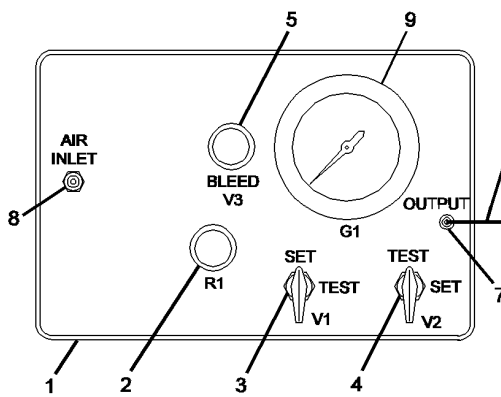
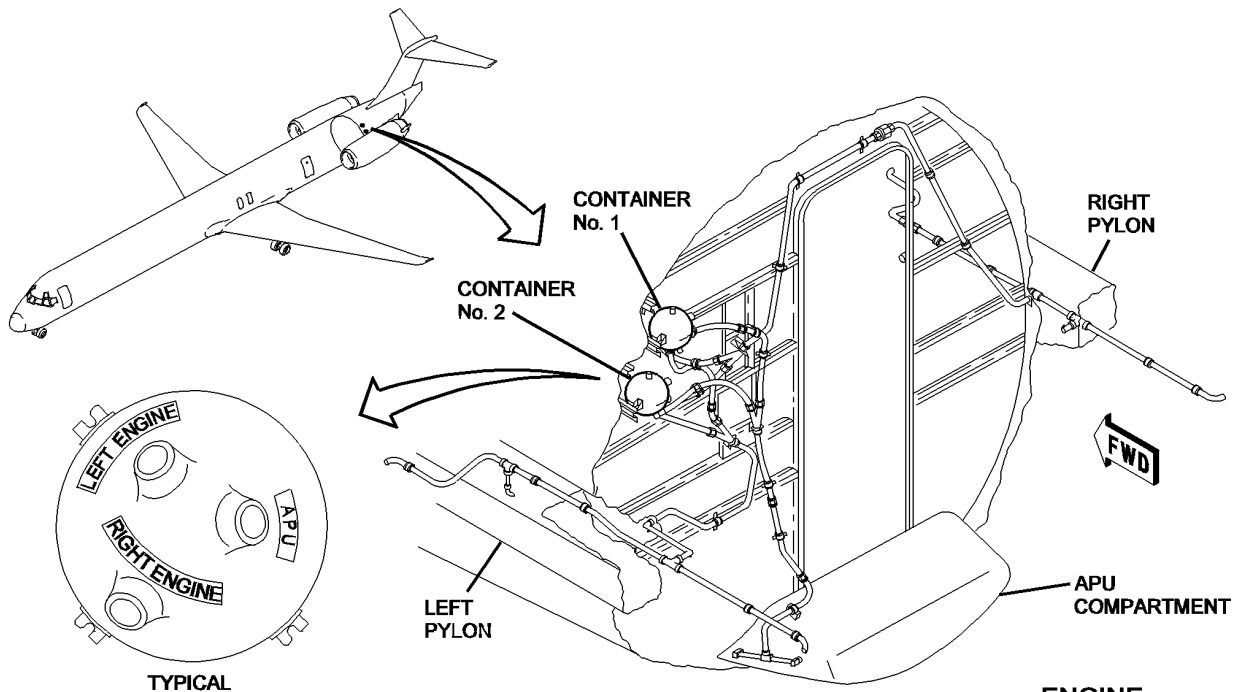
- (c) Disconnect flexible hose at firex container No. 1 discharge head (10) leading to APU.
 - (d) Connect adapter hose (6) from leak tester (1) to flexible hose disconnected from No. 1 discharge head (10) using a suitable leak tester (1) adapter.
 - (e) Slowly open pressure regulator R1 (2) clockwise and increase air pressure until air pressure gauge G1 (9) indicates 30.0 PSI -0.0 +5.0 PSI (206.8 kPa -0.0 +34.4 kPa).
 - (f) position. Make certain air flows freely from two APU compartment firex discharge outlets in left sidewall. Place system shutoff valve V2 (4) in SET (closed) position.
 - (g) Install leak tester (1) plugs in two APU compartment firex discharge outlets.
 - (h) Disconnect flexible hose at firex container No. 2 discharge head (11) leading to APU.
 - (i) position. Make certain air flows freely from flexible hose disconnected from No. 2 discharge head (11). Place system shutoff valve V2 (4) in SET (closed) position.
 - (j) Connect flexible hose to firex container No. 2 discharge head (11).
 - (k) Place air supply valve V1 (3) in TEST (close) position and monitor pressure gauge G1 (9) indication for 5 minutes. Pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - (l) Open BLEED valve V3 (5) (counterclockwise) until pressure gauge G1 (9) indication decreases to 0.0 PSI (0.0 kPa). Close BLEED valve V3 (5).
 - (m) Remove hose adapter, adapter hose (6), plugs from discharge outlets, and leak tester (1).
 - (n) Connect flexible hose to No. 1 discharge head (10).
- (6) Remove the safety tags and close these circuit breakers:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

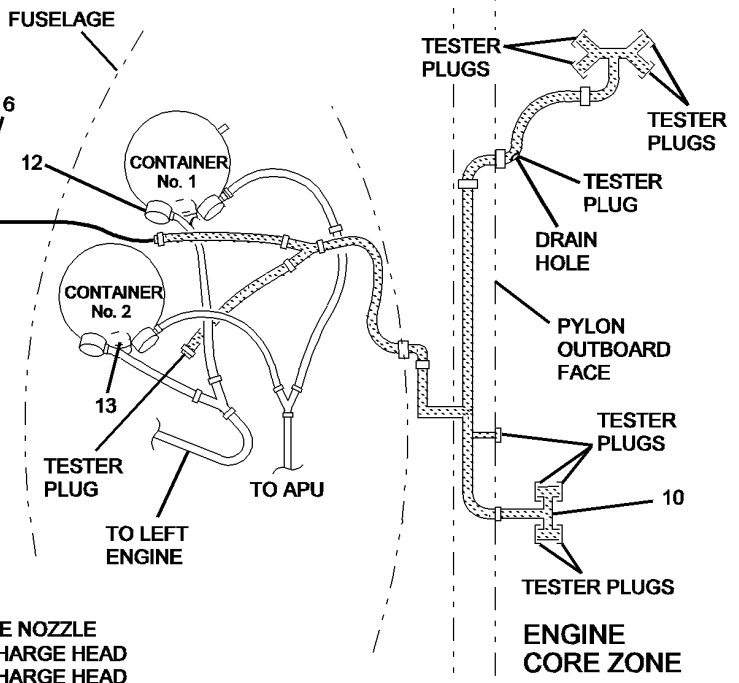
- (7) Return aircraft to required configuration.

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LEGEND:

- 1. LEAK TESTER
- 2. PRESSURE REGULATOR R1
- 3. AIR SUPPLY VALVE V1
- 4. SYSTEM SHUTOFF VALVE V2
- 5. BLEED VALVE V3
- 6. ADAPTER HOSE
- 7. OUTPUT FITTING
- 8. AIR INLET COUPLER
- 9. PRESSURE GAUGE G1
- 10. DISCHARGE NOZZLE
- 12. No. 1 DISCHARGE HEAD
- 13. No. 2 DISCHARGE HEAD



Right Engine Fire Leak Test - Equipment Installation
Figure 202/26-20-04-990-802

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S0006534625V2

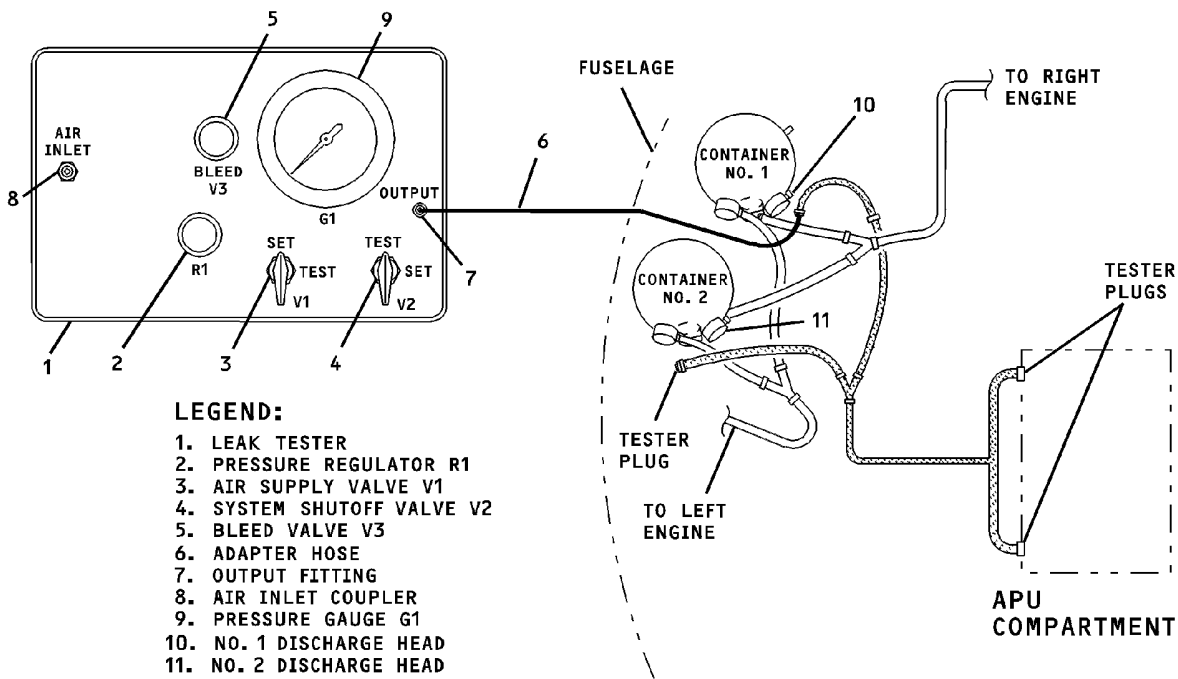
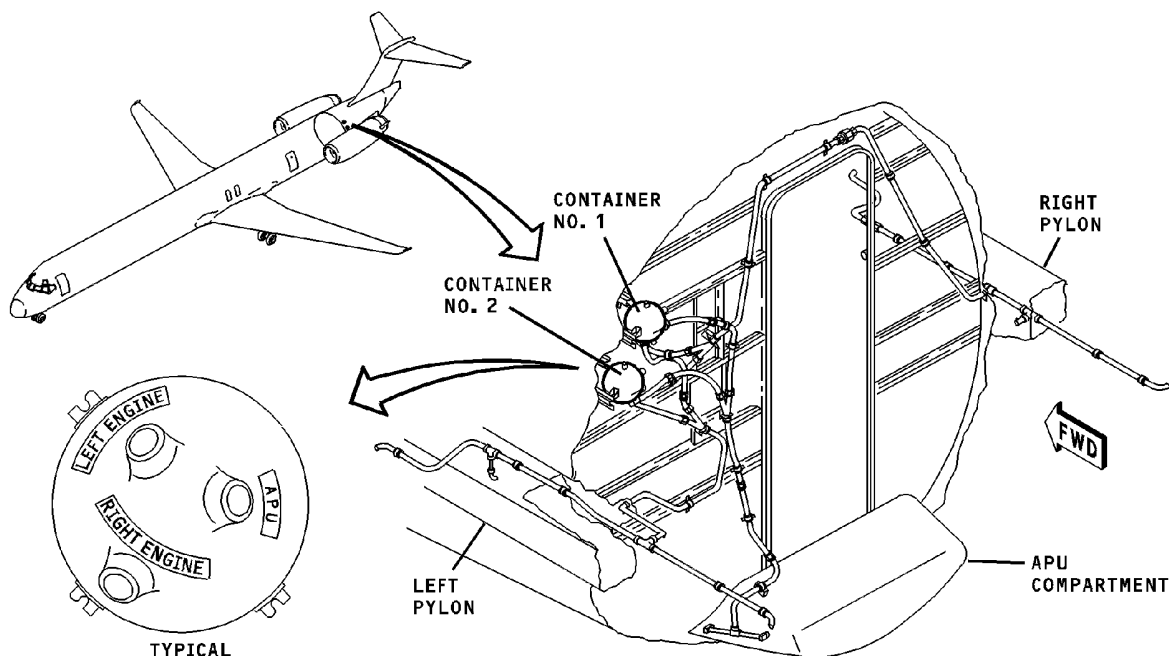
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- LEGEND:**
1. LEAK TESTER
 2. PRESSURE REGULATOR R1
 3. AIR SUPPLY VALVE V1
 4. SYSTEM SHUTOFF VALVE V2
 5. BLEED VALVE V3
 6. ADAPTER HOSE
 7. OUTPUT FITTING
 8. AIR INLET COUPLER
 9. PRESSURE GAUGE G1
 10. NO. 1 DISCHARGE HEAD
 11. NO. 2 DISCHARGE HEAD

CAG(IGDS)

BBB2-26-229A

APU Firex Leak Test - Test Equipment Installation
Figure 203/26-20-04-990-803

EFFECTIVITY
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FIRE EXTINGUISHING DEPLOYMENT LINES - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-20-04-720-801

2. Fire Extinguishing Flexible Hoses

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

<u>Reference</u>	<u>Description</u>
SPL-13509	Leak Tester - Fire Extinguisher System MD80-81, -82, -83, -88 Part #: DZZ7355-523 Supplier: 88277 Opt Part #: DZZ7355-509 Supplier: 88277

B. Functional Check of the Fire Extinguishing Flex Hoses for the Engine and APU

SUBTASK 26-20-04-720-001

(1) Leak test engine and APU deployment lines.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Open these circuit breakers and install safety tags:

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

(a) Set leak tester, SPL-13509 (1) controls to positions that follow:

- 1) Pressure regulator R1 (2) fully closed (counterclockwise)
- 2) Air supply valve V1 (3) to SET (open) position
- 3) System shutoff valve V2 (4) to SET (closed) position
- 4) Pressure BLEED valve V3 (5) fully closed (clockwise).

(b) Perform No. 1 engine deployment lines leak test as follows:

- 1) Connect adapter hose (6) to OUTPUT fitting (7).
- 2) Connect pressurized air source to leak tester (1) AIR-INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).
- 3) Disconnect flexible hoses at firex container (No. 1 and No. 2) discharge heads (12 and 13) that lead to left engine.
- 4) Connect adapter hose (6) to flexible hose from container No. 1 discharge head (12) using a suitable leak tester (1) adapter.
- 5) Install leak tester (1) plugs or caps as required to close all fire extinguisher plumbing discharge openings in engine and pylon zones.

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- 6) Slowly open pressure regulator R1 (2) clockwise and increase pressure until pressure gauge G1 (9) indicates 30.0 PSI 0.0 +5.0 PSI (206.8 kPa 0.0 +34.4 kPa).
 - 7) Place system shutoff valve V2 (4) in TEST (open) position. Make sure air flows freely from flexible hose disconnected from container No. 2 discharge head (13). Place valve V2 in SET (close) position.
 - 8) Connect flexible hose to container No. 2 left engine discharge head (13).
 - 9) Remove one leak tester (1) plug from one firex discharge outlet in the engine zone. Make sure air flows freely from outlet and install plug. Repeat this step until all five outlets have been tested.
 - 10) Remove one leak tester (1) plug from one of the firex discharge outlets. Make sure air flows freely from the outlet, then re-install plug. Repeat this step on all of the discharge outlets in the engine and pylon zones until all discharge outlets have been tested.
 - 11) Place air supply valve V1 (3) in TEST (closed) position and monitor pressure gauge G1 (9) for 5 minutes. The pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - 12) Open leak tester (1) BLEED valve V3 (5) (counterclockwise) until pressure gauge (9) indication decreases to 0.0 PSI (0.0 kPa) and close valve.
 - 13) Place system shutoff valve V2 (4) in SET (close) position and then place air supply valve V1 (3) in SET (open) position.
 - 14) Remove all leak tester (1) plugs from all fire extinguisher plumbing discharge openings in the engine and pylon zones.
 - 15) Remove adapter hose (6) from flexible hose from container No. 1 left engine discharge head (12).
 - 16) Connect flexible hose to container No. 1 left engine discharge head (12).
- (c) Perform No. 2 engine deployment lines leak test as follows:
- 1) Connect adapter hose (6) to OUTPUT fitting (7).
 - 2) Connect pressurized air source to leak tester (1) AIR-INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).
 - 3) Disconnect flexible hoses at firex container (No. 1 and No. 2) discharge heads (12 and 13) that lead to right engine.
 - 4) Connect adapter hose (6) to flexible hose from container No. 1 discharge head (12) using a suitable leak tester (1) adapter.
 - 5) Install leak tester (1) plugs or caps as required to close all fire extinguisher plumbing discharge openings in engine and pylon zones.
 - 6) Slowly open pressure regulator R1 (2) clockwise and increase pressure until pressure gauge G1 (9) indicates 30.0 PSI 0.0 +5.0 PSI (206.8 kPa 0.0 +34.4 kPa).
 - 7) Place system shutoff valve V2 (4) in TEST (open) position. Make sure air flows freely from flexible hose disconnected from container No. 2 discharge head (13). Place valve V2 in SET (close) position.
 - 8) Connect flexible hose to container No. 2 right engine discharge head (13).
 - 9) Remove one leak tester (1) plug from one firex discharge outlet in the engine zone. Make sure air flows freely from outlet and install plug. Repeat this step until all five outlets have been tested.

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- 10) Remove one leak tester (1) plug from one of the firex discharge outlets. Make sure air flows freely from the outlet, then re-install the plug. Repeat this step on all of the discharge outlets in the engine and pylon zones until all discharge outlets have been tested.
 - 11) Place air supply valve V1 (3) in TEST (closed) position and monitor pressure gauge G1 (9) for 5 minutes. The pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - 12) Open leak tester (1) BLEED valve V3 (5) (counterclockwise) until pressure gauge (9) indication decreases to 0.0 PSI (0.0 kPa) and close valve.
 - 13) Place system shutoff valve V2 (4) in SET (close) position and then place air supply valve V1 (3) in SET (open) position.
 - 14) Remove all leak tester (1) plugs from all fire extinguisher plumbing discharge openings in the engine and pylon zones.
 - 15) Remove adapter hose (6) from flexible hose from container No. 1 right engine discharge head (12).
 - 16) Connect flexible hose to container No. 1 right engine discharge head (12).
- (d) Perform APU deployment lines leak test as follows:
- 1) Connect adapter hose (6) to OUTPUT fitting (7).
 - 2) Connect pressurized air source to leak tester (1) AIR INLET coupler (8). Make certain pressure gauge G1 (9) indicates 0.0 PSI (0.0 kPa).
 - 3) Disconnect flexible hose at firex container No. 1 discharge head (10) leading to APU.
 - 4) Connect adapter hose (6) from leak tester (1) to flexible hose disconnected from No. 1 discharge head (10) using a suitable leak tester (1) adapter.
 - 5) Slowly open pressure regulator R1 (2) clockwise and increase air pressure until air pressure gauge G1 (9) indicates 30.0 PSI -0.0 +5.0 PSI (206.8 kPa -0.0 +34.4 kPa).
 - 6) Make certain air flows freely from two APU compartment firex discharge outlets in left sidewall. Place system shutoff valve V2 (4) in SET (closed) position.
 - 7) Install leak tester (1) plugs in two APU compartment firex discharge outlets.
 - 8) Disconnect flexible hose at firex container No. 2 discharge head (11) leading to APU.
 - 9) Make certain air flows freely from flexible hose disconnected from No. 2 discharge head (11). Place system shutoff valve V2 (4) in SET (closed) position.
 - 10) Connect flexible hose to firex container No. 2 discharge head (11).
 - 11) Place air supply valve V1 (3) in TEST (close) position and monitor pressure gauge G1 (9) indication for 5 minutes. Pressure decrease shall not exceed 4.0 PSI (27.5 kPa) in 5 minutes.
 - 12) Open BLEED valve V3 (5) (counterclockwise) until pressure gauge G1 (9) indication decreases to 0.0 PSI (0.0 kPa). Close BLEED valve V3 (5).
 - 13) Remove hose adapter, adapter hose (6), plugs from discharge outlets, and leak tester (1).
 - 14) Connect flexible hose to No. 1 discharge head (10).

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

LOWER EPC, DC TRANSFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
X	41	B1-95	FIRE EXTINGUISHING CONTROL BOTTLE 1
X	42	B1-96	FIRE EXTINGUISHING CONTROL BOTTLE 2

- (4) Return aircraft to required configuration.

———— **END OF TASK** ————

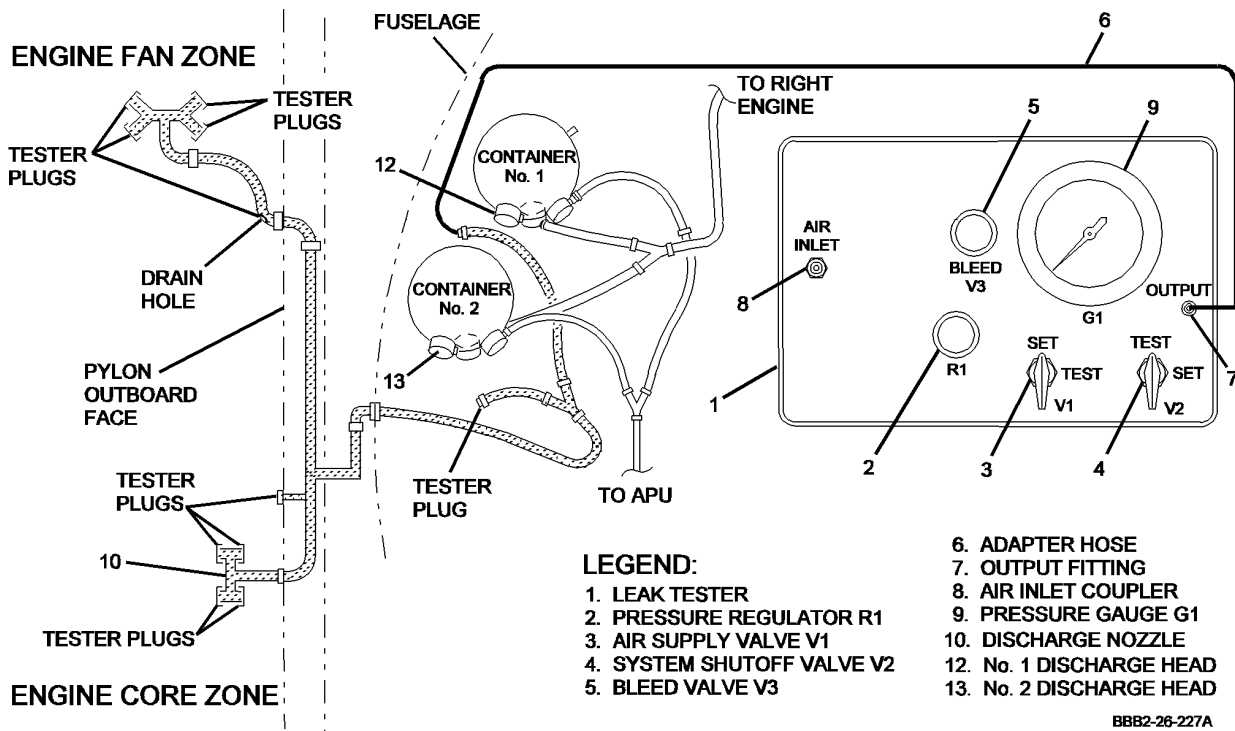
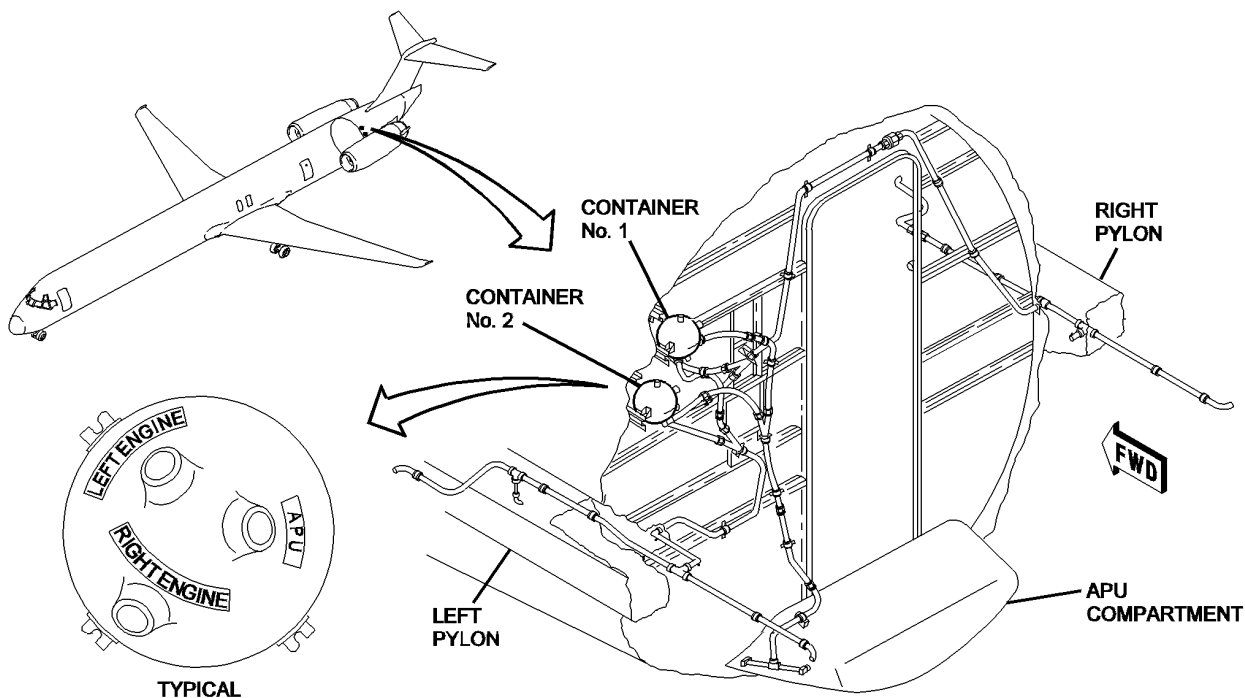
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BBB2-26-227A
S0006534622V2

**Left Engine Firex Leak Test
Figure 501/26-20-04-990-804**

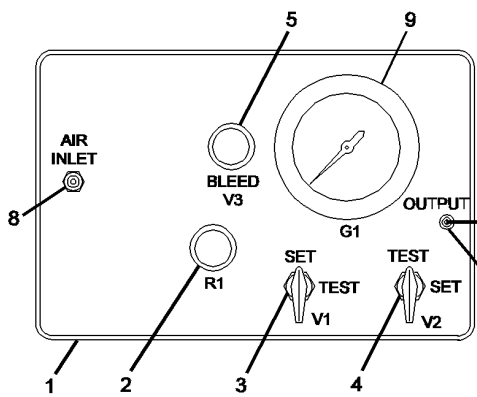
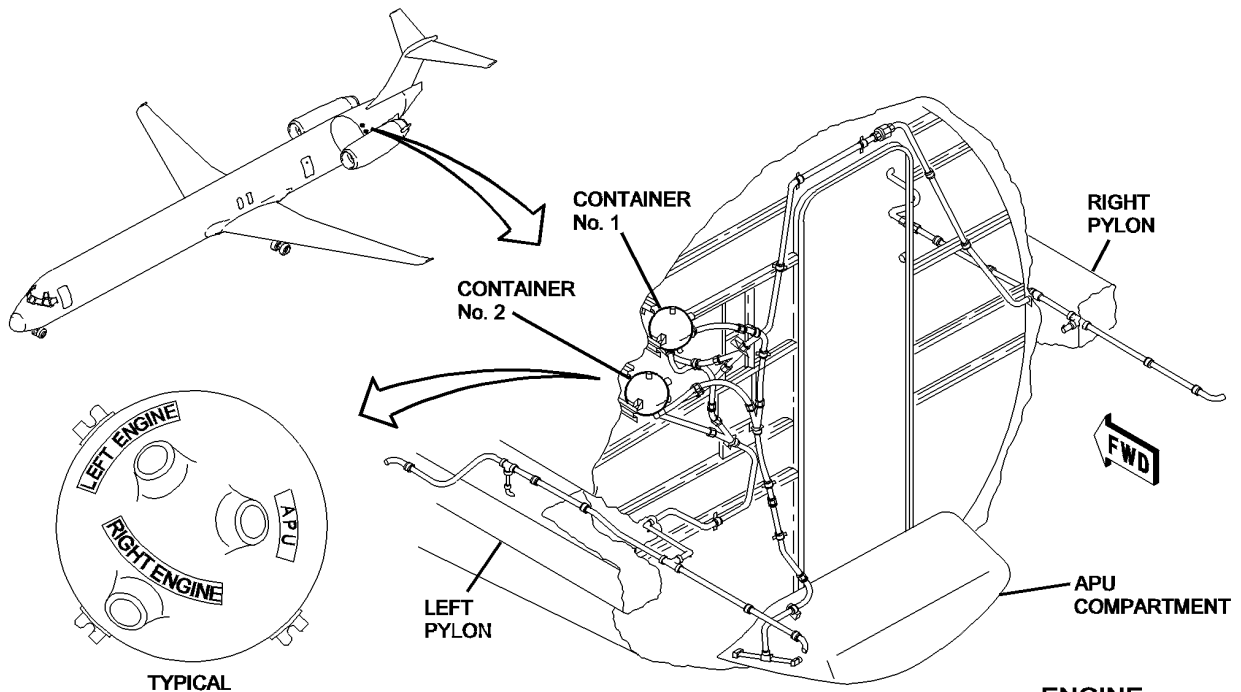
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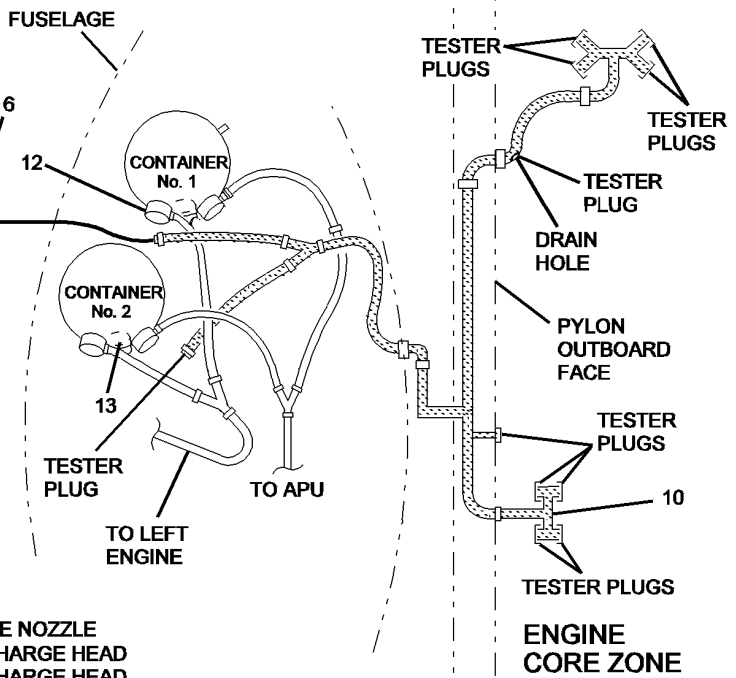
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LEGEND:

- 1. LEAK TESTER
- 2. PRESSURE REGULATOR R1
- 3. AIR SUPPLY VALVE V1
- 4. SYSTEM SHUTOFF VALVE V2
- 5. BLEED VALVE V3
- 6. ADAPTER HOSE
- 7. OUTPUT FITTING
- 8. AIR INLET COUPLER
- 9. PRESSURE GAUGE G1

- 10. DISCHARGE NOZZLE
- 12. No. 1 DISCHARGE HEAD
- 13. No. 2 DISCHARGE HEAD



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S0006534625V2

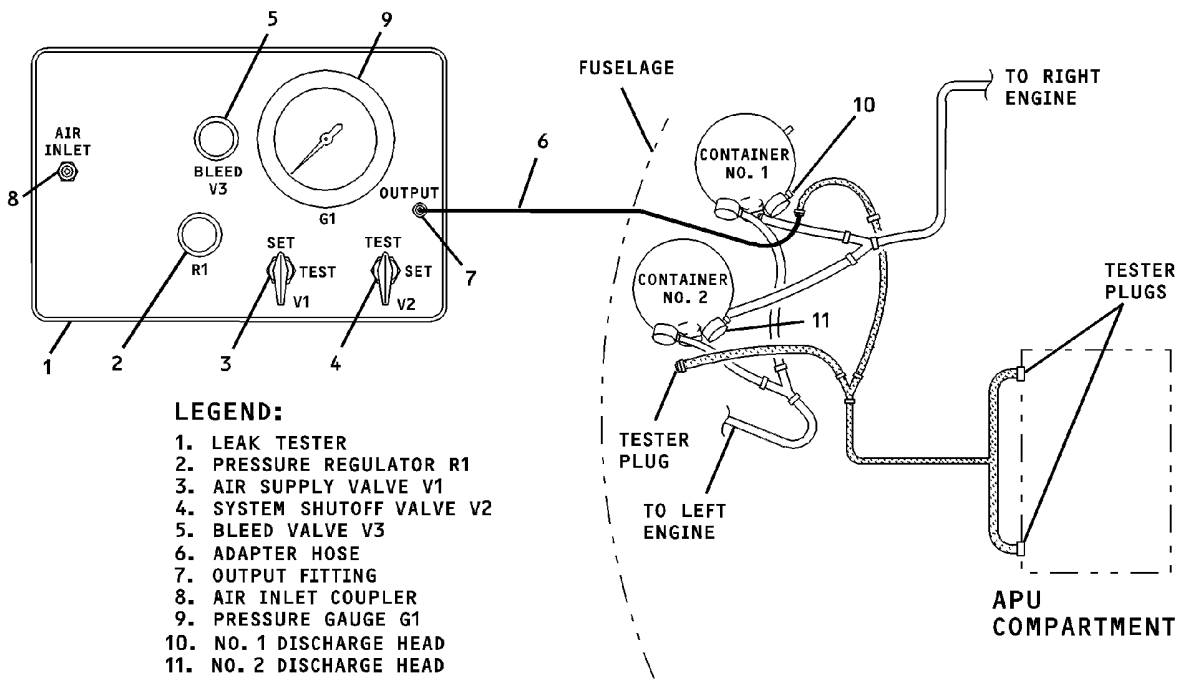
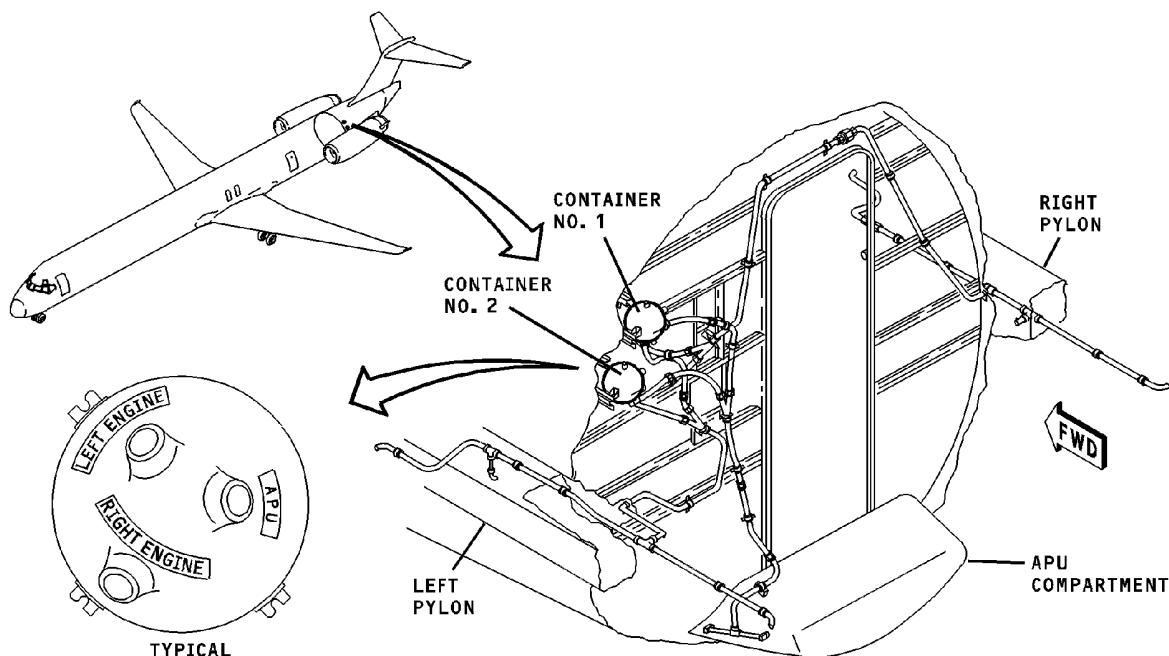
Right Engine Firex Leak Test
Figure 502/26-20-04-990-805

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- LEGEND:**
- 1. LEAK TESTER
 - 2. PRESSURE REGULATOR R1
 - 3. AIR SUPPLY VALVE V1
 - 4. SYSTEM SHUTOFF VALVE V2
 - 5. BLEED VALVE V3
 - 6. ADAPTER HOSE
 - 7. OUTPUT FITTING
 - 8. AIR INLET COUPLER
 - 9. PRESSURE GAUGE G1
 - 10. NO. 1 DISCHARGE HEAD
 - 11. NO. 2 DISCHARGE HEAD

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**APU Firex Leak Test
Figure 503/26-20-04-990-806**

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PORTABLE FIRE EXTINGUISHERS - MAINTENANCE PRACTICES

1. General

WJE 401-412, 414-427, 429, 861-866, 868, 869, 871-879, 881, 883, 884, 886, 887, 891-893

- A. Portable fire extinguishers consist of water and a halon type fire extinguishers. A halon extinguisher is installed in the flight compartment behind the first officer's seat. The remaining halon and/or water extinguishers are installed in the passenger compartment.

WJE 405-411, 880, 881, 883, 884

- B. Portable fire extinguishers consist of carbon dioxide and water type fire extinguishers. A carbon dioxide extinguisher is installed in the flight compartment behind the first officer's seat, carbon dioxide and water extinguishers are installed in the passenger compartment.

WJE 405-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

- C. The fire extinguishers consist of halon (bromochlorodi-fluoromethane) and are pressurized with dry nitrogen. The optimum distance from the fire for effective fire fighting is four to six feet with extinguisher held within 60 degrees of vertical. The extinguishant is effective in fighting class A, B, C type fires. Pressing extinguisher trigger will initiate discharge. The extinguisher can be partially discharged and the flow of extinguishant checked by releasing the trigger, and retaining part of the charge for dealing with any further outbreak of fire. The weight of a fully charged extinguisher (P/N 466040) is 3.44 ±0.25 lb (1.56 ±0.11 kg). A disc on top of the head is broken at time of initial discharge to denote extinguisher has been operated.

WJE 401-404, 412, 414

- D. The fire extinguishers consist of halon (bromochlorodi-fluoromethane) and are pressurized with dry nitrogen. The optimum distance from the fire for effective fire fighting is four to six feet with extinguisher held within 60 degrees of vertical. The extinguishant is effective in fighting class A, B, C type fires. Pressing extinguisher trigger will initiate discharge. The extinguisher can be partially discharged and the flow of extinguishant checked by releasing the trigger, and retaining part of the charge for dealing with any further outbreak of fire. The weight of a fully charged extinguisher (P/N BA20703GSR-3) is 5.44 ±0.25 lb (2.47 ±0.12 kg). A disc on top of the head is broken at time of initial discharge to denote extinguisher has been operated.

WJE 880

- E. Service procedures are given only for the water extinguisher.

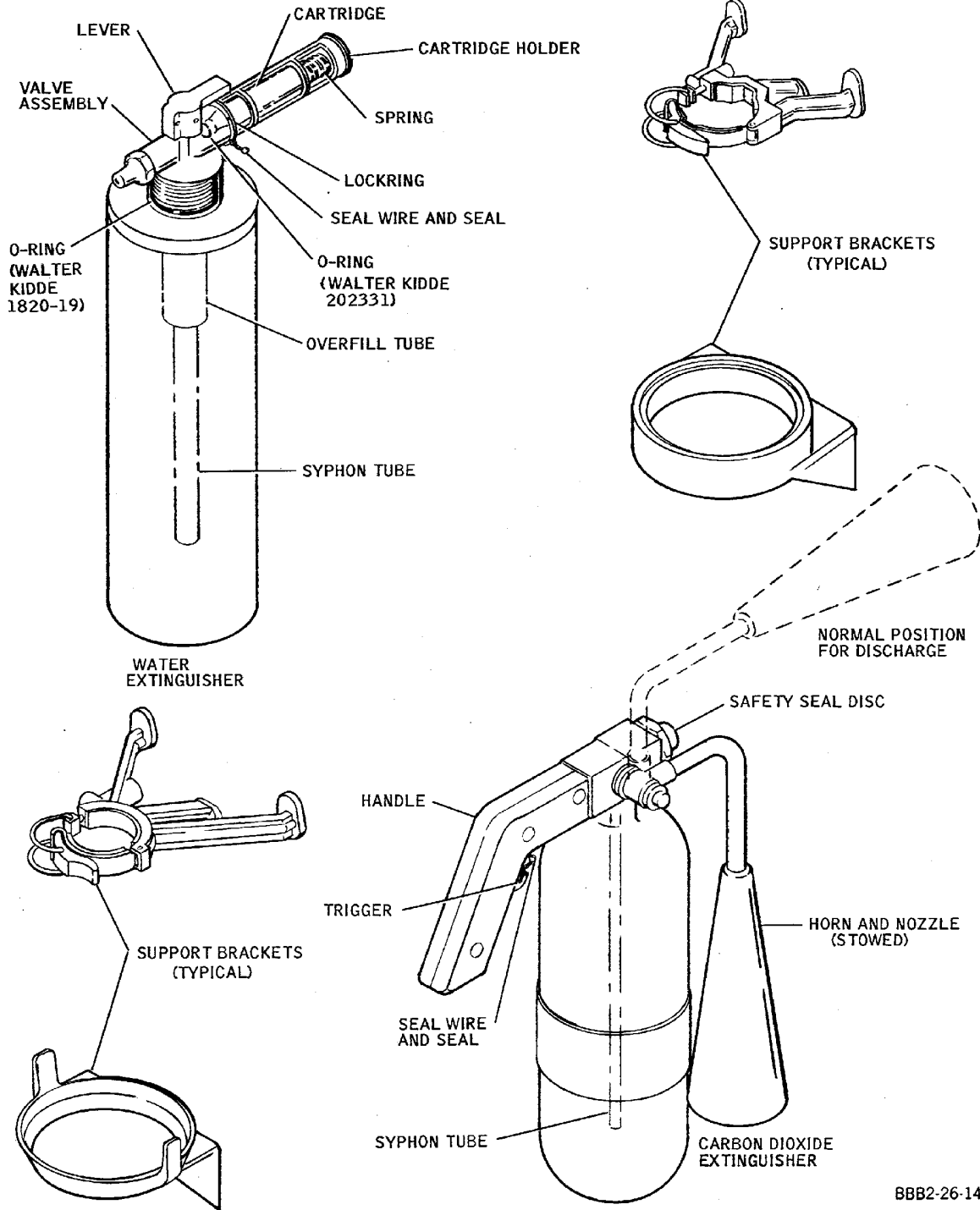
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**Portable Fire Extinguishers
Figure 201/26-20-05-990-805**

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WJE 880 (Continued)

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

NOTE: It is possible that some materials in the Equipment and Materials List cannot be used for some or all of their necessary applications. Before you use the materials, make sure the types, quantities and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial and regulations when it is necessary to work with these materials.

Name and Number	Manufacturer
*Lubricant, anti-seize (MIL-G-4343) DPM 333	
*Lubricant should be used on all mating threads during servicing procedures.	

WJE 401-411, 415-427, 429, 861-866, 868, 869, 871-881, 883, 884, 886, 887, 891-893

3. Servicing Portable Fire Extinguishers

A. Service Water Extinguisher

- (1) If carbon dioxide cartridge has been punctured, make certain extinguisher is fully discharged.
- (2) Remove cartridge and cartridge holder from extinguisher.
- (3) Unscrew valve assembly from cylinder.
- (4) Depress lever on valve and thoroughly flush valve and siphon tube with clean water.
- (5) Rinse cylinder with clean water.
- (6) If liquid antifreeze agent is to be used, combine agent and water to total 1 3/8 quarts (44 ounces)(1.3 liters) and pour into cylinder. If powdered antifreeze agent is used, thoroughly dissolve powder in 1 quart (32 ounces)(0.95 liters) of water. Add additional water to total 1 3/8 quarts (44 ounces)(1.3 liters) and stir. Pour solution through screening cloth into cylinder.
- (7) Install new O-ring on cylinder neck and install valve on cylinder by hand.
- (8) Insert new O-ring and new cartridge into valve body.
- (9) Make certain spring is in cartridge holder. Install holder over cartridge, and screw holder into valve until red line on holder and valve body match.
- (10) If extinguisher is tamperproof type, slip lockring over cartridge holder. Position outside surface of ring with outside surface of lever and secure lockring in place with three setscrews.
- (11) Safety with new seal wire and seal.
- (12) Stencil servicing date on fire extinguisher.

WJE 401-412, 414-427, 429, 861-866, 868, 869, 871-879, 881, 883, 884, 886, 887, 891-893

4. Check Portable Fire Extinguishers

A. Check Halon Fire Extinguisher

- (1) Disc at top of extinguisher operating head should be periodically checked to see that it is intact. Broken disc denotes extinguisher has been operated.
- (2) Check for any extinguishant leakage around operating head and discharge nozzle.
- (3) Check dust cap to see that it is not frozen on nozzle possibly preventing removal or blockage at time of discharge.
- (4) Check date stamp to see that five year overhaul or replacement period has not expired.

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WJE 401-412, 414-427, 429, 861-866, 868, 869, 871-879, 881, 883, 884, 886, 887, 891-893 (Continued)

- (5) Before installation of replacement extinguisher, extinguisher should be weighed; and meet weight as noted on neck of operating head within one ounce (28.3 grams).

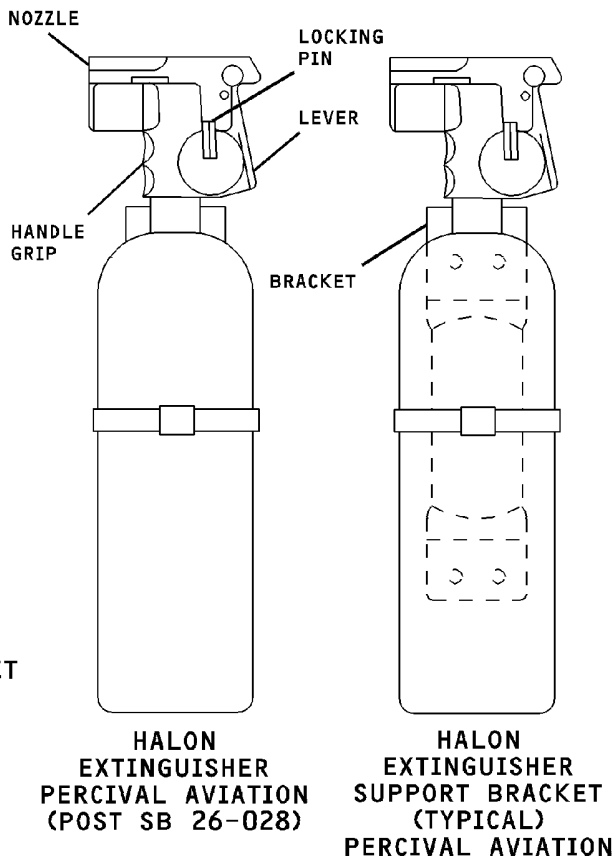
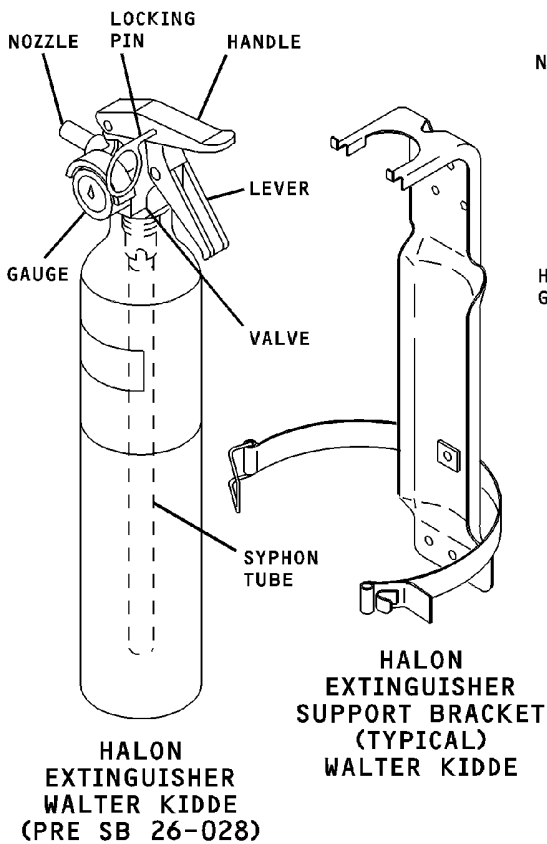
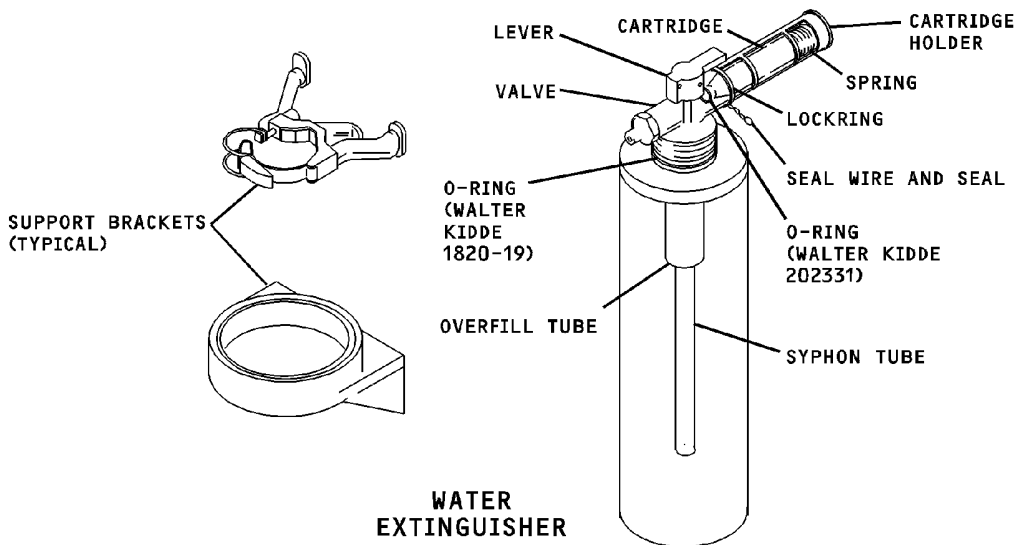
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**Portable Fire Extinguishers
Figure 202/26-20-05-990-802**

EFFECTIVITY
WJE 401-412, 414-427, 429, 861-866, 868, 869,
871-879, 881, 883, 884, 886, 887, 891-893

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PORTABLE FIRE EXTINGUISHERS - REMOVAL/INSTALLATION

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-20-05-901-802

2. Discard the Halon and Carbon Dioxide Portable Fire Extinguisher Bottles

A. **Discard the Halon and Carbon Dioxide Portable Fire Extinguisher Bottles**

SUBTASK 26-20-05-901-002

- (1) Remove halon fire extinguishers.
- (2) Remove carbon dioxide extinguishers.
- (3) Discard halon fire extinguishers.
- (4) Discard carbon dioxide extinguishers.
- (5) Install serviceable halon fire extinguishers.
- (6) Install serviceable carbon dioxide extinguishers.

B. **Job Close-up**

SUBTASK 26-20-05-901-003

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

TASK 26-20-05-902-801

3. Restoration of the Water Fire Extinguishers

A. **Water Fire Extinguishers Restoration**

SUBTASK 26-20-05-020-002

- (1) Remove extinguishers.

SUBTASK 26-20-05-510-001

- (2) Route extinguishers to shop for restoration.

SUBTASK 26-20-05-420-002

- (3) Install serviceable extinguishers.

SUBTASK 26-20-05-212-003

- (4) Make sure the extinguishers are installed tightly to the mounting brackets and the mounting brackets are properly attached to the airplane.

B. **Job Close-up**

SUBTASK 26-20-05-942-004

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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PORTABLE FIRE EXTINGUISHERS - INSPECTION/CHECK

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-20-05-210-801

2. General Visual Inspection of the Portable Fire Extinguishers and Brackets

A. Portable Fire Extinguishers and Brackets General Visual Inspection

SUBTASK 26-20-05-210-001

- (1) Make sure there is no physical damage to the extinguishers and the brackets.
- (2) Make sure the mounting brackets are properly attached to the airplane.
- (3) Make sure the extinguishers are installed tightly to the mounting brackets.

B. Job Close-up

SUBTASK 26-20-05-942-003

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

TASK 26-20-05-211-801

3. Detailed Inspection of the Halon and Water Portable Fire Extinguishers for Proper Weight and Condition

A. Prepare for the Halon and Water Portable Fire Extinguishers Detailed Inspection for Proper Weight and Condition

SUBTASK 26-20-05-020-001

- (1) Remove the extinguishers from the bracket.

B. Halon and Water Portable Fire Extinguishers Detailed Inspection for Proper Weight and Condition

SUBTASK 26-20-05-211-001

- (1) Do a detailed inspection of the portable fire extinguishers for proper weight. Make sure the weight of the fire extinguishers agree with the weight that is marked on the extinguisher.
- (2) Make sure there is no physical damage to the extinguishers.
- (3) Make sure the instruction decal and the nameplate are in good condition.
- (4) Make sure there are no leaks in the extinguishers.
- (5) Make sure the lockpin or seal wire is correctly installed on the handle.

C. Job Close-up

SUBTASK 26-20-05-420-001

- (1) Install extinguishers to the brackets.

SUBTASK 26-20-05-212-002

- (2) Make sure the extinguishers are installed tightly to the mounting brackets.

SUBTASK 26-20-05-942-001

- (3) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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TASK 26-20-05-212-801

4. Visual Check of the Halon Portable Fire Extinguishers for Proper Pressure

A. Halon Portable Fire Extinguishers Visual Check for Proper Pressure

SUBTASK 26-20-05-212-001

- (1) Examine the pressure gage and make sure the extinguishers have the correct pressure.

B. Job Close-up

SUBTASK 26-20-05-942-002

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— END OF TASK —————

TASK 26-20-05-720-801

5. Functional Check of the Liquid Type Fire Extinguisher, Carbon Dioxide Cartridge

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

Reference	Description
STD-6629	Scale - Triple Beam Balance, 750 SW, 500 gram capacity

B. Consumable Materials

NOTE: Equivalent replacements are permitted for the items that follow.

NOTE: It is possible that some materials in the Consumable Materials chart cannot be used for some or all of the necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Reference	Description	Specification
D60093	Grease - Lubricant	DPM 326 (MIL-PRF-23827)

C. Job Set-up - Functional Check of the Liquid Type Fire Extinguisher, Carbon Dioxide Cartridge

SUBTASK 26-20-05-020-003

- (1) Remove the liquid type fire extinguisher from the mounting bracket.

D. Procedure - Functional Check of the Liquid Type Fire Extinguisher, Carbon Dioxide Cartridge

SUBTASK 26-20-05-020-004

- (1) Remove the cartridge as follows:
 - (a) Remove the wire seal.
 - (b) Turn the cartridge holder counterclockwise and remove it from the valve assembly.
 - (c) Remove the spring and cartridge from the cartridge holder.

SUBTASK 26-20-05-221-002

- (2) Perform a weight check of the carbon dioxide cartridge as follows:
 - (a) Put the cartridge on the scale, STD-6629.
 - (b) Weigh the cartridge. The weight must be 33 grams minimum. If the weight is less than 33 grams, discard the cartridge.

SUBTASK 26-20-05-420-003

- (3) Install the cartridge as follows:

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WARNING: SILICONE GREASE LUBRICANT IS AN AGENT THAT IS A LOW HAZARD. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN SILICONE GREASE LUBRICANT IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
 - USE IN AN AREA OPEN TO THE AIR.
 - CLOSE THE CONTAINER WHEN NOT USED.
 - DO NOT GET SILICONE GREASE LUBRICANT IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES
- (a) Put a thin layer of grease, D60093 on the internal threads of the cartridge holder.
 - (b) Install the spring and a serviceable cartridge in the cartridge holder.
 - (c) Install the cartridge holder in the valve assembly.
 - (d) Turn the cartridge holder clockwise until the red line on the cartridge holder aligns with the red line on the valve assembly.
 - (e) Make sure the seal wire hole in the lock ring aligns with the hole in the valve assembly. If the holes are not aligned, loosen the set screws and adjust the position of the lock ring.
 - (f) Install the seal wire through the holes in the lock ring and the body of the valve assembly.
 - (g) Install the wires through the lead seal. Pull the wires tight and crimp the lead seal.

E. Job Close-up - Functional Check of the Liquid Type Fire Extinguisher, Carbon Dioxide Cartridge

SUBTASK 26-20-05-420-004

- (1) Put the serviceable liquid type fire extinguisher into the mounting bracket.
- (2) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— END OF TASK —————

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LAVATORY DISPOSABLE FIRE EXTINGUISHER - DESCRIPTION AND OPERATION

1. General

- A. The disposable fire extinguisher container is located beneath the sink, and attached to the waste container chute in each lavatory. The disposable fire extinguisher is located such that the discharge probes are inserted into the waste container chute.

2. Description

- A. The fire extinguisher is comprised of an elongated spherical steel container, two discharge tubes with fusible tips and a mounting bracket. A cover is installed on the lower half of the extinguisher to provide protection from damage for the discharge tubes. The disposable fire extinguisher container is charged with 115(±15) grams of halon (bromotrifluoromethane). The discharge tube tips (probes) are inserted into the waste container chute in each lavatory.

3. Operation

- A. The lavatory waste container fire extinguisher system is automatic and completely self-contained. When the temperature at the probes raises to between 170°F and 177°F (76.6°C and 80.5°C), the fusible tips melt resulting in actuation of the container. The extinguisher will discharge the halon into the waste container within 3 to 15 seconds to extinguish a fire.

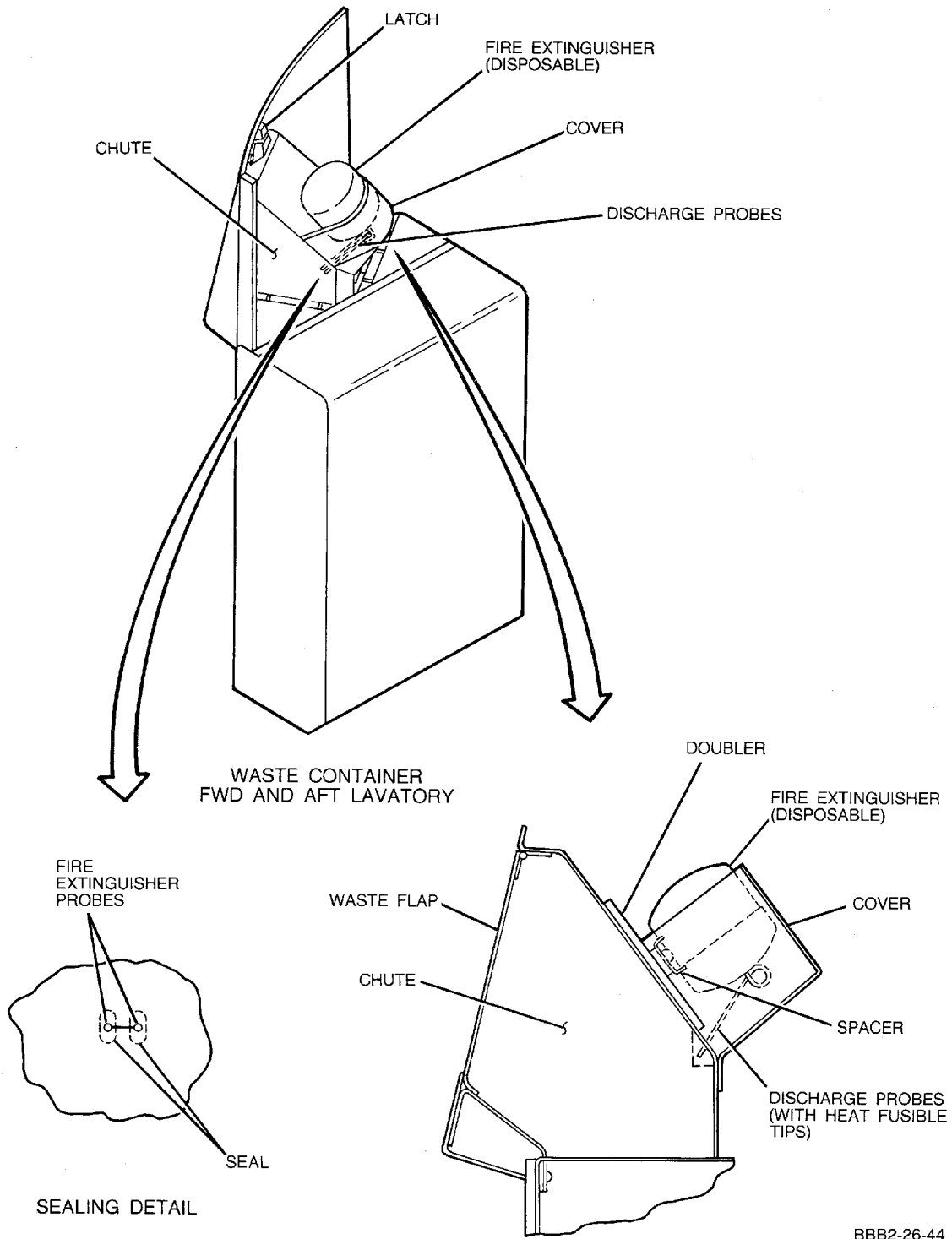
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**Lavatory Disposable Fire Extinguisher -- Component Location
Figure 1/26-21-00-990-803**

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LAVATORY DISPOSABLE FIRE EXTINGUISHER - MAINTENANCE PRACTICES

1. General

- A. Disposable fire extinguishers are installed on each trash container in each lavatory. Access to the fire extinguishers is by removing the waste container beneath the sink.
- B. Removal and installation procedures are identical for all fire extinguishers.

2. Equipment and Materials

NOTE: Equivalent substitutes may be used instead of the following listed items.

NOTE: It is possible that some materials in the Equipment and Materials List cannot be used for some or all of their necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Table 201

Name and Number	Manufacturer
Primer, silicone SS-4004 DPM 3202	General Electric Co. City of Industry, CA.
Sealant, silicone RTV-88 w/cat DMS 1799	General Electric Co. City of Industry, CA.
Sealant, silicone RTV-732 (or equivalent) DPM 5614-1	Dow Corning (or equivalent)
Cloth, clean, lint free	Commercially available
Scraper, plastic DPM 2505	Commercially available
Cleaner, handwipe, Brulin MP 1793, DPM 6380-1	Brulin Company, Inc. Richmond, CA.
Cleaner, handwipe, EPA 2000, DPM 6380-2 or	DPM 6380-2 is superseded by DPM 6380-4, however the DPM 6380-2 can be used until supplies are depleted.
Cleaner/Solvent, hand wipe, bulk, DPM 6380-4	Contec, Inc., Spartanburg, SC
Cleaner, handwipe, PF degreaser, DPM 6380-3	P-T Technologies, Inc. Safety Harbor, FL.

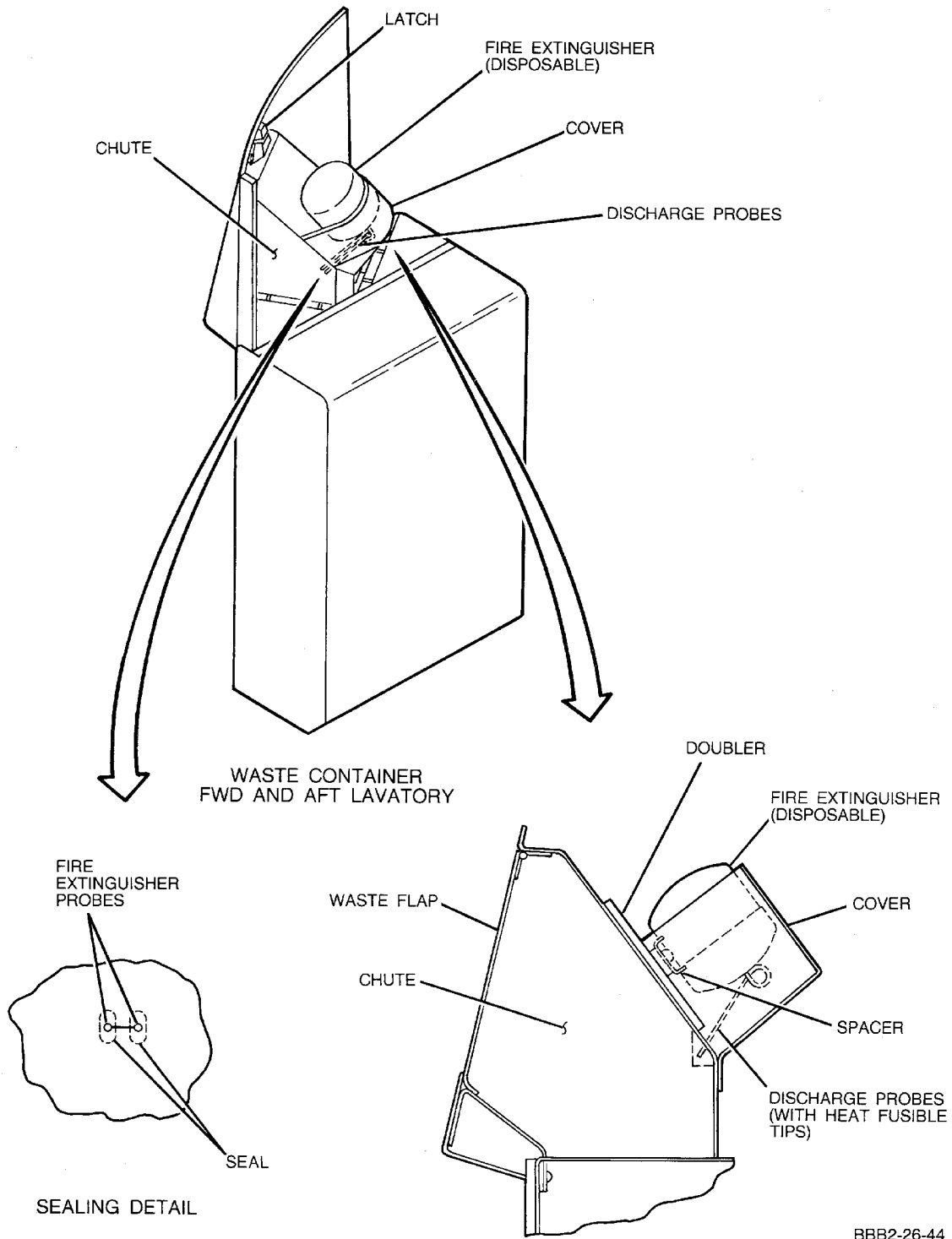
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BBB2-26-44

**Lavatory Disposable Fire Extinguisher -- Removal/Installation
Figure 201/26-21-00-990-804**

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3. Removal/Installation Lavatory Disposable Fire Extinguisher

A. Remove Fire Extinguisher

- (1) Remove waste container beneath sink area to gain access to fire extinguisher.
- (2) Remove cover and fire extinguisher from waste container.
- (3) Remove old sealant from waste container at point of extinguisher probe entry using plastic scraper.

WARNING: HANDWIPE CLEANER IS AN AGENT THAT IS FLAMMABLE, A SENSITIZER, AN ASPHYXIANT, AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN HANDWIPE CLEANER IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET HANDWIPE CLEANER IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: HANDWIPE CLEANER IS AN AGENT THAT IS FLAMMABLE, A REDUCER, AN ASPHYXIANT, AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN HANDWIPE CLEANER IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET HANDWIPE CLEANER IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: HANDWIPE CLEANER IS AN AGENT THAT IS FLAMMABLE, POISONOUS, A REDUCER, AN ASPHYXIANT, AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN HANDWIPE CLEANER IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET HANDWIPE CLEANER IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

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(WARNING PRECEDES)

WARNING: HANDWIPE CLEANER/SOLVENT IS AN AGENT THAT IS FLAMMABLE AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN HANDWIPE CLEANER/SOLVENT IS USED.

- DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET HANDWIPE CLEANER/SOLVENT IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

WARNING: REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR:

- MORE PRECAUTIONARY DATA
- APPROVED SAFETY EQUIPMENT
- EMERGENCY MEDICAL AID.

TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THESE HAZARDOUS AGENTS.

- (4) Remove adhesive tape and unwanted materials from trash container at point of fire extinguisher nozzle entry. Clean area with handwipe cleaner and lint free cloth.

B. Install Fire Extinguisher

- (1) Install extinguisher to waste container.
- (2) Check that extinguisher probes protrude into waste chute.
- (3) Seal waste chute openings with sealant where probes enter container. (Figure 201)
- (4) Install cover.
- (5) Install waste container beneath sink area.

4. Check Lavatory Disposable Fire Extinguisher

A. Check Fire Extinguisher Weight

- (1) Weight of extinguisher container, and fire extinguishant is given on placard of each fire extinguisher container.
- (2) Fire extinguisher should be replaced if weight is 15 grams less than weight of extinguisher given on fire extinguisher placard.
- (3) Check fire extinguisher for damage. Dents and scratches in fire extinguisher deeper than 1/16 inch (1.6 mm) are cause for replacement.

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LAVATORY DISPOSABLE FIRE EXTINGUISHER - REMOVAL/INSTALLATION

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-21-00-901-801

2. Discard the Lavatory Fire Extinguisher Units

NOTE: This procedure is a scheduled maintenance task.

A. Consumable Materials

NOTE: Equivalent replacements are permitted for the items that follow.

NOTE: It is possible that some materials in the Consumable Materials chart cannot be used for some or all of the necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Reference	Description	Specification
A60135	Sealant - Silicone	DMS 1799
G60288	Squeegee - Plastic	DPM 2505

B. Discard the Lavatory Fire Extinguisher Units

SUBTASK 26-21-00-901-001

- (1) Remove extinguishers.
 - (a) Remove waste container beneath sink area to gain access to fire extinguisher.
 - (b) Remove cover and fire extinguisher from waste container.
 - (c) Remove old sealant from waste container at point of extinguisher probe entry using plastic squeegee, G60288.
- (2) Discard extinguishers.
- (3) Install serviceable extinguishers.
 - (a) Install extinguishers to waste container.
 - (b) Check that extinguisher probes protrude into waste chute.
 - (c) Seal waste chute openings with silicone sealant, A60135 where probes enter container.
 - (d) Install cover.
 - (e) Install waste container beneath sink area.

C. Job Close-up

SUBTASK 26-21-00-942-003

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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LAVATORY DISPOSABLE FIRE EXTINGUISHER - ADJUSTMENT/TEST

1. General

A. This procedure contains MSG-3 task card data.

TASK 26-21-00-720-801

2. Weigh Lavatory Fire Extinguisher Units

NOTE: This procedure is a scheduled maintenance task.

A. **Consumable Materials**

NOTE: Equivalent replacements are permitted for the items that follow.

NOTE: It is possible that some materials in the Consumable Materials chart cannot be used for some or all of the necessary applications. Before you use the materials, make sure the types, quantities, and applications of the materials necessary are legally permitted in your location. All persons must obey all applicable federal, state, local, and provincial laws and regulations when it is necessary to work with these materials.

Reference	Description	Specification
A60135	Sealant - Silicone	DMS 1799
G60288	Squeegee - Plastic	DPM 2505

B. **Lavatory Fire Extinguisher Units Weight Check**

SUBTASK 26-21-00-720-001

- (1) Remove extinguishers.
 - (a) Remove waste container beneath sink area to gain access to fire extinguisher.
 - (b) Remove cover and fire extinguisher from waste container.
 - (c) Remove old sealant from waste container at point of extinguisher probe entry using plastic squeegee, G60288.
- (2) Route extinguishers to shop for weight check.
- (3) Install serviceable extinguishers.
 - (a) Install extinguishers to waste container.
 - (b) Check that extinguisher probes protrude into waste chute.
 - (c) Seal waste chute openings with silicone sealant, A60135 where probes enter container.
 - (d) Install cover.
 - (e) Install waste container beneath sink area.

C. **Job Close-up**

SUBTASK 26-21-00-942-001

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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LAVATORY DISPOSABLE FIRE EXTINGUISHER - INSPECTION/CHECK

1. General

- A. This procedure contains MSG-3 task card data.

TASK 26-21-00-211-801

2. Detailed Inspection of the Lavatory Fire Extinguisher Units Fusible Nozzles

A. Lavatory Fire Extinguisher Units Fusible Nozzles Detailed Inspection

SUBTASK 26-21-00-211-001

- (1) Do a detailed inspection of the discharge tube nozzles fusible alloy and container. Make sure that the fusible alloy and container are intact and agent is not discharged.

NOTE: The container is equipped with discharge tubes welded on the bottom of the container. Each discharge tube has an end cap which is sealed with a fusible alloy. The end caps keep the extinguishing agent in the container.

B. Job Close-up

SUBTASK 26-21-00-942-002

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

TASK 26-21-00-211-802

3. Detailed Inspection of the Lavatory Fire Temperature Indicator (If Installed)

A. Lavatory Fire Temperature Indicator Detailed Inspection (If Installed)

SUBTASK 26-21-00-211-002

- (1) Open sink cabinet waste compartment door.
(2) Remove waste container beneath sink area.
(3) Make sure that all four dots on indicator are grey.

NOTE: If any one of the four dots have changed from grey to black, check for evidence of fire in trash container or discharge of fire extinguisher.

B. Job Close-up

SUBTASK 26-21-00-942-004

- (1) Remove all the tools and equipment from the work area. Make sure the area is clean.

————— **END OF TASK** —————

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WJE LOWER CARGO COMPARTMENT FIRE SUPPRESSION SYSTEM - DESCRIPTION AND OPERATION

WJE 1. General

- WJE A. The Lower Cargo Compartment Fire Suppression System installed in the aircraft is a Halon 1301
WJE system. Its suppression ability stems from breaking the chain reaction of a fire by preventing the fuel
WJE source and oxygen from combining in the presence of heat. It is designed to operate in conjunction
WJE with the Lower Cargo Compartment Smoke Detection System (SMOKE DETECTION, SUBJECT 26-
WJE 16-00).
- WJE B. The system is capable of suppressing a fire in either the forward, mid or aft cargo compartment for
WJE at least 60 minutes from initial activation. Although in some cases it may extinguish a fire, it is
WJE important to note that its design is only intended to suppress the spread of a fire long enough to
WJE allow the aircraft to safely land and evacuate.
- WJE C. The system is powered by 28 VDC from the DC Transfer Bus and is operational whenever power is
WJE applied to the buss and the circuit breakers are closed. It is comprised of a control panel (the same
WJE panel used for the detection system), extinguishing bottles, diverter valve, metering device, and
WJE delivery lines and nozzles.

WJE 2. Fire Suppression System Components

- WJE A. Control Panel (Figure 1)
- WJE (1) The Control Panel is located in the Aft Overhead Switch Panel of the cockpit, just below the
WJE Engine/APU Fire Light Panel.
- WJE (2) Control of the suppression system is integrated into the Smoke Detection System control
WJE panel. It allows for either semi-automatic or manual operation of the suppression system,
WJE providing all necessary functions to arm and discharge the system when required (SMOKE
WJE DETECTION, SUBJECT 26-16-00).
- WJE (3) The Control Panel is mounted to the Overhead Switch Panel by four (4) Dzus-type quick
WJE release fasteners.
- WJE B. Extinguishing Bottles (Figure 2)
- WJE (1) Two (2) identical extinguishing bottles are incorporated into the suppression system. They are
WJE located in the forward cargo compartment, on the left side of the aircraft, opposite the
WJE compartment door. Each bottle has a 536 in³ (8783.47 cc) capacity, a nominal operating
WJE pressure of 360 PSIG, and weighs approximately 28 lbs. (20 lbs. of suppressant).
- WJE (2) The Suppression agent is Bromotrifluoromethane mixed with Methanol and pressurized by
WJE Nitrogen. Each bottle is comprised of the extinguishing agent; a low-pressure warning switch, a
WJE firing cartridge (squib), and a combination fill port/high pressure relief valve.

WJE **WARNING:** DO NOT SERVICE AN EXTINGUISHER BOTTLE WHILE INSTALLED ONBOARD
WJE THE AIRCRAFT.

WJE **WARNING:** BROMOTRIFLOUROMETHANE IS AN AGENT THAT IS A COMPRESSED AND
WJE POISONOUS GAS. MAKE SURE ALL PERSONNEL OBEY ALL PRECAUTIONS
WJE WHEN THIS AGENT IS USED.

- WJE • USE IN AN AREA OPEN TO THE AIR.
- WJE • CLOSE THE CONTAINER WHEN NOT USED.
- WJE • DO NOT GET THE AGENT IN THE EYES, IN SKIN, OR ON CLOTHES.
- WJE • DO NOT BREATHE THE AGENT.

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WJE (WARNING PRECEDES)

WJE **WARNING:** REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR:

- WJE • MORE PRECAUTIONARY DATA
- WJE • APPROVED SAFETY EQUIPMENT
- WJE • EMERGENCY MEDICAL AID.

WJE TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE
WJE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- WJE (3) The bottles, as installed, are designed to be maintenance free, requiring only periodic weighing
WJE to ensure they are properly filled, hydrostatic testing, and testing of the low pressure switch.
- WJE (4) The low-pressure warning switch is installed directly to the extinguishing bottle. The electrical
WJE contacts are normally open. When the pressure drops to the threshold level the contacts close
WJE illuminating the appropriate low pressure warning ("DSCH") lamp on the replaceable item.
- WJE (5) The switch is temperature compensated to prevent nuisance alarms due to extreme
WJE temperature changes. It is also equipped with a test switch which allows testing of the system's
WJE low pressure warning circuit without the need to discharge the bottle. Since the bottle must be
WJE discharged to remove the switch, it is not considered to be a "line" replaceable item.
- WJE (6) The firing cartridge, also known as a squib, is installed in the base of the bottle discharge
WJE outlet. It is an explosive device which, when activated, ruptures a frangible disc in the base of
WJE the bottle, allowing the suppressant to escape into the supply lines. It is electrically activated
WJE from the cockpit by the flight crew. To ensure reliability, it is considered a life-limited part,
WJE requiring replacement at ten (10) year intervals.
- WJE (7) The fill port provides for the ability to refill the bottle with suppression agent and propellant, and
WJE houses the over-pressure relief valve. This valve opens under a pressure of 1200 to 1400
WJE PSIG at room temperature (70 degrees F). The bottle is not designed to be serviced while
WJE installed on the aircraft.

WJE C. Diverter Valve (Figure 3)

- WJE (1) The suppression system contains one (1) diverter valve, installed downstream of the
WJE extinguishing bottles. Suppressant entry is through the center fitting that exits through one of
WJE the end fittings. Each outlet contains a squib to allow suppression agent into one compartment
WJE only.
- WJE (2) As with the extinguishing bottles, the squibs are electrically activated from the cockpit by the
WJE flight crew and are limited to a ten (10) year service life. In addition, each outlet fitting is labeled
WJE as to which compartment it is supposed to feed, and is of a different size. This ensures each
WJE compartment receives the proper suppressant flow and serves to prevent crossing of the
WJE delivery lines.

WJE D. Metering Valve (Figure 4)

- WJE (1) Because the fire suppression system is designed around the principle of maintaining a level of
WJE suppressant concentration in the cargo compartment a metering device is required to
WJE continually compensate for suppressant leakage from the compartment.
- WJE (2) The purpose of the metering valve is to regulate the flow of suppressant from the #2
WJE extinguishing bottle to the cargo compartment. This will maintain a concentration of
WJE suppressant in the compartment long enough to allow the aircraft to safely land and evacuate.
- WJE (3) The metering assembly is temperature compensated to allow the proper suppressant flow
WJE under a wide range of temperature conditions.

WJE E. Supply Lines and Nozzles (Figure 5)(Figure 6)

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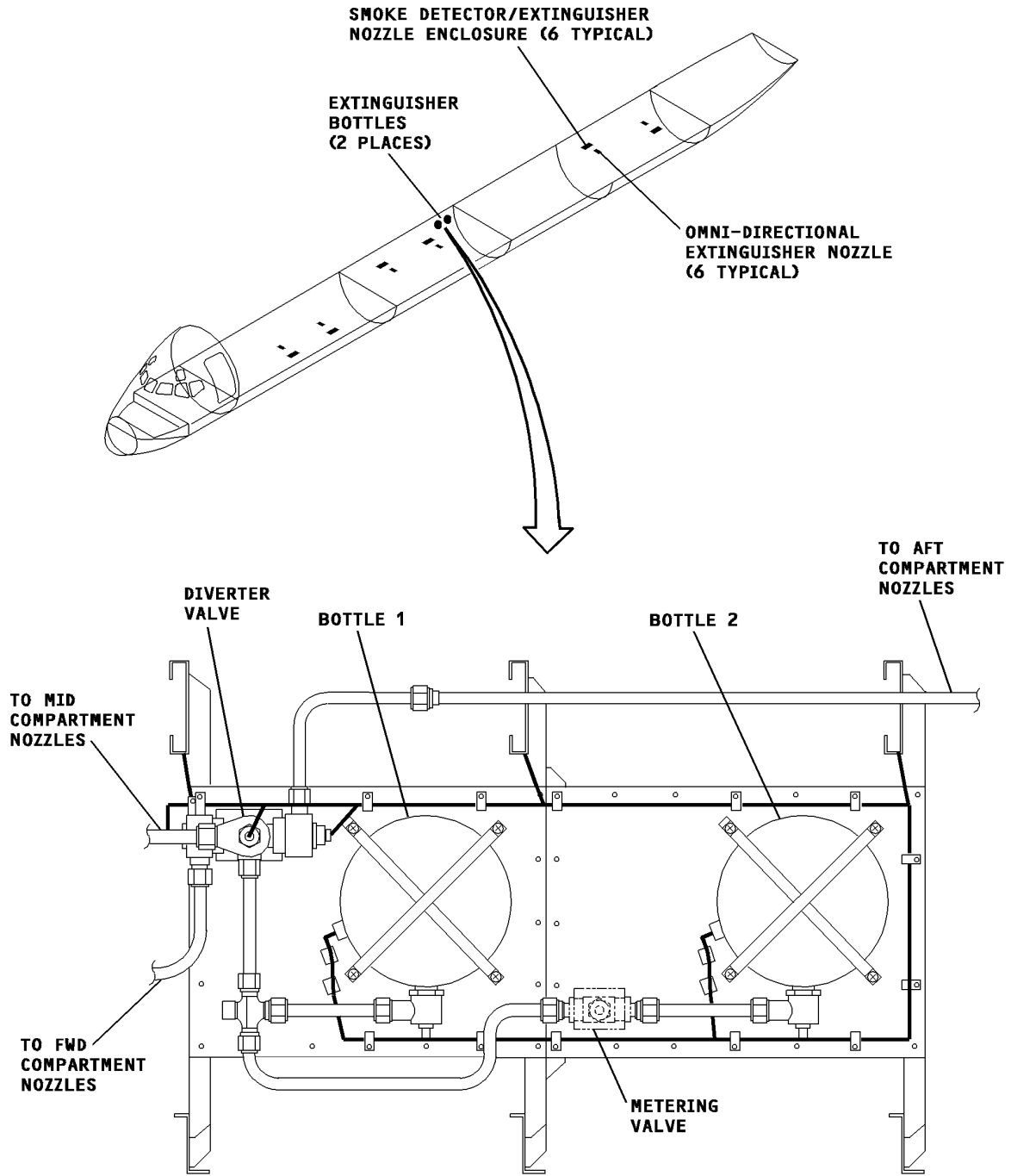
- WJE (1) The supply lines to each cargo compartment (forward, mid and aft) are unique to prevent the possibility of cross connecting the extinguisher supply lines.
WJE
- WJE (2) The fire suppression utilizes two (2) different types of suppression nozzles for a total of twelve (12) nozzles, four (4) in each of the forward, mid, and aft compartments. Both types are directional in design providing for the desired flow and dispersion properties.
WJE
WJE (a) The bulkhead nozzle is mounted in the detector enclosure. It directs suppressant to the center and lower portions of the compartment. Two (2) nozzles of this type are used in each compartment, one (1) in each enclosure.
WJE
WJE (b) The firex nozzle is mounted flush with the cargo compartment ceiling. This type uses eight (8) 0.093 inch orifices to direct the suppressant in the upper portion of the compartment. Two (2) nozzles of this type are mounted in the ceiling of each compartment.
WJE
- WJE (3) In-line filters are installed to prevent contaminants and ruptured disc particles from clogging metering orifices and valve ports. Supply line filters are of mesh screen construction to trap small contaminants while the filters installed near the squibs incorporate larger openings and serve primarily to prevent ruptured disc particles from entering the supply lines.
WJE
WJE
- WJE (4) In-line filters are installed at the following locations in the system:
WJE (a) Extinguishing bottle discharge outlet (Bottle 1)
WJE (b) Extinguishing bottle discharge outlet (Bottle 2)
WJE (c) Metering valve inlet
WJE

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Extinguishing Bottles and Locations
Figure 2/26-22-00-990-802 (Sheet 1 of 2)

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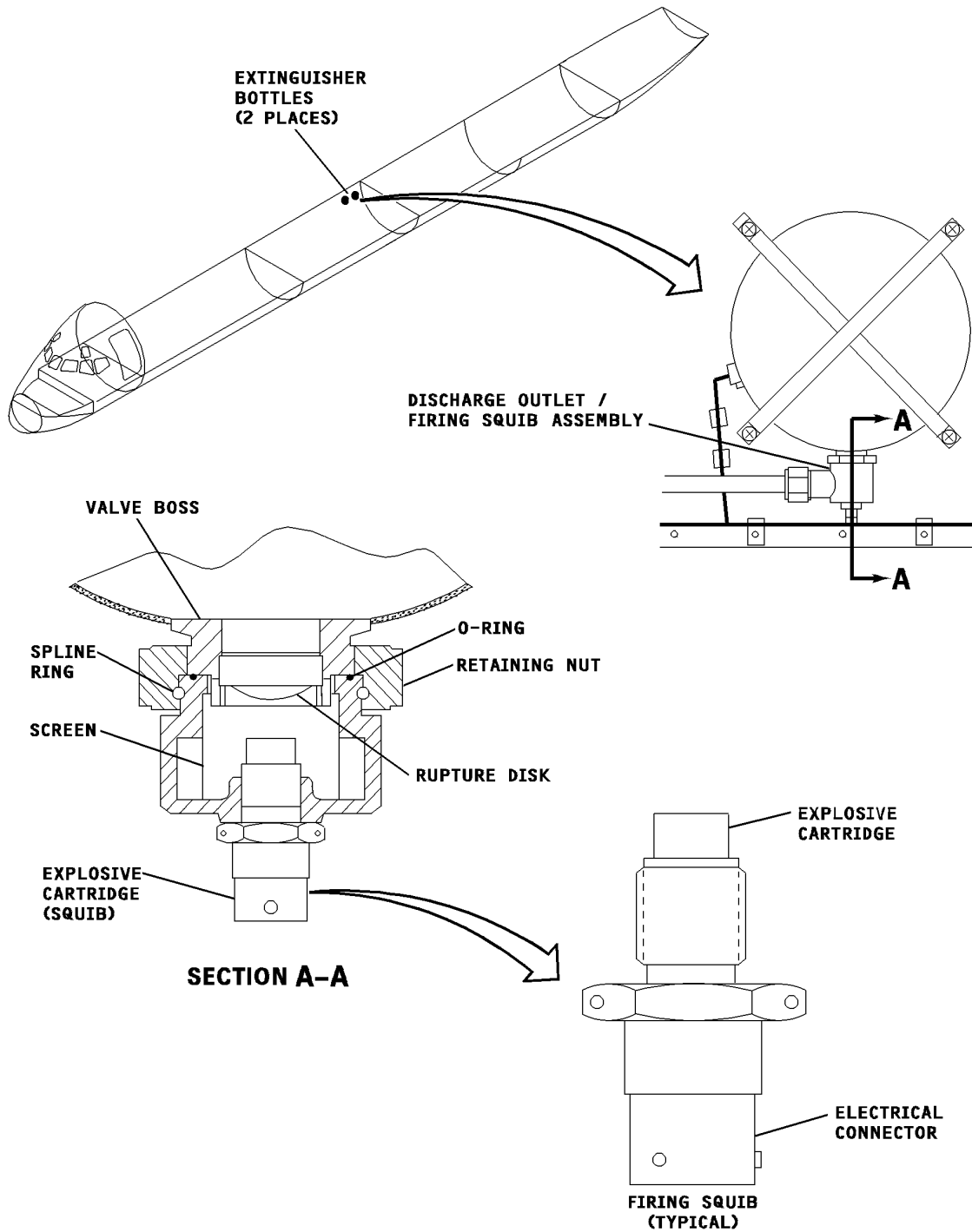
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**Extinguishing Bottles and Locations
Figure 2/26-22-00-990-802 (Sheet 2 of 2)**

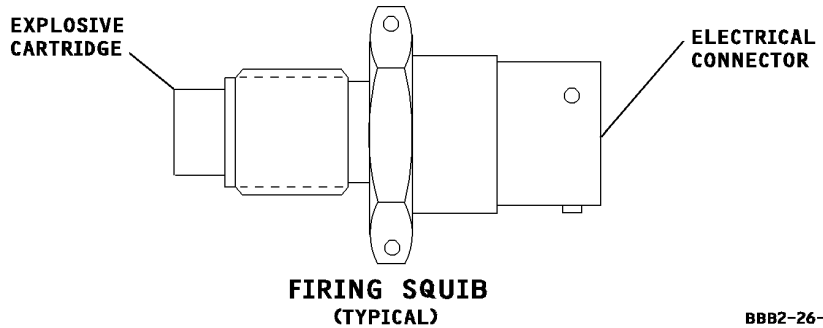
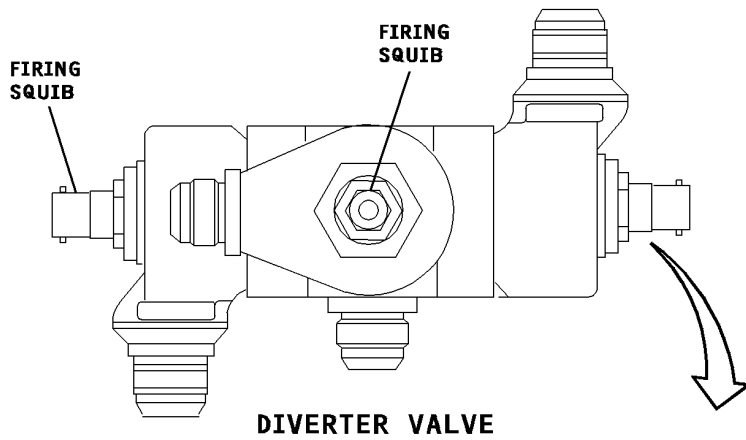
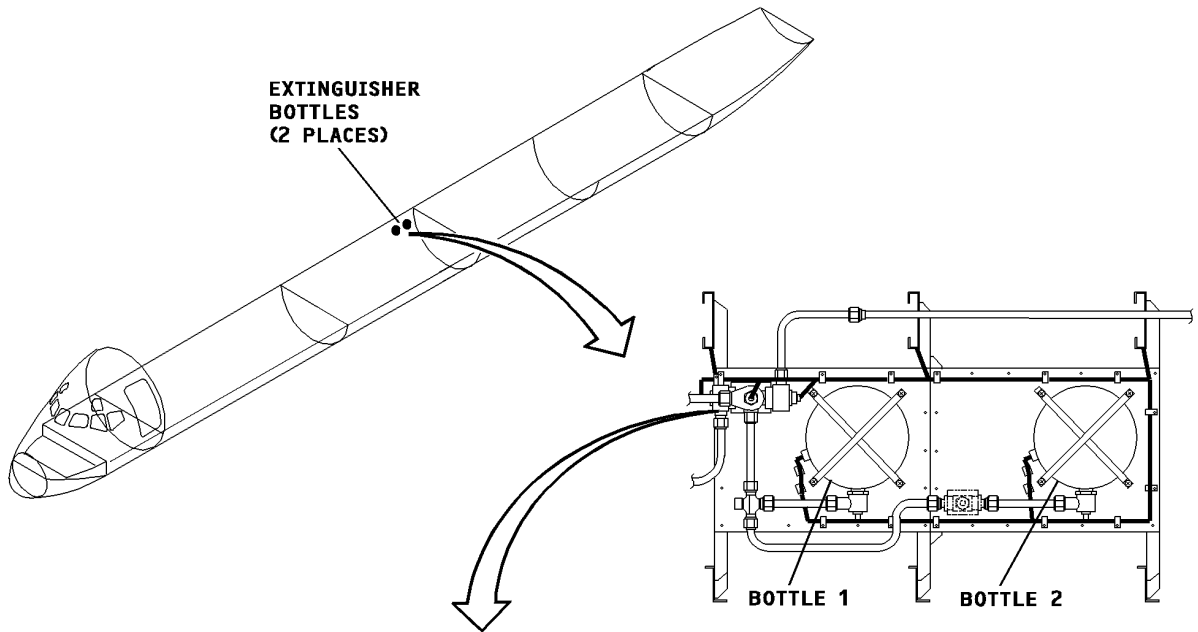
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Diverter Valve and Location
Figure 3/26-22-00-990-803

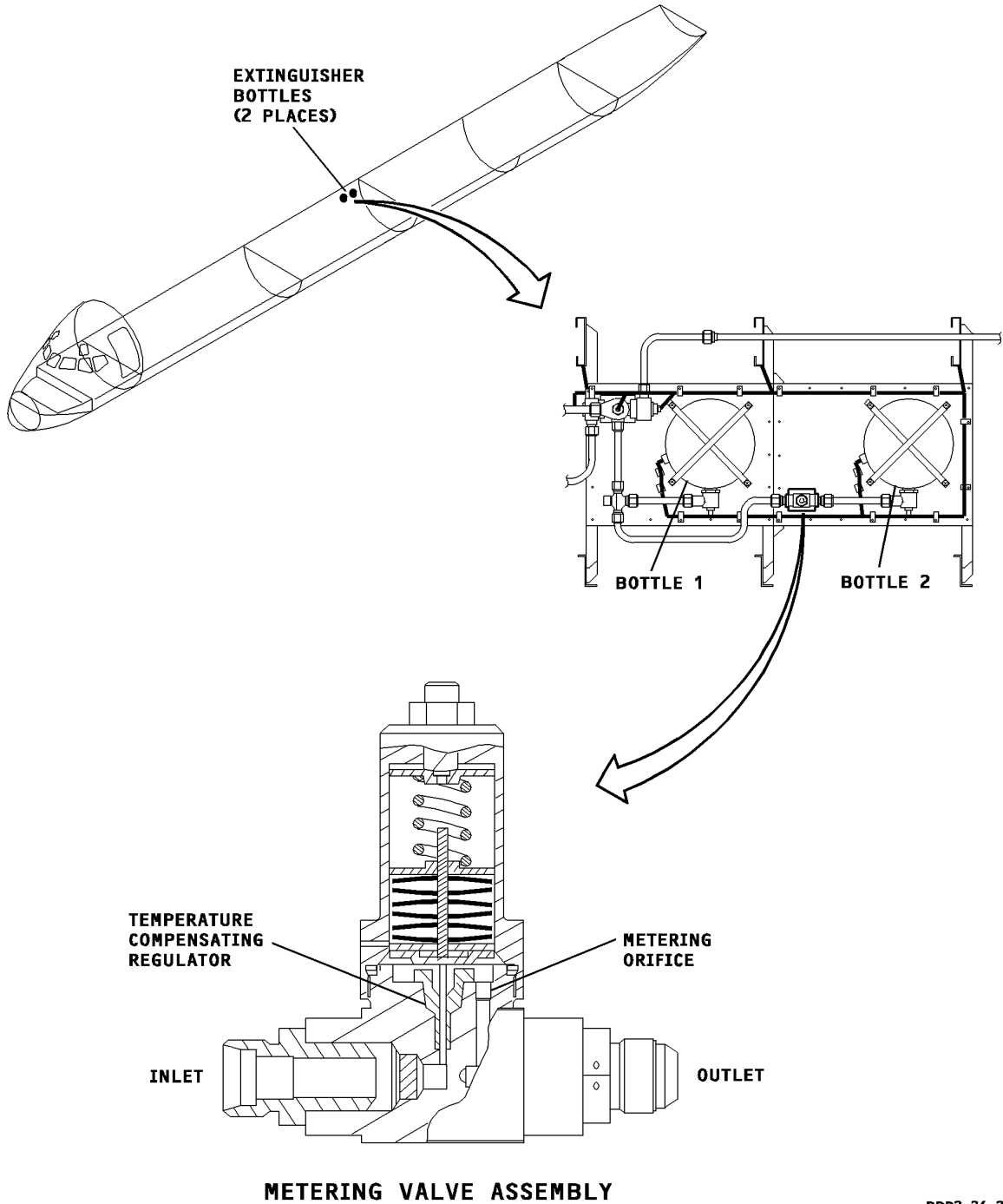
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Metering Valve and Location
Figure 4/26-22-00-990-804

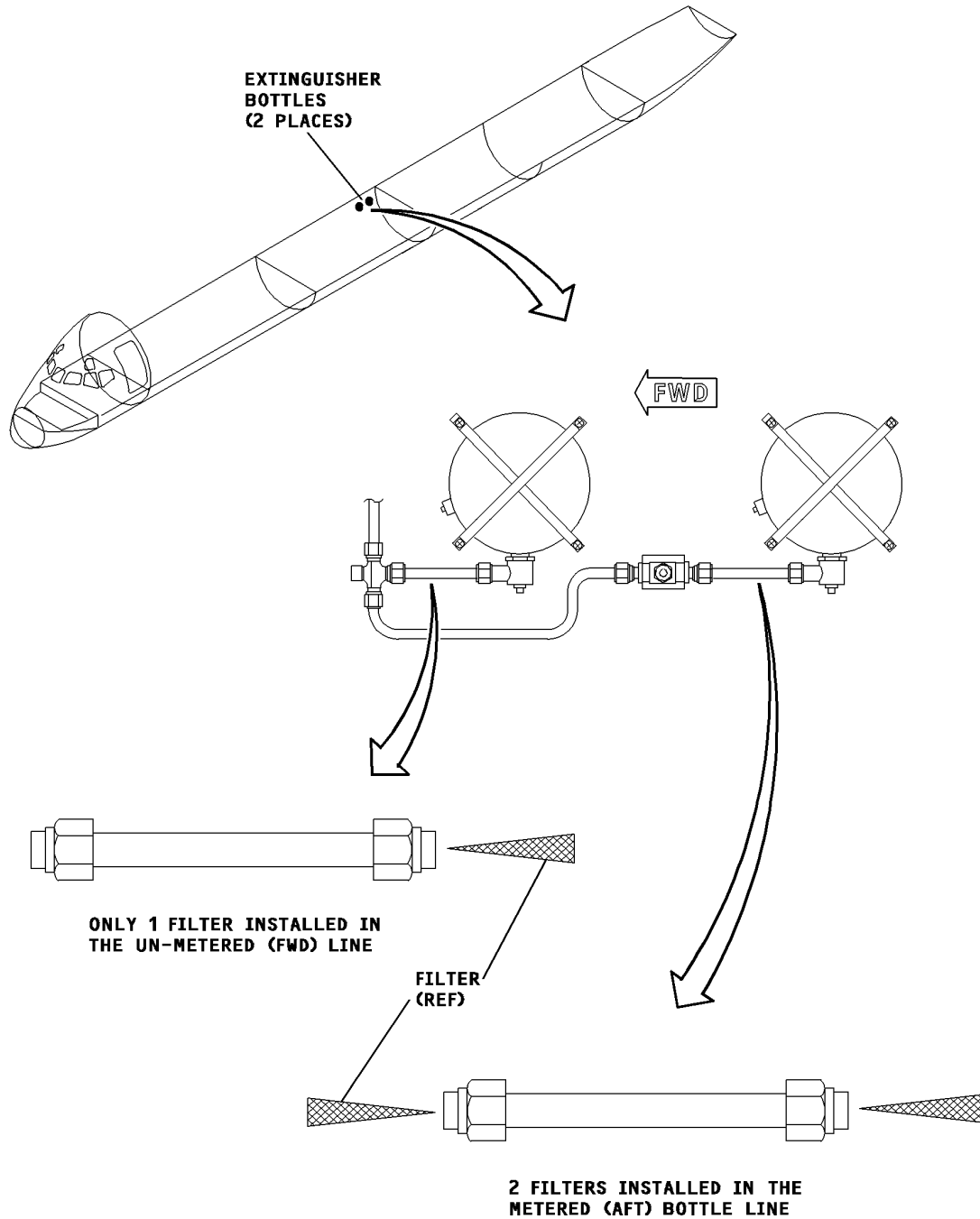
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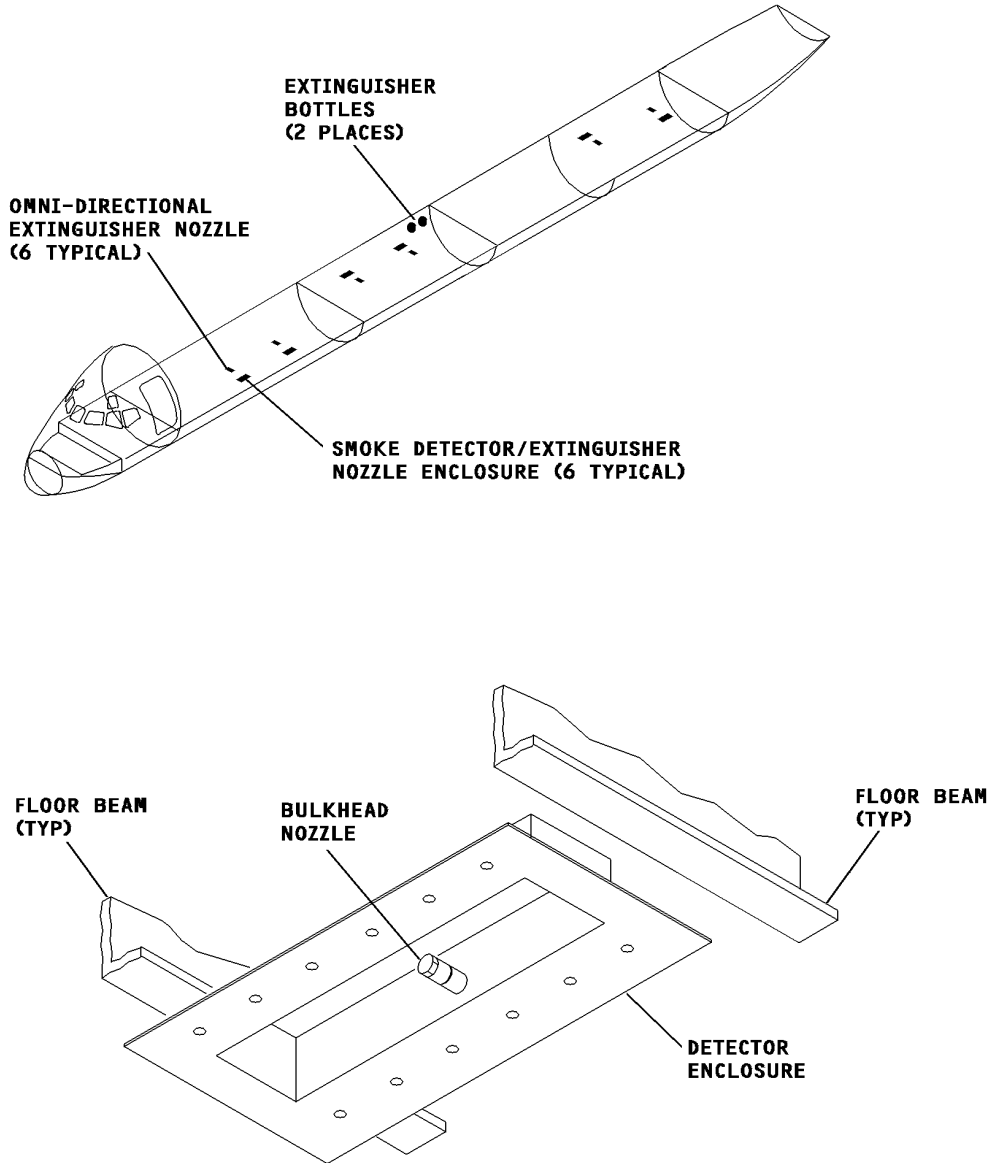
Supply Lines Filters
Figure 5/26-22-00-990-805

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**NOTE: SMOKE DETECTORS AND CEILING LINER
NOT SHOWN FOR CLARITY.**

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Nozzle Locations
Figure 6/26-22-00-990-806 (Sheet 1 of 2)

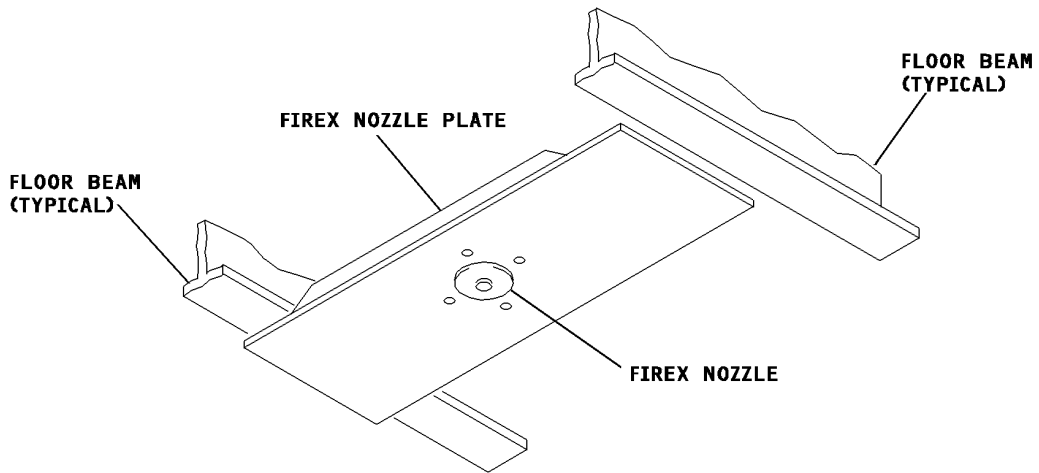
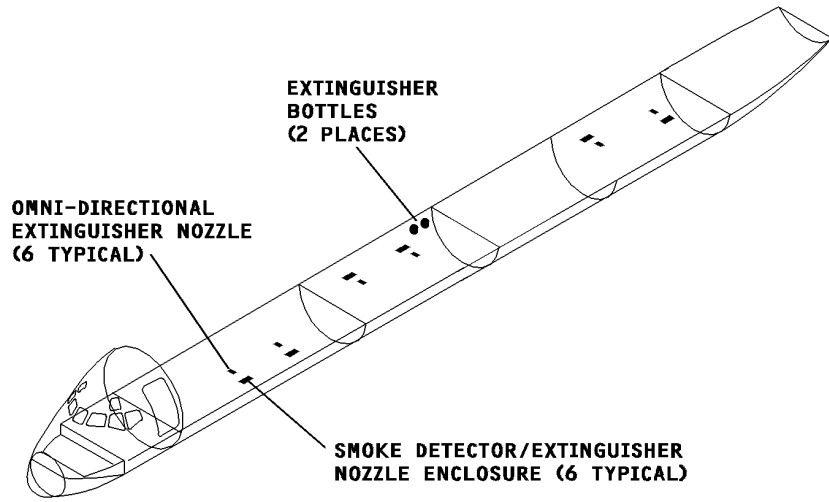
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NOTE: CEILING LINER NOT SHOWN FOR CLARITY.

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Nozzle Locations
Figure 6/26-22-00-990-806 (Sheet 2 of 2)

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WJE 3. **Operation (Normal)**

- WJE** A. Under normal aircraft operating conditions the fire suppression system is dormant. If a warning
WJE condition is initiated, the appropriate annunciations on the Cargo Detection and Suppression Control
WJE Panel (CDSCP) will come on (SMOKE DETECTION, SUBJECT 26-16-00).
- WJE** B. When the control panel arming selector switch is in the "AUTO" position, the suppression system will
WJE arm itself automatically when a warning condition is initiated. Suppression system arming is
WJE indicated by the green "BTL1" and "BTL2" squib LEDs coming on. In addition, the green squib LED
WJE will come on for the compartment that is in alarm, indicating to which compartment the suppressant
WJE will be directed. The system is then fired by lifting the guard away from the "BLT1" discharge switch
WJE and momentarily depressing the "DSCH" lamp/switch.
- WJE** C. Once the suppression system is activated the following will occur:
- WJE** (1) The #1 extinguishing bottle will fire.
 - WJE** (2) The "BTL1" squib LED will go off.
 - WJE** (3) The FWD, MID, or AFT (as appropriate) diverter valve squib will fire.
 - WJE** (4) The FWD, MID, or AFT (as appropriate) compartment squib LED will go off.
 - WJE** (5) The fire suppressant will escape into the appropriate cargo compartment.
 - WJE** (6) The FIRE LED will start to flash and the "BTL1" lamp will come on once the bottle pressure
WJE drops to the low-pressure warning switch threshold level.
 - WJE** (7) After fifteen (15) minutes, the #2 bottle is fired automatically by the CDSCP.
 - WJE** (8) When the #2 bottle is activated the "BTL2" squib LED will extinguish and the suppressant will
WJE flow to the same compartment as that of the #1 bottle, but through the metering valve.
 - WJE** (9) When the #2 bottle pressure drops to the low pressure warning switch threshold level the
WJE "BTL2" "DSCH" lamp will come on. The time required for the lamp to come on will depend of
WJE the ambient temperature at the metering valve. Typically this will be between 30 and 40
WJE minutes after activation.
- WJE** NOTE: The #1 bottle is always activated first, regardless of which compartment is in alarm.
WJE The #2 bottle is the only bottle connected to the metering valve.
- WJE** D. The #2 bottle (BTL) can be discharged at any time before the timer runs out by lifting the BTL2
WJE switch guard and pressing the BTL2 discharge switch. This will immediately fire the BTL2 squib and
WJE allow suppressant to flow into the same compartment as that of the #1 bottle, but through the
WJE metering valve.
- WJE** E. The suppression system may also be activated manually by setting the arming selector switch to
WJE either the FWD, MID or AFT position. When in either position the respective compartment squibs are
WJE armed. Activation of the system is then possible by pressing the "BTL1" discharge switch, and
WJE afterward the "BTL2" discharge switch, if required. Manual activation of the system will result in the
WJE same events as described in paragraph 7.C.
- WJE** F. If an extinguishing bottle should ever loose pressure, either through a bottle leak, or due to the
WJE activation of the over-pressure relief valve, the low pressure warning switch will close. This will
WJE complete the warning circuit and cause the "DSCH" lamp of the bottle with low pressure to illuminate
WJE on the system control panel.

WJE NOTE: The low pressure warning switch circuit is completed whenever the bottle pressure drops
WJE between 270 and 330 PSIG at room temperature (70 degrees F)

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WJE 4. Operational Test

- WJE A. Testing is accomplished in conjunction with the Cargo Compartment Smoke Detection System. The
WJE test circuit for the Fire Suppression System actually performs a functional check of the system by
WJE way of test signals from the Cargo Detection and Suppression Control Panel. When the test is
WJE initiated the Cargo Detection and Suppression Control Panel sends an alarm signal for the forward,
WJE mid, and aft compartment detectors, as well as a test signal. The signals cause the "FIRE", "FAIL",
WJE and "DET" LEDs on the control panel to illuminate. A continuity check of the squib circuits is then
WJE performed. If satisfactory, the squib LEDs will come on. When the test switch is released all arming
WJE circuits are reset and the LEDs go off.
- WJE B. Test of the extinguishing bottle low pressure warning switch can also be performed independently of
WJE the Smoke Detection System by gaining access to the bottle and depressing the test switch on the
WJE low pressure warning switch. When depressed the "DSCH" lamp of the bottle being tested will come
WJE on.

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WJE (Continued)

	Discrepancy	Probable Cause
WJE	6. Squib LED will not test.	A. Open wiring from Control Panel to squib
WJE		B. Defective Control Panel
WJE		C. Defective Control Panel
WJE WJE	7. "FAIL" LED on Control Panel remains on after test.	A. Faulty smoke detector
WJE WJE WJE	8. Control Panel lamps/LED do not come on with Master Lamp Test.	A. Circuit breaker(s) open/defective
WJE		B. Control Panel Defective
WJE		C. Warning Light Dim and Test Unit defective
WJE WJE	<u>NOTE:</u> If squib LED does not come on refer to number 6.	

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FIRE SUPPRESSION SYSTEM - ADJUSTMENT/TEST

WJE

1. General

WJE

A. This section contains procedures to perform following tests:

WJE

(1) A test of squib circuits.

WJE

(2) A test of pressure switch circuit.

WJE

(3) An airflow test through discharge tubes.

WJE

(4) A leak check of discharge tubes.

WJE

2. Equipment and Materials

WJE

NOTE: Equivalent substitutes may be used instead of the following listed items:

WJE

NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your location. Persons in each location must make sure they are permitted to use these materials. All persons must obey all applicable federal, state, local, and provincial regulations for their location.

WJE

WJE

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Table 501

Name and Number	Manufacturer
Multi-meter	
Squib Tester TFC20-0003-3	
Source, Air Pressure capable of supplying 50±5 Pounds per Square Inch Gauge (PSIG)	
Anti-Seize LUB4501-6 843-0109	

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3. Fire Suppression System Adjustment/Test

WJE

A. Squib Circuit Test

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

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WJE

(1) Open this circuit breaker and install safety tag:

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

WJE

WJE

WJE

(2) Open mid cargo compartment door.

WJE

(3) Gain access to fire suppression bottles by removing sidewall liner covering fire suppression rack.

WJE

WJE

(4) Disconnect electrical connector from squibs.

WJE

(a) Disconnect P1-9115 from fire suppression bottle No. 1 squib.

WJE

(b) Disconnect P1-9118 from fire suppression bottle No. 2 squib.

WJE

(c) Disconnect P1-9119 from diverter valve FWD squib.

WJE

(d) Disconnect P1-912A from diverter valve MID squib.

WJE

(e) Disconnect P1-9121 from diverter valve AFT squib.

WJE

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WJE **WARNING:** PUT A PROTECTIVE COVER ON THE SQUIB. IF YOU DO NOT PUT A PROTECTIVE
WJE COVER ON THE SQUIB, THE FIRE EXTINGUISHING BOTTLE CAN RELEASE ITS
WJE CONTENTS SUDDENLY. THIS CAN CAUSE INJURIES TO PERSONNEL.

- WJE** (5) Install a protective cover on each squib.
WJE (6) Remove the safety tag and close this circuit breaker:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

WJE (7) Connect a Digital Multi-meter to No.1 bottle squib electrical connector. Press TEST switch on
WJE Cargo Detection and Suppression Control Panel (CDSCP) and verify test current is 50
WJE Milliamperes (MA) or less.

WJE (8) Disconnect Multi-meter from No.1 bottle squib connector.

WJE (9) Repeat Paragraph 3.A.(7) and Paragraph 3.A.(8) for No.2 bottle, and FWD, MID, and AFT
WJE diverter valve squib connectors.

WJE (10) Connect No. 1, No.2 bottle, FWD, MID, and AFT diverter valve squib connectors to squib
WJE tester.

WJE (11) Press TEST switch on CDSCP. Verify following occurs:

- WJE** (a) All Light Emitting Diode (LED)s on CDSCP come on.
- WJE** (b) SMOKE DET LOOP and CARGO FIRE lamps, and MASTER CAUTION and MASTER
WJE WARNING lamps (on Captain's and First Office's glareshield panels) come on.
- WJE** (c) FIRE LED on CDSCP comes on.
- WJE** (d) WARNING HORN sounds and is silenced when HORN RESET switch is pressed.

WJE (12) Set ARM switch to FWD position. Verify following occurs:

- WJE** (a) FWD ARM LED comes on.
- WJE** (b) BTL1 and BTL2 ARM LEDs comes on.

WJE (13) At squib tester, verify FWD, BTL1, and BTL2 squib circuit breakers are closed.

WJE (14) Press BTL1 DSCH switch on CDSCP. Verify following occurs:

- WJE** (a) FWD ARM LED goes off.
- WJE** (b) BTL1 LED goes off.
- WJE** (c) BTL2 LED stays on.
- WJE** (d) FWD diverter valve squib circuit breaker opens (trips).
- WJE** (e) BTL1 squib circuit breaker opens (trips).

WJE (15) Press BTL2 DSCH switch on CDSCP. Verify the following:

- WJE** (a) BTL2 squib circuit breaker opens (trips).
- WJE** (b) BTL2 LED goes off.

WJE (16) Close (reset) FWD, and BTL1 and BTL2 squib circuit breakers on squib tester.

WJE (17) Set ARM switch to mid position. Verify following occurs:

- WJE** (a) MID ARM LED comes on.
- WJE** (b) BTL1 and BTL2 ARM LEDs comes on.

WJE (18) At squib tester, verify MID, BTL1, and BTL2 squib circuit breakers are closed.

WJE (19) Press BTL1 DSCH switch on CDSCP. Verify following occurs:

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- WJE (a) MID ARM LED goes off.
- WJE (b) BTL1 LED goes off.
- WJE (c) BTL2 LED stays on.
- WJE (d) MID diverter valve squib circuit breaker opens (trips).
- WJE (e) BTL1 squib circuit breaker opens (trips).
- WJE (20) Press BTL2 DSCH switch on CDSCP. Verify the following:
 - WJE (a) BTL2 squib circuit breaker opens (trips).
 - WJE (b) BTL2 LED goes off.
- WJE (21) Close (reset) MID, BTL1 and BTL2 squib circuit breakers on squib tester.
- WJE (22) On CDSCP, set ARM selector switch to AFT position. Verify the following occurs:
 - WJE (a) AFT ARM LED comes on.
 - WJE (b) BTL1 and BTL2 ARM LEDs come on.
 - WJE (c) AFT diverter valve squib circuit breaker stays closed.
 - WJE (d) BTL1 and BTL2 squib circuit breakers stay closed.
- WJE (23) Press the BTL1 DSCH switch on the CDSCP. Verify following occurs:
 - WJE (a) AFT ARM LED goes off.
 - WJE (b) BTL1 LED goes off.
 - WJE (c) BTL2 LED stays on.
 - WJE (d) AFT diverter valve squib circuit breaker opens (trips).
 - WJE (e) BTL1 squib circuit breaker opens (trips).
- WJE (24) Press BTL2 DSCH switch on CDSCP. Verify the following:
 - WJE (a) BTL2 squib circuit breaker opens (trips.)
 - WJE (b) BTL2 LED goes off.
- WJE (25) Close (reset) AFT, BTL1 and BTL2 squib circuit breakers on squib tester.

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- WJE (26) Open this circuit breaker and install safety tag:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

- WJE (27) Disconnect squib connectors from squib tester and reconnect them to their respective squibs.
- WJE (28) Install sidewall liner and seal all seams with approved fire-resistant tape.
- WJE (29) Remove the safety tag and close this circuit breaker:

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

- WJE (30) Set aircraft power as necessary.
- WJE B. Pressure Switch Test (Figure 501 or Figure 502 or Figure 503)
 - WJE (1) Open mid cargo compartment door.

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- WJE (2) Gain access to fire extinguisher bottles by removing sidewall liner covering suppression rack.
- WJE (3) On fire extinguisher bottle 1, push and hold override button on cargo bottle pressure switch.
- WJE (a) Make sure BTL1 DSCH light on Cargo Detection Suppression Control Panel (CDSCP)
- WJE comes on.
- WJE (4) Release override button on fire extinguisher bottle 1.
- WJE (a) Make sure BTL1 DSCH light on CDSCP goes off.
- WJE (5) On fire extinguisher bottle 2, push and hold override button on cargo bottle pressure switch.
- WJE (a) Make sure BTL2 DSCH light on Cargo Detection Suppression Control Panel (CDSCP)
- WJE comes on.
- WJE (6) Release override button on fire extinguisher bottle 2.
- WJE (a) Make sure BTL2 DSCH light on CDSCP goes off.
- WJE (7) Install sidewall liner and seal it with approved fire-resistant tape.
- WJE (8) Close mid cargo door.
- WJE (9) Remove electrical power if it is not necessary.
- WJE C. Discharge Tube Flow Test (Figure 501 or Figure 502 or Figure 503)
- WJE (1) Cargo fire extinguisher discharge line flow test makes sure there is not a blockage in discharge
- WJE lines.
- WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE
- WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO
- WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.
- WJE (2) Open this circuit breaker and install safety tag:
- WJE **LOWER EPC, XFER BUS**
- WJE
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------------|
| S | 42 | B1-9103 | SMOKE DETECT PANELS |
- WJE (3) Open forward, mid, and aft cargo compartment doors.
- WJE (4) Gain access to fire extinguisher bottles by removing sidewall liner covering suppression rack.
- WJE (5) Disconnect fire extinguisher tube from diverter valve end marked "FWD".
- WJE (6) Connect pressure source to forward tube.
- WJE (7) Check all fire extinguisher nozzles for airflow.
- WJE (8) Disconnect pressure source from forward cargo compartment fire extinguisher cargo
- WJE compartment fire extinguisher tube.
- WJE (9) Connect fire extinguishing tube to diverter valve end marked "FWD".
- WJE (a) Apply a layer of anti-seize compound (LU84501-6) to threads where tube attaches to
- WJE diverter valve.
- WJE (b) Connect discharge tube to diverter valve.
- WJE (c) Remove all excess anti-seize compound.
- WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES,
- WJE PAGEBLOCK 26-22-08/201)
- WJE (10) Disconnect fire extinguisher tube from diverter valve end marked "MID".
- WJE (11) Connect pressure source to mid cargo compartment fire extinguisher tube.
- WJE (12) Check all fire extinguisher nozzles for airflow.

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- WJE (13) Disconnect pressure source from mid cargo compartment fire extinguisher tube.
- WJE (14) Connect fire extinguishing tube to diverter valve end marked "MID".
 - WJE (a) Apply a layer of anti-seize compound (LU84501-6) to threads where tube attaches to diverter valve.
 - WJE (b) Connect discharge tube to diverter valve.
 - WJE (c) Remove all excess anti-seize compound.
 - WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, PAGEBLOCK 26-22-08/201)
- WJE (15) Disconnect fire extinguishing tube from diverter valve end marked "AFT".
- WJE (16) Connect pressure source to aft cargo compartment fire extinguisher tube.
- WJE (17) Check all fire extinguisher nozzles for airflow.
- WJE (18) Disconnect pressure source from aft cargo compartment fire extinguisher tube.
- WJE (19) Connect fire extinguishing tube to diverter valve end marked "AFT".
 - WJE (a) Apply a layer of anti-seize compound (LU84501-6) to threads where tube attaches to diverter valve.
 - WJE (b) Connect discharge tube to diverter valve.
 - WJE (c) Remove all excess anti-seize compound.
 - WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, PAGEBLOCK 26-22-08/201)
- WJE (20) Install sidewall liner and seal with approved tape.
- WJE (21) Close forward, mid, and aft cargo compartment doors.
- WJE (22) Remove electrical power if it is not necessary.

D. Discharge Tube Leak Check

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

- (2) Open forward, mid, and aft cargo compartment doors.
- (3) Gain access to fire extinguisher bottles by removing sidewall liner covering suppression rack.
- (4) Remove ceiling liner from around detector enclosures and Firex nozzles in forward, mid, and aft cargo compartments.
- (5) Disconnect fire extinguisher tube from diverter valve end marked "FWD".
- (6) At each enclosure and nozzle plate in forward cargo compartment, disconnect suppression nozzle from fire extinguishing tubes and install AN929-8 plugs.
- (7) Connect pressure source to forward cargo compartment fire extinguishing tubes at diverter valve end.
- (8) Pressurize fire extinguishing tubes to 50-55 psig. Wait a minimum of 3 minutes for pressure to stabilize.

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- WJE (9) Turn off pressure source.
- WJE (a) Make a record of air pressure.
- WJE (b) Wait 10 minutes and measure air pressure.
- WJE (c) Make sure pressure has not decreased by more than 0.5 psig.
- WJE (10) Bleed fire extinguishing tubes to 0 psig.
- WJE (11) Disconnect pressure source from fire extinguishing tube at diverter valve.
- WJE (12) Reinstall all fire extinguishing nozzles.
 - WJE (a) Remove all plugs.
 - WJE (b) Install nozzles on tubing. Use anti-seize compound (LUB4501-6) on threads.
 - WJE (c) Remove all excess anti-seize compound.
 - WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, PAGEBLOCK 26-22-08/201)
- WJE (13) Connect fire extinguishing tube to diverter valve end marked "FWD".
 - WJE (a) Apply a layer of anti-seize compound (LUB4501-6) to threads where tube attaches to diverter valve.
 - WJE (b) Connect discharge tube to diverter valve.
 - WJE (c) Remove all excess anti-seize compound.
 - WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, PAGEBLOCK 26-22-08/201)
- WJE (14) Disconnect fire extinguisher tube from diverter valve end marked "MID."
- WJE (15) At each enclosure and nozzle plate in mid cargo compartment, disconnect suppression nozzle from fire extinguishing tubes and install AN929-8 plugs.
- WJE (16) Connect pressure source to mid cargo compartment fire extinguishing tubes at diverter valve end.
- WJE (17) Pressurize fire extinguishing tubes to 50-55 psig. Wait a minimum of 3 minutes for pressure to stabilize.
- WJE (18) Turn off pressure source.
 - WJE (a) Make a record of air pressure.
 - WJE (b) Wait 10 minutes and measure air pressure.
 - WJE (c) Make sure pressure has not decreased by more than 0.5 psig.
- WJE (19) Bleed fire extinguishing tubes to 0 psig.
- WJE (20) Disconnect pressure source from fire extinguishing tube at diverter valve.
- WJE (21) Reinstall all fire extinguishing nozzles.
 - WJE (a) Remove all plugs.
 - WJE (b) Install nozzles on tubing. Use anti-seize compound (LUB4501-6) on the threads.
 - WJE (c) Remove all excess anti-seize compound.
 - WJE (d) Torque the nut on the tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, PAGEBLOCK 26-22-08/201)
- WJE (22) Connect fire extinguishing tube to diverter valve end marked "MID."
 - WJE (a) Apply a layer of anti-seize compound (LUB4501-6) to threads where tube attaches to diverter valve.

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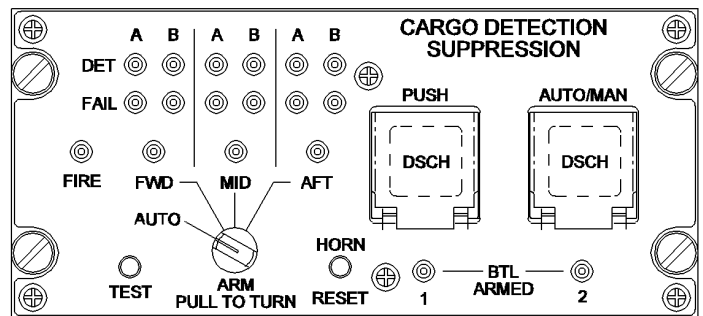
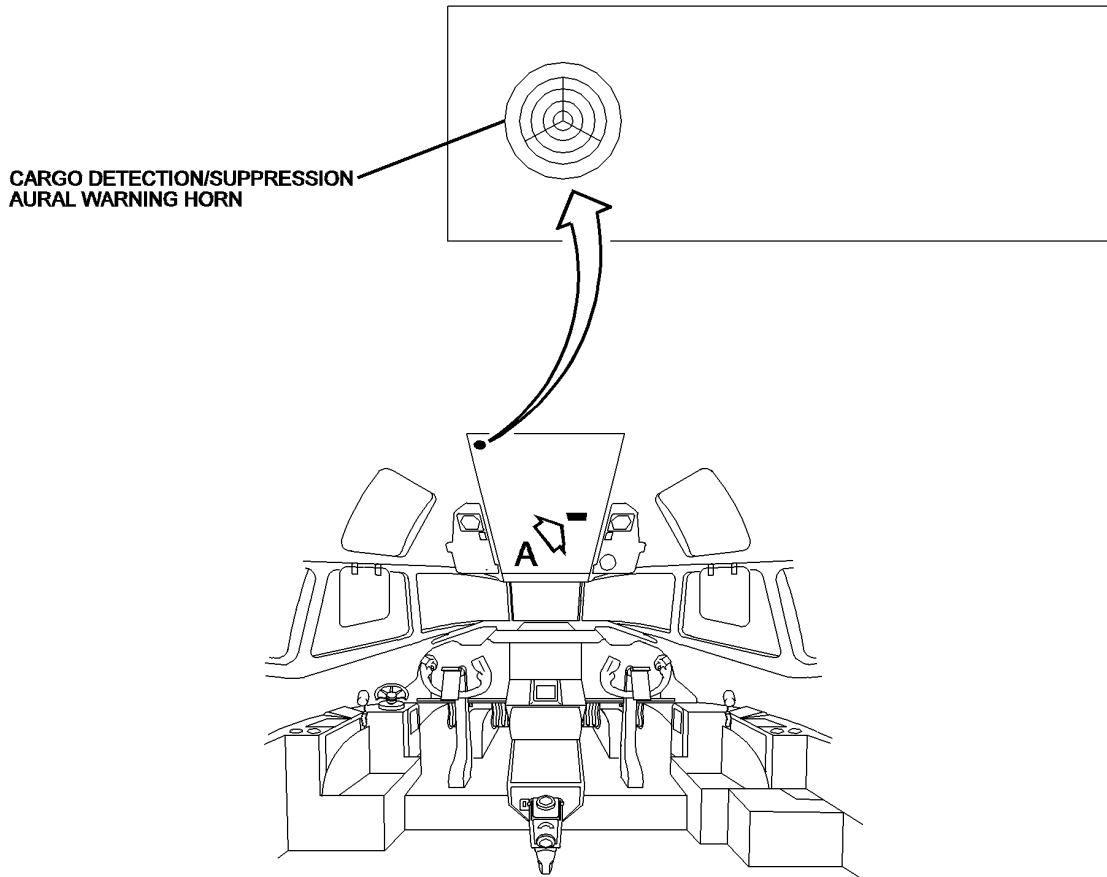
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- WJE (b) Connect discharge tube to diverter valve.
- WJE (c) Remove all excess anti-seize compound.
- WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, WJE PAGEBLOCK 26-22-08/201)
- WJE (23) Disconnect fire extinguisher tube from diverter valve end marked "AFT".
- WJE (24) At each detector enclosure and nozzle plate in aft cargo compartment, disconnect suppression WJE nozzle from fire extinguishing tubes and install AN929-8 plugs.
- WJE (25) Connect pressure source to aft cargo compartment fire extinguishing tubes at diverter valve WJE end.
- WJE (26) Pressurize fire extinguishing tubes to 50-55 psig. Wait a minimum of 3 minutes for pressure to WJE stabilize.
- WJE (27) Turn off pressure source.
- WJE (a) Make a record of air pressure.
- WJE (b) Wait 10 minutes and measure air pressure.
- WJE (c) Make sure pressure has not decreased by more than 0.5 psig. 28.
- WJE (28) Bleed fire extinguishing tubes to 0 psig.
- WJE (29) Disconnect pressure source from fire extinguishing tube at diverter valve.
- WJE (30) Reinstall all fire extinguishing nozzles.
- WJE (a) Remove all plugs.
- WJE (b) Install nozzles on tubing. Use anti-seize compound (LUB4501-6) on threads.
- WJE (c) Remove all excess anti-seize compound.
- WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, WJE PAGEBLOCK 26-22-08/201)
- WJE (31) Connect fire extinguishing tube to diverter valve marked 'AFT PIT.'
- WJE (a) Apply a layer of anti-seize compound (LUB4501-6) to threads where tube attaches to WJE diverter valve.
- WJE (b) Connect discharge tube to diverter valve.
- WJE (c) Remove all excess anti-seize compound.
- WJE (d) Torque nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES, WJE PAGEBLOCK 26-22-08/201)
- WJE (32) Install sidewall liner and seal with approved fire-resistant tape.
- WJE (33) Install ceiling liner around detector enclosures and firex nozzles in forward, mid, and aft cargo WJE compartments. (SMOKE DETECTOR- MAINTENANCE PRACTICES, WJE PAGEBLOCK 26-16-04/201 Config 1) (CEILING LINER, FIREX NOZZLES - MAINTENANCE WJE PRACTICES, PAGEBLOCK 26-22-07/201)
- WJE (34) Close forward, mid, and aft cargo compartment doors.
- WJE (35) Remove the safety tag and close this circuit breaker:
- WJE **LOWER EPC, XFER BUS**
- WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS
- WJE (36) Remove electrical power if it is not necessary.
- WJE

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CARGO DETECTION/SUPPRESSION CONTROL PANEL

VIEW A

BBB2-26-296
S0000219886V1

WJE
WJE

**Suppression System Control Panel Location
Figure 501/26-22-00-990-807**

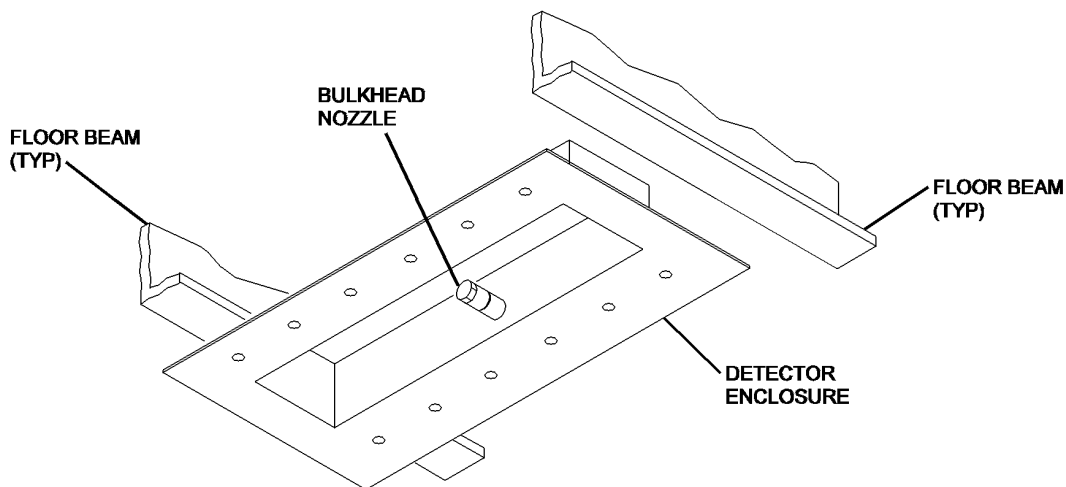
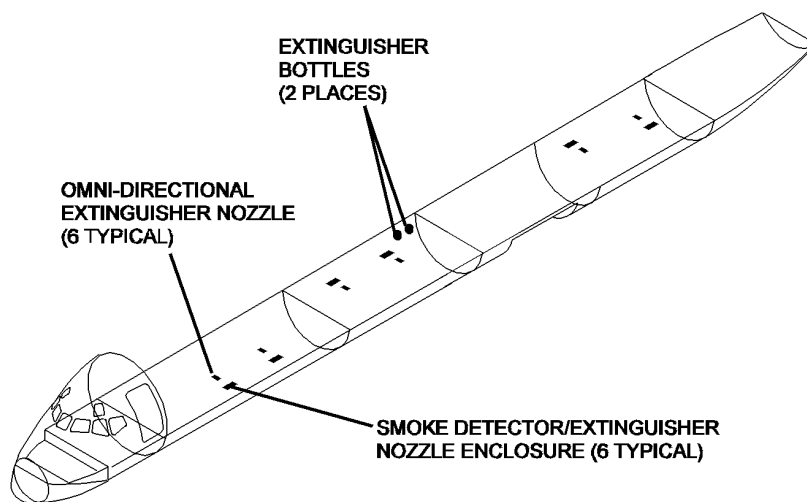
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NOTE: SMOKE DETECTORS AND CEILING LINER NOT SHOWN FOR CLARITY.

BBB2-26-297
S0000219887V1

Suppression Nozzles Location
Figure 502/26-22-00-990-808 (Sheet 1 of 2)

WJE
WJE

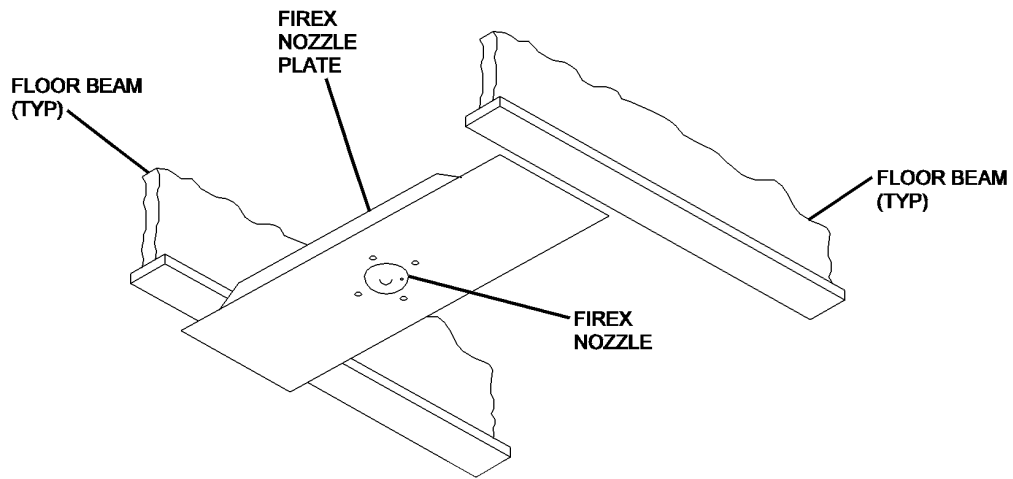
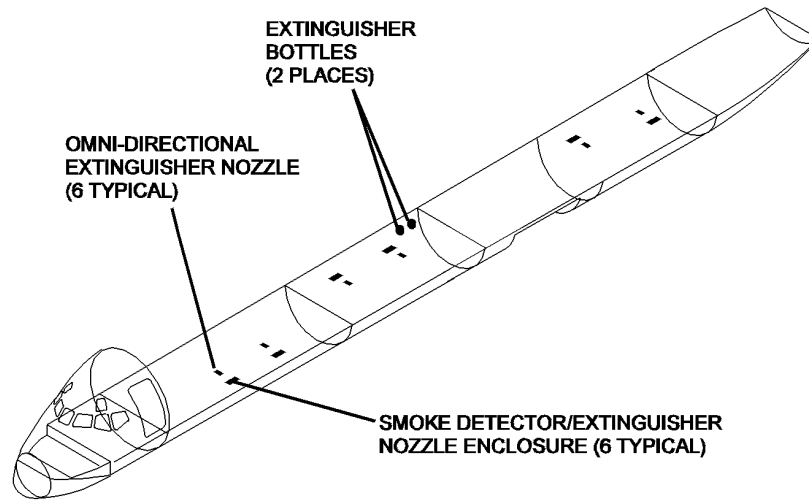
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NOTE: CEILING LINER NOT SHOWN FOR CLARITY.

BBB2-26-298
S0000219888V1

WJE
WJE

Suppression Nozzles Location
Figure 502/26-22-00-990-808 (Sheet 2 of 2)

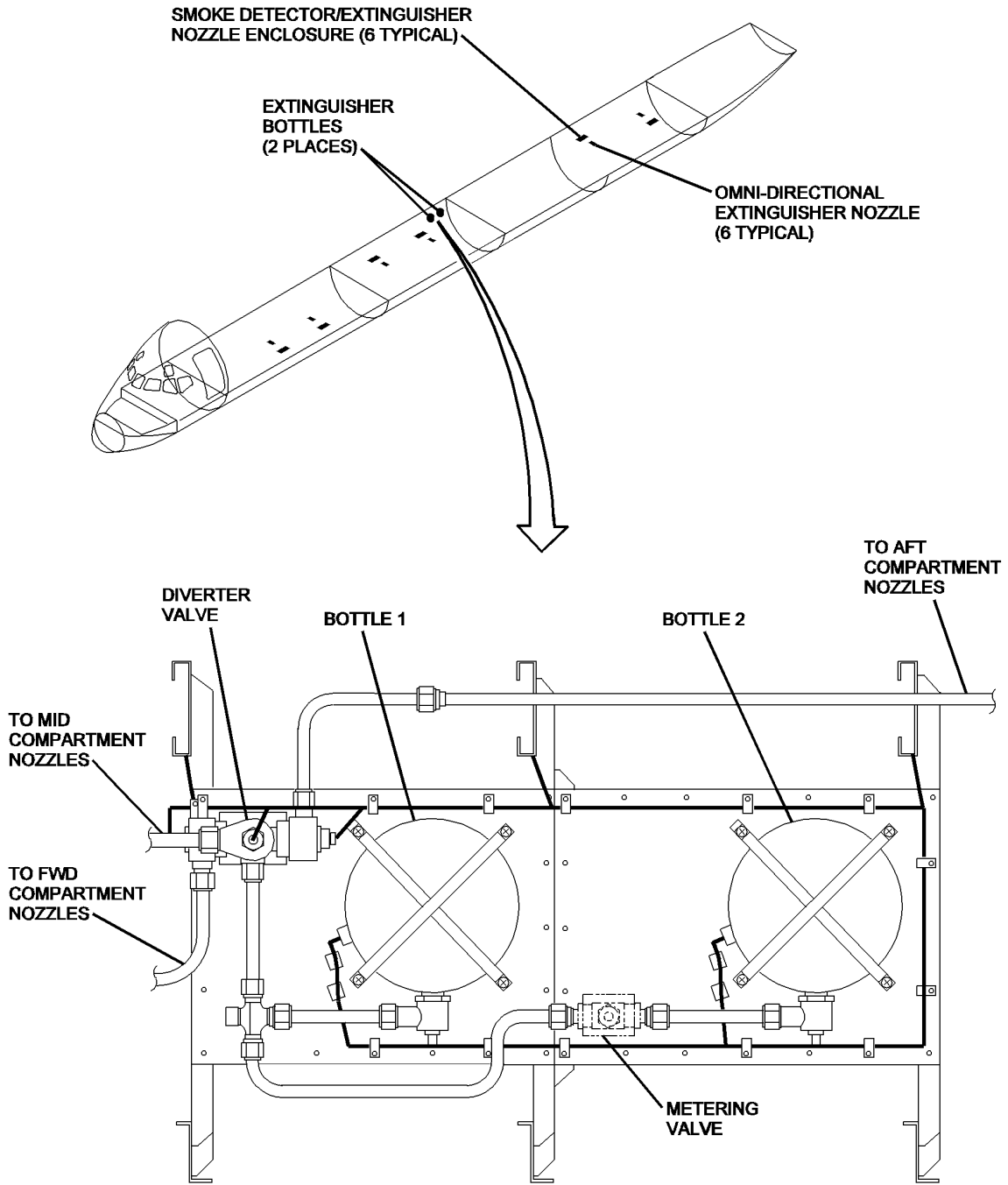
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S0000219889V1

**Suppression System Bottle Rack
Figure 503/26-22-00-990-809**

WJE
WJE

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EXTINGUISHING BOTTLES - REMOVAL/INSTALLATION

WJE

1. General

WJE

- A. This procedure has removal and installation of extinguishing bottles.
- B. Extinguishing bottles are located in mid cargo compartment, in right tunnel, aft of cargo door.
- C. Procedures for removal and installation of both extinguishing bottles are same.

WJE

WJE

WJE

2. Removal/Installation Extinguishing Bottles

WJE

- A. Remove Extinguishing Bottles

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

WJE

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

- (2) Gain access to extinguishing bottles by removing cargo compartment sidewall liner.

WJE

- (3) Remove squibs. (FIRING CARTRIDGES - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-02/401)

WJE

- (4) Disconnect electrical connector from low pressure warning switch and install a safety cap over connector.

WJE

- (5) Disconnect supply line from extinguishing bottle.

WJE

- (6) Remove screws securing bottle hold-down straps to bottle mounting plate and remove straps. Retain straps and hardware for reinstallation.

WJE

WJE

CAUTION: THE EXTINGUISHING BOTTLES WEIGH APPROXIMATELY 28 LBS. WHEN FULL. ENSURE THE BOTTLES ARE ADEQUATELY SUPPORTED WHEN REMOVING THE HOLD-DOWN STRAPS.

WJE

WJE

WJE

- (7) Carefully remove bottle from mounting plate. Remove shipping cap from squib on new bottle and install it on squib on old bottle. Perform same functions for low pressure warning switch.

WJE

WJE

- B. Install Extinguishing Bottles

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

WJE

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

- (2) Set bottle on mounting plate. Place hold-down straps over bottle and loosely secure them to mounting plate. Bottle should be free to rotate.

WJE

WJE

- (3) Remove plug from discharge outlet and reinstall it on old bottle.

WJE

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WJE (4) Inspect supply line filter for cleanliness and reinstall it into supply line. Connect supply line to
WJE extinguishing bottle and secure line to bottle. (FILTER, BOTTLE LINE, FIRE EXTINGUISHER -
WJE REMOVAL/INSTALLATION, PAGEBLOCK 26-22-05/401)

WJE (5) Tighten hold-down strap screws.

WJE **WARNING:** BEFORE CONNECTING THE ELECTRICAL CONNECTORS TO THE SQUIBS,
WJE CHECK THE CONNECTORS AND RECEPTACLES FOR FOREIGN OBJECTS,
WJE WHICH COULD CAUSE AN ELECTRICAL SHORT. VERIFY WITH A MULTIMETER
WJE THAT NO VOLTAGE IS PRESENT AT THE CONNECTORS.

WJE (6) Install firing squib. (FIRING CARTRIDGES - REMOVAL/INSTALLATION,
WJE PAGEBLOCK 26-22-02/401)

WJE (7) Remove cap and connect electrical connector for low pressure warning switch.

WJE (8) Remove the safety tags and close these circuit breakers:

WJE **LOWER EPC, XFER BUS**
WJE

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	S	41	B1-9101	SMOKE A LOOP
WJE	S	42	B1-9103	SMOKE DETECT PANELS
WJE	T	41	B1-9102	SMOKE B LOOP

WJE C. Press and hold TEST button on low pressure warning switch. Verify appropriate "DSCH" lamp (BLT1
WJE and/or BTL2) illuminates, then release TEST button.

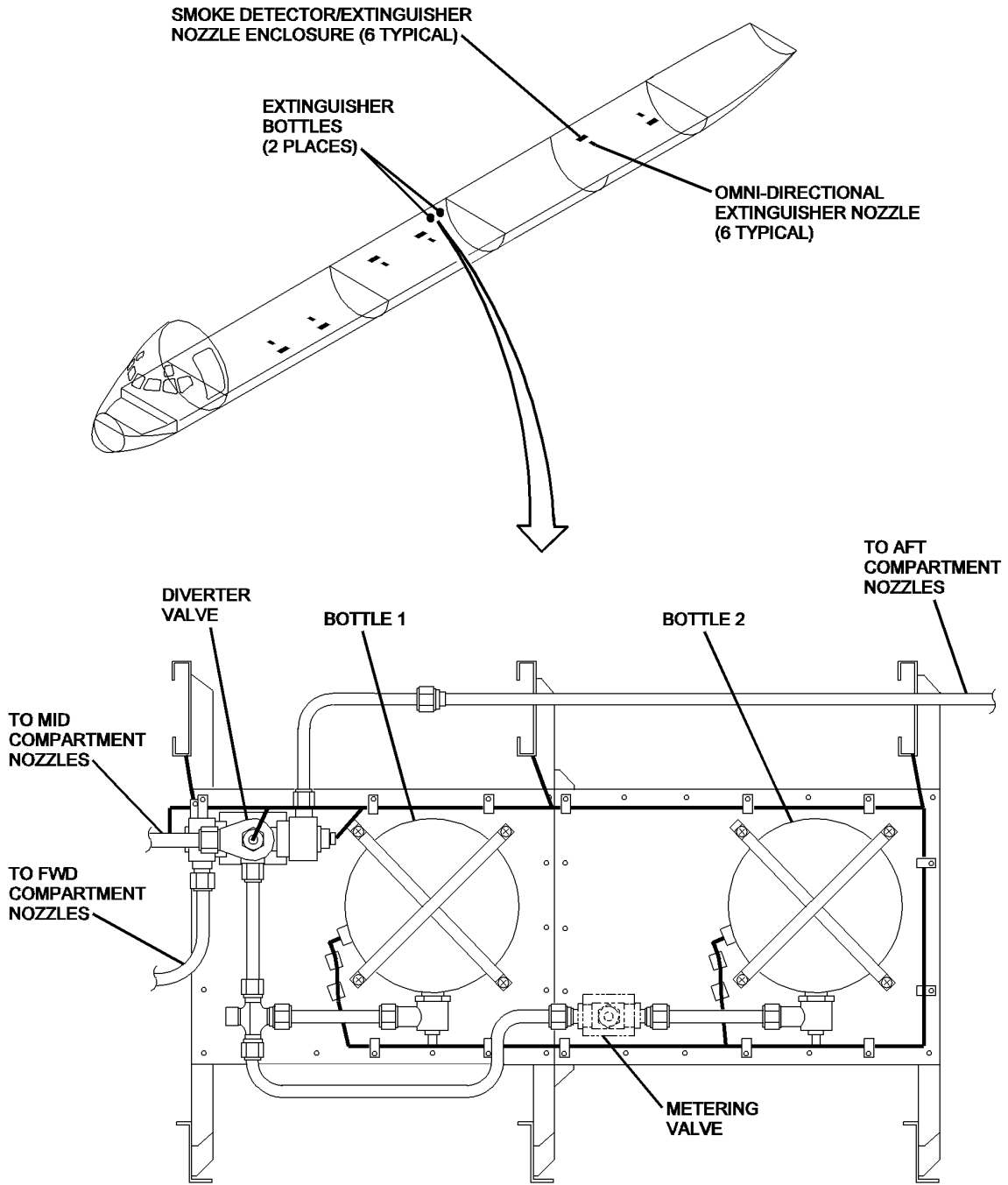
WJE D. Press and hold TEST switch on system control panel. Verify following lamps illuminate then release
WJE TEST switch:

WJE (1) BTL1 ARMED LED

WJE (2) BTL2 ARMED LED

WJE E. Reinstall cargo compartment sidewall liner. Tape liner seams with approved cargo compartment
WJE sealing tape.
WJE

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BBB2-26-299
S0000219889V1

Extinguishing Bottle Removal/Installation
Figure 401/26-22-01-990-801

WJE
WJE

EFFECTIVITY
WJE 412, 414

26-22-01

TP-80MM-WJE

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FIRING CARTRIDGES - REMOVAL/INSTALLATION

WJE

1. General

WJE

- A. This procedure has removal and installation of firing cartridges.
- B. Fire suppression system utilizes five firing cartridges (squibs). One is installed on each extinguishing bottle and three are installed on diverter valve.
- C. All squibs are located in mid cargo compartment, in right tunnel, aft of compartment door.
- D. Procedures for removing and installing all squibs are same.

WJE

WJE

WJE

WJE

WJE

2. Removal/Installation Firing Cartridges

WJE

- A. Remove Firing Cartridges

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

WJE

WJE

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

- (2) Gain access to squibs by removing cargo compartment sidewall liner.

WJE

- (3) Disconnect electrical connector from squib.

WJE

WARNING: THE RUPTURE DISC IN EACH DISCHARGE BOSS IS A THIN CALIBRATED METAL BURST DIAPHRAGM. RUPTURE OF A DISC WILL DISCHARGE THE HIGH PRESSURE EXTINGUISHING AGENT. ENSURE ADEQUATE PRECAUTION ARE TAKEN TO PREVENT INADVERTENT DISCHARGE AND INJURY TO PERSONNEL OR EQUIPMENT.

WJE

WJE

WJE

WJE

WJE

CAUTION: ANY SCRATCHES OR DENTS ON THE SURFACE OF A RUPTURE DISC WILL CHANGE IT'S CALIBRATION. SCRATCHED OR DENTED RUPTURE DISCS MUST BE REPLACED AND IS CAUSE FOR REJECTION OF THE BOTTLE OR DIVERTER VALVE.

WJE

WJE

WJE

WJE

CAUTION: DO NOT USE COMPRESSED AIR TO BLOW CONTAMINANTS FROM THE DISCHARGE BOSS. COMPRESSED AIR CAN DAMAGE THE RUPTURE DISC.

WJE

WJE

- (4) Remove squib by turning it CCW (Counterclockwise) until it is free of mount. Install safety cap over receptacle.

WJE

WJE

- B. Install Firing Cartridges

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

WJE

WJE

LOWER EPC, XFER BUS

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS

WJE

WJE

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WJE (Continued)

WJE **LOWER EPC, XFER BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	T	41	B1-9102	SMOKE B LOOP

- WJE (2) Install new squib by turning it CW (Clockwise) until it is snug against mount. Tighten squib to a torque of 90-100 in./lbs. Secure squib to its mount with 0.020 inch stainless-steel safety wire.

WJE **WARNING:** BEFORE CONNECTING THE ELECTRICAL CONNECTORS TO THE SQUIBS,
WJE CHECK THE CONNECTORS AND RECEPTACLES FOR FOREIGN OBJECTS,
WJE WHICH COULD CAUSE AN ELECTRICAL SHORT. VERIFY WITH A MULTIMETER
WJE THAT NO VOLTAGE IS PRESENT AT THE CONNECTORS.

- WJE (3) Remove safety cap and connect electrical connector to squib.
- WJE (4) Reinstall cargo compartment sidewall liner. Tape liner seams with approved fire proof cargo compartment sealing tape.
- WJE (5) Remove the safety tags and close these circuit breakers:

WJE **LOWER EPC, XFER BUS**

WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	S	41	B1-9101	SMOKE A LOOP
WJE	S	42	B1-9103	SMOKE DETECT PANELS
WJE	T	41	B1-9102	SMOKE B LOOP

WJE C. Test Squib

- WJE (1) Press and hold TEST switch on control panel. Verify all squib LEDs illuminate then release TEST switch.

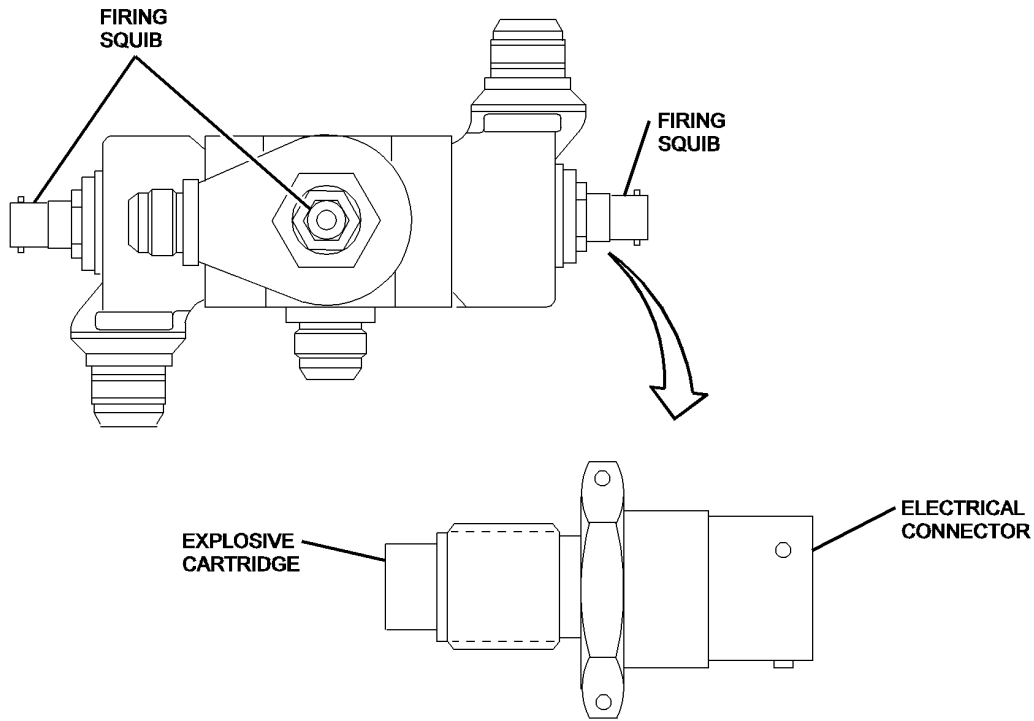
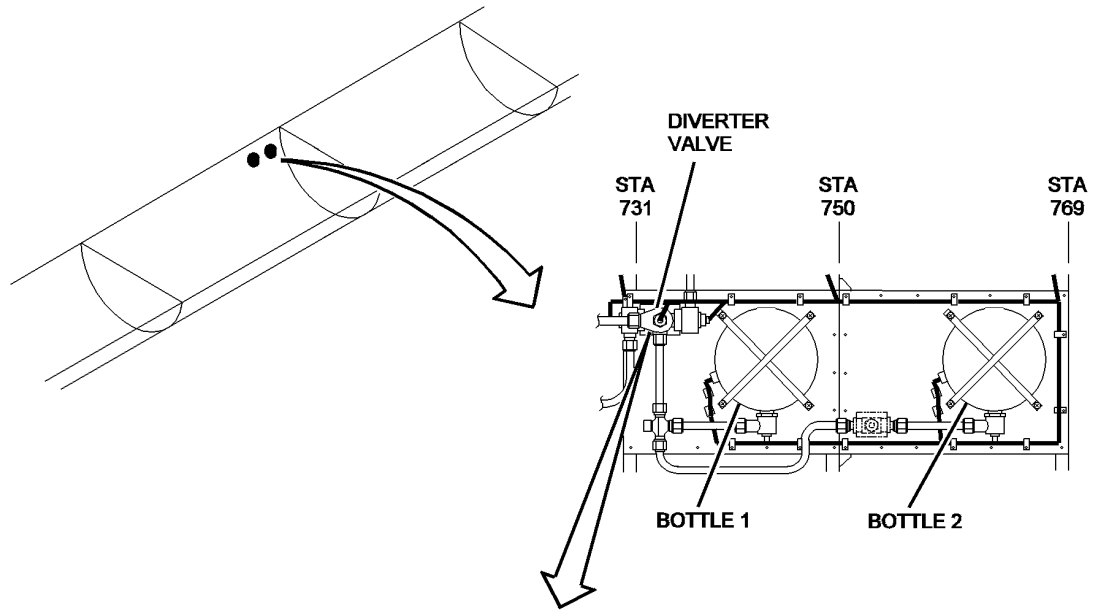
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FIRING SQUIB (TYPICAL)

BBB2-26-308
S0000219915V1

**Firing Cartridges (squibs) and Location
Figure 401/26-22-02-990-801 (Sheet 1 of 2)**

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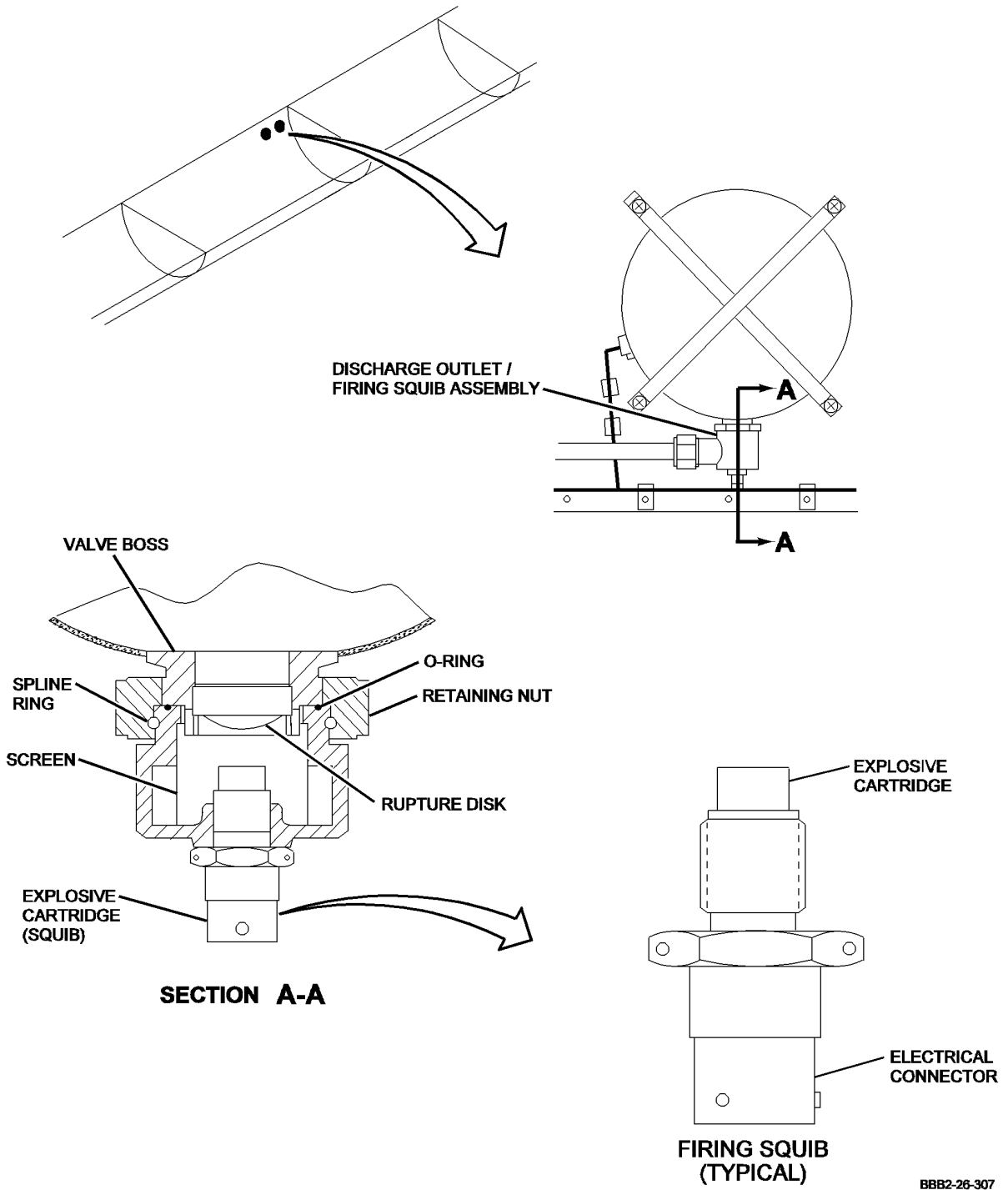
EFFECTIVITY
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BBB2-26-307
S0000219916V1

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WJE

**Firing Cartridges (squibs) and Location
Figure 401/26-22-02-990-801 (Sheet 2 of 2)**

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WJE 3. **Dispose of Unused (Unfired) Squib(s)**

WJE **WARNING:** MAKE SURE ALL SOURCES OF ELECTRICITY ARE REMOVED FROM THE DISCHARGE
WJE CARTRIDGE WHEN IT IS NOT INSTALLED IN THE FIRE EXTINGUISHER CONTAINER.
WJE KEEP THE CARTRIDGES IN AREAS MADE FOR CLASS "C" EXPLOSIVES. THE
WJE CARTRIDGES HAVE ELECTRIC PRIMERS. IF THEY ARE ACCIDENTALLY FIRED, THEY
WJE CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- WJE A. Defective or expired squib must be disposed of by one of following methods:
- WJE (1) Fire squib in fixture specifically designed for that purpose.
 - WJE (2) Dispose of squib in accordance with local regulations governing disposition of explosives.
 - WJE (3) Other approved method of rendering squib(s) harmless.
- WJE

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METERING VALVE - REMOVAL/INSTALLATION

WJE

1. General

WJE

A. This procedure has removal and installation of metering valve.

WJE

B. Metering valve is located in mid cargo compartment in right tunnel aft of compartment door.

WJE

2. Removal/Installation Valve

WJE

A. Remove Valve

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

(2) Gain access to metering valve by removing cargo compartment sidewall liner.

WJE

(3) Remove insulation cover from metering valve. Retain it for reinstallation.

WJE

(4) Disconnect supply lines from inlet and outlet ports of metering valve.

WJE

(5) Remove screws securing valve to mounting plate. Retain hardware for reinstallation.

WJE

(6) Remove filter from valve inlet supply line. (FILTER, BOTTLE LINE, FIRE EXTINGUISHER - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-05/401)

WJE

WJE

B. Install Valve

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

(2) Position new valve on mounting plate ensuring proper orientation and loosely install mounting screws.

WJE

WJE

NOTE: The valve inlet uses a flareless fitting where as the outlet uses a flared fitting.

WJE

(3) Install filter from valve inlet supply line. (FILTER, BOTTLE LINE, FIRE EXTINGUISHER - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-05/401)

WJE

WJE

(4) Connect supply lines to inlet and outlet ports of metering valve. Tighten valve mounting screws. Install insulation cover over valve.

WJE

WJE

(5) Reinstall cargo compartment sidewall liner. Tape liner seams using approved cargo compartment sealing tape.

WJE

WJE

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WJE 412, 414

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

LOWER EPC, XFER BUS

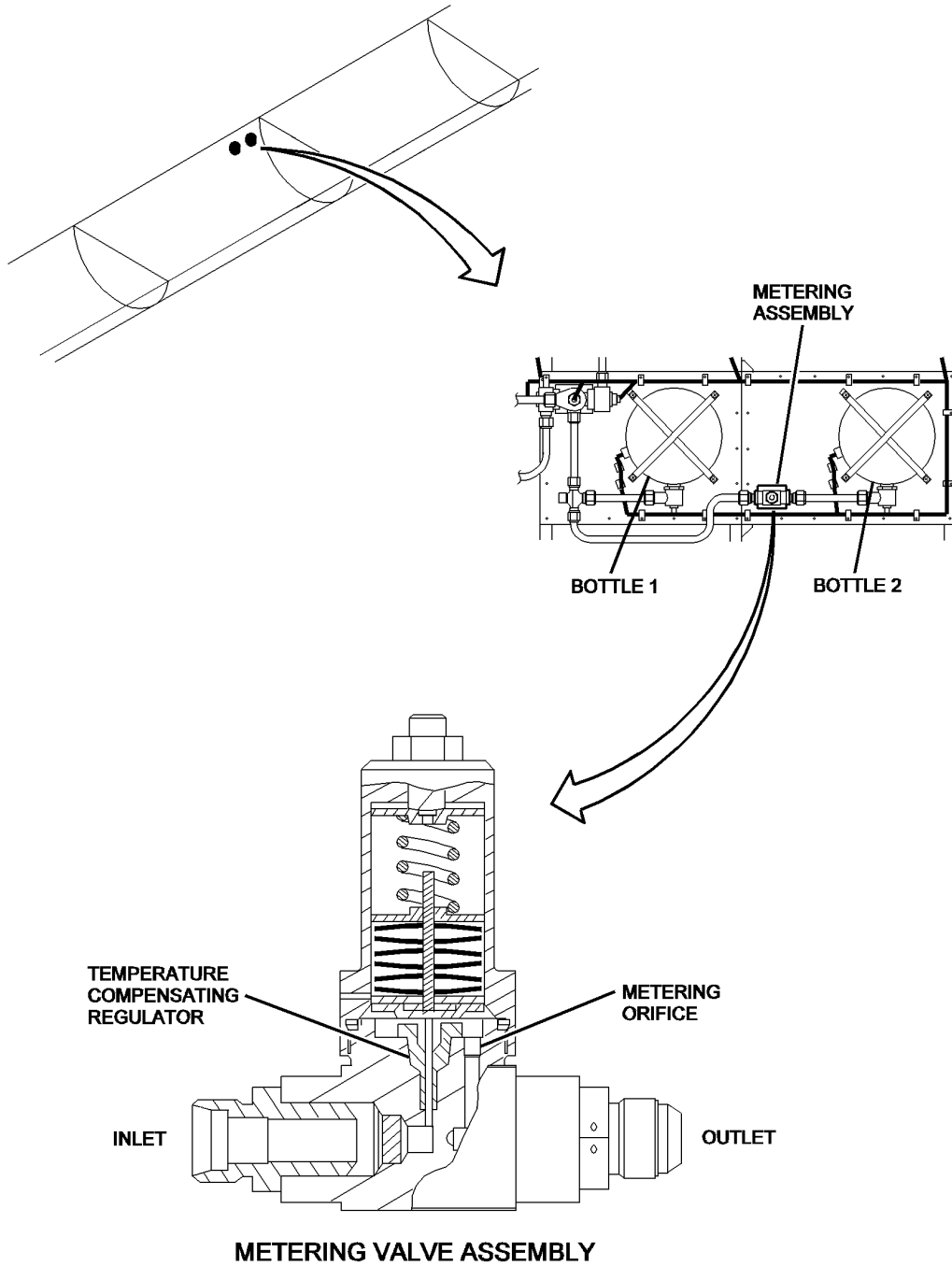
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

EFFECTIVITY
WJE 412, 414

TP-80MM-WJE

26-22-03

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BBB2-26-304
S0000219921V1

Metering Valve and Location
Figure 401/26-22-03-990-801

WJE
WJE

EFFECTIVITY
WJE 412, 414

TP-80MM-WJE

26-22-03

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DIVERTER VALVE - REMOVAL/INSTALLATION

WJE

1. General

WJE

A. This maintenance procedure has removal and installation of diverter valve.

WJE

B. Diverter valve is located in mid cargo compartment on right side of aircraft, aft of compartment door.

WJE

C. Diverter valve contains three firing cartridges (squibs).

WJE

2. Removal/Installation - Diverter Valve

WJE

A. Remove Diverter Valve

WJE

WARNING: THIS COMPONENT CONTAINS AN EXPLOSIVE CHARGE (SQUIB) WHICH IS ELECTRICALLY ACTIVATED. WHEN FIRED THE CHARGE EMITS A POTENTIALLY HAZARDOUS SHOCKWAVE. ENSURE ALL SOURCES OF ELECTRICAL POWER ARE REMOVED FROM THE SQUIB PRIOR TO PERFORMING ANY MAINTENANCE ACTION. SHIPPING CAPS MUST REMAIN ON THE SQUIBS UNTIL INSTALLED ON THE AIRCRAFT. STORE UNUSED SQUIBS IN AN AREA DESIGNATED FOR EXPLOSIVE STORAGE.

WJE

WJE

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WJE

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

(2) Gain access to diverter valve by removing cargo compartment sidewall liner.

WJE

(3) Disconnect electrical connectors from diverter valve squibs. Install protective caps over each squib receptacle.

WJE

WJE

NOTE: Each squib has a different part number. This is to prevent crossing the connections.

WJE

(4) Disconnect supply lines from valve inlet and outlet ports.

WJE

(5) Remove squib on diverter valve. (FIRING CARTRIDGES - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-02/401)

WJE

WJE

(6) Remove screws securing valve to mounting plate and remove valve. Retain hardware for reinstallation.

WJE

WJE

B. Install Diverter Valve

WJE

WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WJE

WJE

WJE

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

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	41	B1-9101	SMOKE A LOOP
S	42	B1-9103	SMOKE DETECT PANELS
T	41	B1-9102	SMOKE B LOOP

WJE

WJE

WJE

WJE

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- WJE (2) Install squib on diverter valve. (FIRING CARTRIDGES - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-02/401)
- WJE (3) Position valve on mounting plate. Loosely secure valve to plate.
- WJE (4) Connect supply lines to inlet and outlet ports of diverter valve.
- WJE (5) Tighten valve mounting screws.

WJE **WARNING:** BEFORE CONNECTING THE ELECTRICAL CONNECTORS TO THE SQUIBS, CHECK THE CONNECTORS AND RECEPTACLES FOR FOREIGN OBJECTS, WHICH COULD CAUSE AN ELECTRICAL SHORT. VERIFY WITH A MULTIMETER THAT NO VOLTAGE IS PRESENT AT THE CONNECTORS.

WJE **CAUTION:** USE EXTREME CARE WHEN INSTALLING SQUIB ELECTRICAL CONNECTORS OR SHUNT CAPS TO AVOID DAMAGE TO SQUIB PINS.

- WJE (6) Remove cap and connect electrical on connectors to valve squibs.
- WJE (7) Remove the safety tags and close these circuit breakers:

LOWER EPC, XFER BUS

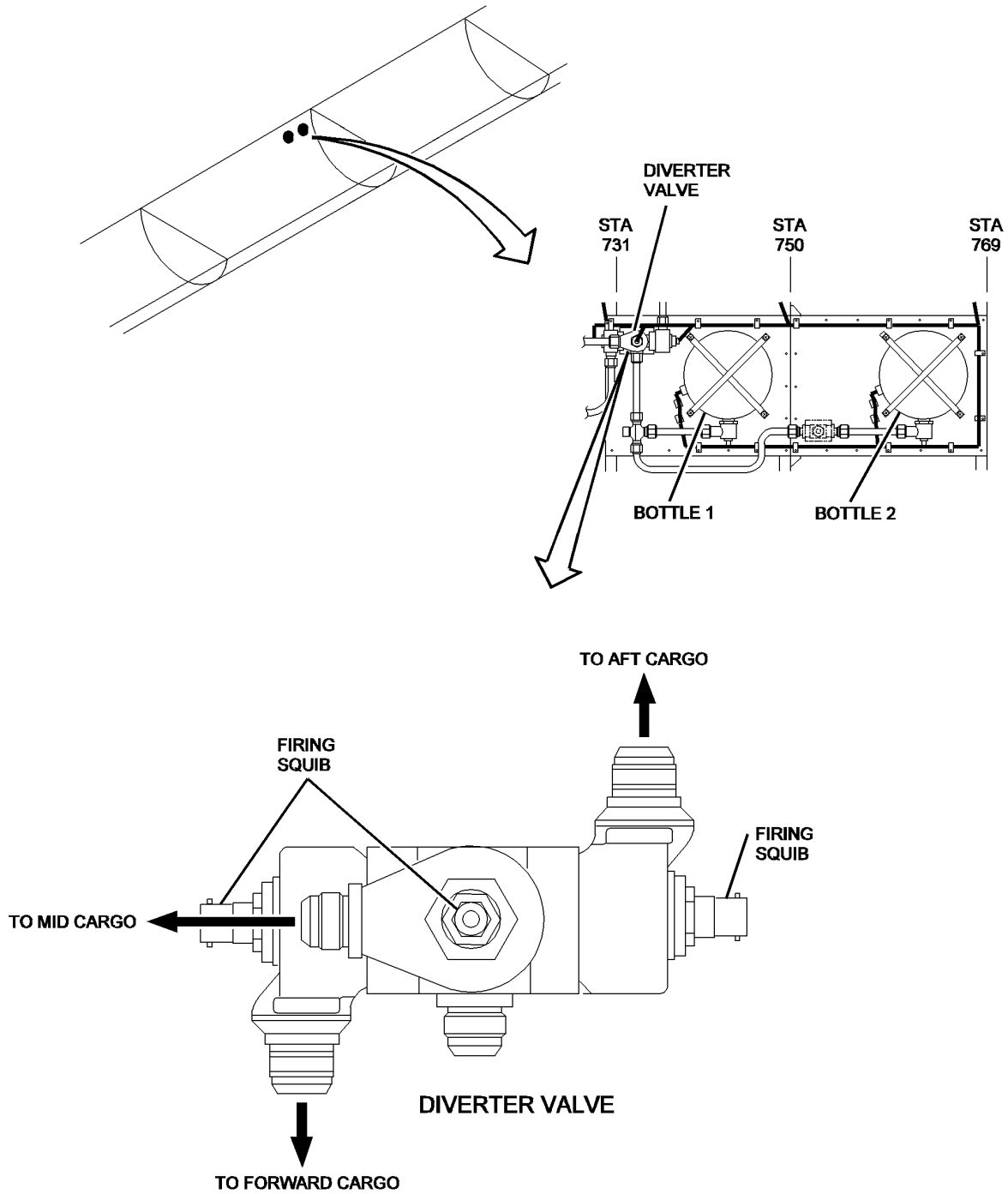
WJE	<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
WJE	S	41	B1-9101	SMOKE A LOOP
WJE	S	42	B1-9103	SMOKE DETECT PANELS
WJE	T	41	B1-9102	SMOKE B LOOP

- WJE C. Press and hold TEST switch on control panel. Verify all squib LEDs illuminate then release TEST switch.
- WJE D. Reinstall cargo compartment sidewall liner. Tape liner seams using approved cargo compartment sealing tape.

WJE **WARNING:** MAKE SURE ALL SOURCES OF ELECTRICITY ARE REMOVED FROM THE DISCHARGE CARTRIDGE WHEN IT IS NOT INSTALLED IN THE FIRE EXTINGUISHER CONTAINER. KEEP THE CARTRIDGES IN AREAS MADE FOR CLASS "C" EXPLOSIVES. THE CARTRIDGES HAVE ELECTRIC PRIMERS. IF THEY ARE ACCIDENTALLY FIRED, THEY CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- WJE E. Disposed of squibs. (FIRING CARTRIDGES - REMOVAL/INSTALLATION, PAGEBLOCK 26-22-02/401)

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BBB2-26-309
S0000220223V1

Divertor Valve - Removal/Installation
Figure 401/26-22-04-990-801

WJE
WJE

EFFECTIVITY
WJE 412, 414

TP-80MM-WJE

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WJE FILTER, BOTTLE LINE, FIRE EXTINGUISHER - REMOVAL/INSTALLATION

WJE **1. General**

- WJE A. This procedure has removal and installation of cargo fire extinguisher bottle line filter.
- WJE B. Cargo fire extinguisher bottle line filters are installed on suppression bottle rack, located in right
- WJE tunnel of mid cargo compartment aft of compartment door.

WJE **2. Equipment and Materials**

WJE NOTE: Equivalent substitutes may be used instead of the following listed items:

WJE NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your

WJE location. Persons in each location must make sure they are permitted to use these materials. All

WJE persons must obey all applicable federal, state, local, and provincial regulations for their location.

Table 401

Name and Number	Manufacturer
Anti-seize compound LUB4501-6	

WJE **3. Removal/Installation Filter**

- WJE A. Remove Filter

WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE

WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO

WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- WJE (1) Open this circuit breaker and install safety tag:

WJE **LOWER EPC, XFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

- WJE (2) Open mid cargo compartment door.
- WJE (3) Remove right sidewall liner aft of compartment door to gain access to fire extinguisher bottles.
- WJE (4) Disconnect supply line from extinguisher bottle and metering valve or extinguisher bottle and
- WJE tee fitting as applicable. (Figure 401)

WJE NOTE: There are two filters installed in the line between Bottle No. 2 and the metering valve.

WJE Only one filter is installed between Bottle No. 1 and the tee fitting.

WJE NOTE: Filters only need to be replaced after a bottle has been discharge.

- WJE B. Install Fiter

WJE **WARNING:** TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE

WJE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO

WJE PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- WJE (1) Make sure that this circuit breaker is open and has safety tag:

WJE **LOWER EPC, XFER BUS**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

- WJE (2) Visually inspect filters for cleanliness and condition. Cleaned filters as required with Isopropyl
- WJE alcohol and soft bristle brush.

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WJE 412, 414

26-22-05

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WJE (3) Make sure all filters are properly installed in supply lines. (Figure 401)
 WJE NOTE: There are two filters installed in the line between Bottle No. 2 and the metering valve.
 WJE Only one filter is installed between Bottle No. 1 and the tee fitting.

WJE (4) Connect lines to extinguisher bottle and metering valve or extinguisher bottle and tee fitting if
 WJE applicable.

WJE **WARNING:** ANTISEIZE COMPOUND IS AN AGENT THAT IS AN IRRITANT. MAKE SURE
 WJE ALL PERSONS OBEY THE PRECAUTIONS WHEN ANTISEIZE COMPOUND IS
 WJE USED.

WJE • CLOSE THE CONTAINER WHEN NOT USED.

WJE • DO NOT EAT ANTISEIZE COMPOUND.

WJE **WARNING:** REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIERS MSDS
 WJE FOR:

WJE • MORE PRECAUTIONARY DATA.

WJE • APPROVED SAFETY EQUIPMENT.

WJE • EMERGENCY MEDICAL AID.

WJE • TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR
 WJE THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

WJE (a) Apply a layer of anti-seize compound (LUB4501-6) to threads where tube attaches to
 WJE diverter.

WJE (b) Connect lines to extinguisher bottle and metering valve or extinguisher bottle and tee
 WJE fitting as applicable.

WJE (c) Remove all unwanted anti-seize compound.

WJE (d) Tighten nut on tube assembly. (SUPPRESSION TUBING - MAINTENANCE PRACTICES,
 WJE PAGEBLOCK 26-22-08/201)

WJE (5) Remove the safety tag and close this circuit breaker:

WJE **LOWER EPC, XFER BUS**

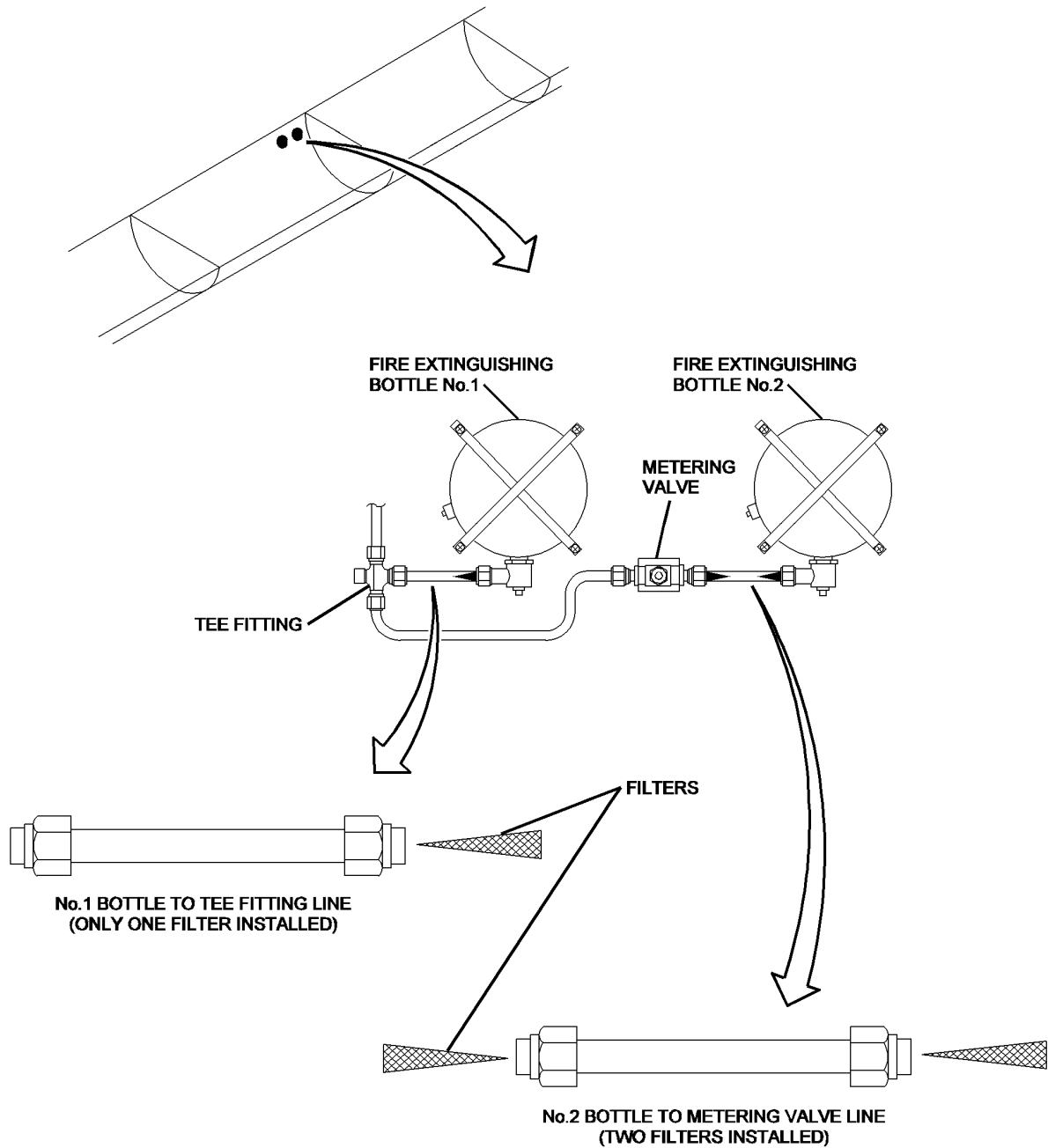
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

WJE (6) Reinstall sidewall liner in mid cargo compartment.

WJE (7) Close mid cargo compartment door.

WJE (8) Remove electrical power if it is not necessary.
 WJE

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CARGO FIRE SUPPRESSION RACK

BBB2-26-303
S0000219923V1

Filter Installation
Figure 401/26-22-05-990-801

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CEILING LINER, FIREX NOZZLES - MAINTENANCE PRACTICES

WJE

1. General

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A. This procedure has installation of ceiling liner at Firex nozzles.

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B. Cargo compartments must remain properly sealed at all times. Compartments that are not maintained in accordance with aircraft manufacturer's type design requirements in addition to compromising integrity of cargo compartment can adversely affect ability of fire suppression system to perform its intended function.

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C. Procedures that follow assume liner has been previously removed to allow maintenance in a Firex nozzle area.

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2. Equipment and Materials

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NOTE: Equivalent substitutes may be used instead of the following listed items:

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NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your location. Persons in each location must make sure they are permitted to use these materials. All persons must obey all applicable federal, state, local, and provincial regulations for their location.

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Table 201

Name and Number	Manufacturer
Fire Resistant Tape Polyken 290	

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3. Liner Installation

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A. Install Liner

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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(1) Open this circuit breaker and install safety tag:

WJE

LOWER EPC, XFER BUS

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

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(2) Open forward, mid and/or aft cargo door as appropriate.

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(3) Ensure that both lower surfaces around Firex nozzle and mating surfaces of ceiling liner are clean and free of debris (i.e. oil, tape particles, glue residue etc.).

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(4) Cut eight lengths of fire resistant tape equal to distance between two ceiling liner mounting holes on Firex nozzle plate. Fold four of them, sticky-side-out, to form a tube.

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(5) Position one piece of tape on lower surface of Firex nozzle plate over one row of mounting holes for ceiling liner and press to secure it in place. Tape must completely cover mounting hole.

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(6) Repeat Paragraph 3.A.(5) for other three sides of enclosure.

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(7) Position ceiling liner over Firex nozzle so opening in liner is centered around nozzle base and press liner firmly around opening to secure it in place.

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(8) Install screws and washers that secure liner to nozzle plate.

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(9) Install remaining four pieces of tape so they cover screws and washers and extend over seam between liner and Firex nozzle.

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(10) Close forward, mid and/or aft compartment door as appropriate.

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(11) Remove the safety tag and close this circuit breaker:

LOWER EPC, XFER BUS

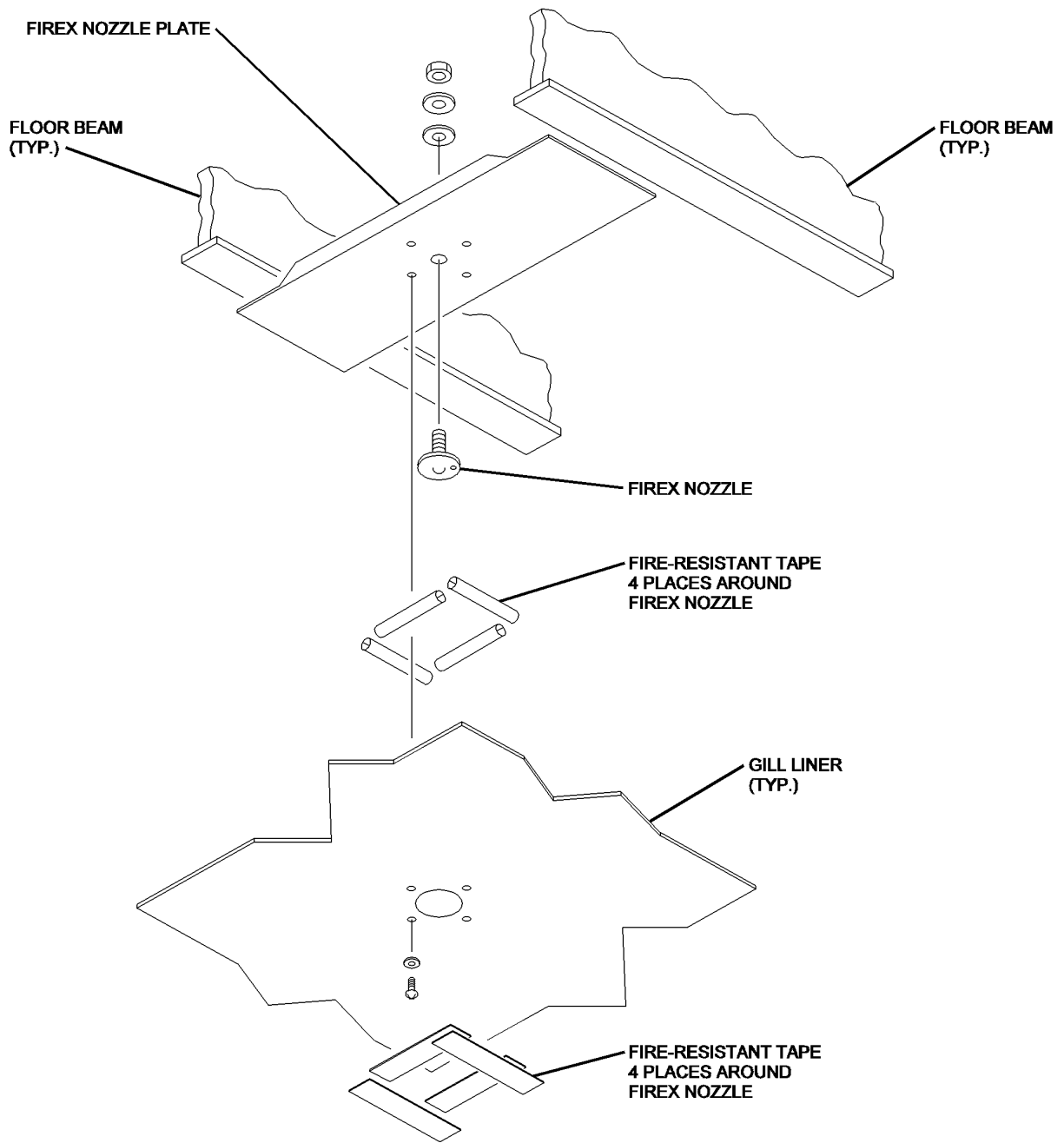
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

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Typical Ceiling Liner Installation
Figure 201/26-22-07-990-801

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SUPPRESSION TUBING - MAINTENANCE PRACTICES

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1. General

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A. There are several different sizes of tubing used in fire suppression system. If tubing is not installed properly leaks can result which will affect ability of system to perform its intended function. Improperly installed tubing can also result in interference with nearby systems, controls, or structures.

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B. Procedures that follow assume tubing was previously loosened to allow maintenance to be performed in affected area.

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2. Equipment and Materials

WJE

NOTE: Equivalent substitutes may be used instead of the following listed items:

WJE

NOTE: Some materials in the Equipment and Materials list may not be permitted to be used in your location. Persons in each location must make sure they are permitted to use these materials. All persons must obey all applicable federal, state, local, and provincial regulations for their location.

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Table 201

Name and Number	Manufacturer
Anti-seize compound LUB4501-6 64-0109	

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3. Suppression Tubing Installation

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A. Install Suppression Tubing

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WARNING: TAG AND USE SAFETY CLIPS TO SAFETY THE CIRCUIT BREAKERS. IF THE CIRCUIT BREAKERS ARE NOT OPENED, TAGGED, AND SAFETIED, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

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(1) Open this circuit breaker and install safety tag:

WJE

LOWER EPC, XFER BUS

WJE

WJE

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
S	42	B1-9103	SMOKE DETECT PANELS

WJE

(2) Open forward, mid and/or aft cargo compartment door, as appropriate.

WJE

(3) Loosen support clamps securing tubing.

WJE

(4) Align and position tube end-fittings so sealing surfaces contact those of mating fittings.

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(5) Apply a thin film of anti-seize compound to fitting threads and engage 'B' nuts a few threads. Reposition tubing as required for best alignment, then tighten 'B' nuts to hand tight.

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CAUTION: DO NOT USE A WRENCH ON THE 'B' NUT TO FORCE THE TUBING INTO ALIGNMENT. 'B' NUTS MUST BE FREE TO ROTATE UNTIL THEY ARE SNUG AGAINST THE MATING FITTINGS.

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(6) Tighten support clamps nearest tubing fittings to prevent twisting while applying final torque.

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CAUTION: TOO MUCH TORQUE CAN DAMAGE THE SLEEVES OF FLARELESS TUBING, OR SPLIT THE SEALING FLARE ON FLARED TUBING. TOO LITTLE TORQUE CAN CAUSE EARLY LEAKAGE OF EITHER TUBING.

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(7) Using a torque wrench on 'B' nut and a support wrench on mating fitting, tighten 'B' nut to proper torque value as shown in Table 201.

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- WJE (8) Loosen support clamps and verify tubing alignment has not changed. Loosen 'B' nut, reposition
WJE tubing and re-torque 'B' nut as required to maintain proper tubing alignment.
- WJE (9) Tighten all remaining support clamps.
- WJE (10) Suppression Tubing Torque Values:

Tube Size			
Material	O.D. Dim.	AN Size	Value (in./lbs.)
5052-0 x .035 W.T.	1/2	8	260
	5/8	10	350
	3/4	12	500
6061-T6 x 035 W.T.	1/2	8	280
	5/8	10	360
	3/4	12	450
6061-T6 x .065 W.T.	1/2	8	400
	5/8	10	450
NOTE: All Material and O.D. dimensions are in inches.			
NOTE: All torque values are \pm 51%.			
NOTE: Listed torque values maybe increased up to 150% to stop leaks.			
NOTE: Refer to Boeing Process Specifications BAC5001-6 and BAC5001-10 for additional information.			

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