



## AIRCRAFT MAINTENANCE MANUAL

### ENGINE FIRE EXTINGUISHING BOTTLE - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

#### 1. General

- A. This section gives the procedures for removal/installation and deactivation/reactivation of the engine fire extinguishing bottle.
- B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	DESCRIPTION	EFFECTIVITY
26-21-02-000-801-A	ENGINE FIRE-EXTINGUISHING BOTTLE - ALL REMOVAL	
26-21-02-400-801-A	ENGINE FIRE-EXTINGUISHING BOTTLE - ALL INSTALLATION	
26-21-02-040-801-A	ENGINE FIRE-EXTINGUISHING BOTTLE - ALL DEACTIVATION	
26-21-02-440-801-A	ENGINE FIRE-EXTINGUISHING BOTTLE - ALL REACTIVATION	



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TASK 26-21-02-000-801-A

EFFECTIVITY: ALL

2. ENGINE FIRE-EXTINGUISHING BOTTLE - REMOVAL

A. General

- (1) [Figure 401](#) shows the location of the engine fire-extinguishing bottle in the aircraft tail-cone compartment.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
<a href="#">AMM MPP 71-00-00/200</a>	- MAINTENANCE PRACTICES

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Ladder	To get access to the tail cone compartment	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Tail cone compartment

I. Preparation

SUBTASK 841-002-A

**WARNING: BEFORE YOU DO THE TASK, OBEY THE SAFETY PRECAUTIONS GIVEN IN AMM MPP 71-00-00/200 TO PREVENT INJURY TO PERSONS AND DAMAGE TO MATERIAL.**

- (1) On the circuit breaker panel, open the circuit breakers below and attach a DO-NOT-CLOSE tag to them.
- FIRE EXTG BTL A 1/2.



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- FIRE EXTG BTL B 1/2.

- (2) Put the ladder in the work area.
- (3) Open access door 312AR (AMM MPP 06-42-00/100) to get access to the tail cone compartment.

### J. Removal (Figure 401)

SUBTASK 020-002-A

**WARNING:** • THE CARTRIDGE IS AN EXPLOSIVE DEVICE . ACCIDENTAL DETONATION OF A CARTRIDGE BY ELECTROSTATIC DISCHARGE CAN CAUSE INJURY. FOR SAFE HANDLING, DO NOT TOUCH THE CARTRIDGE CONNECTOR PINS AFTER YOU REMOVE THE PROTECTIVE CAP OR ELECTRICAL CONNECTOR.

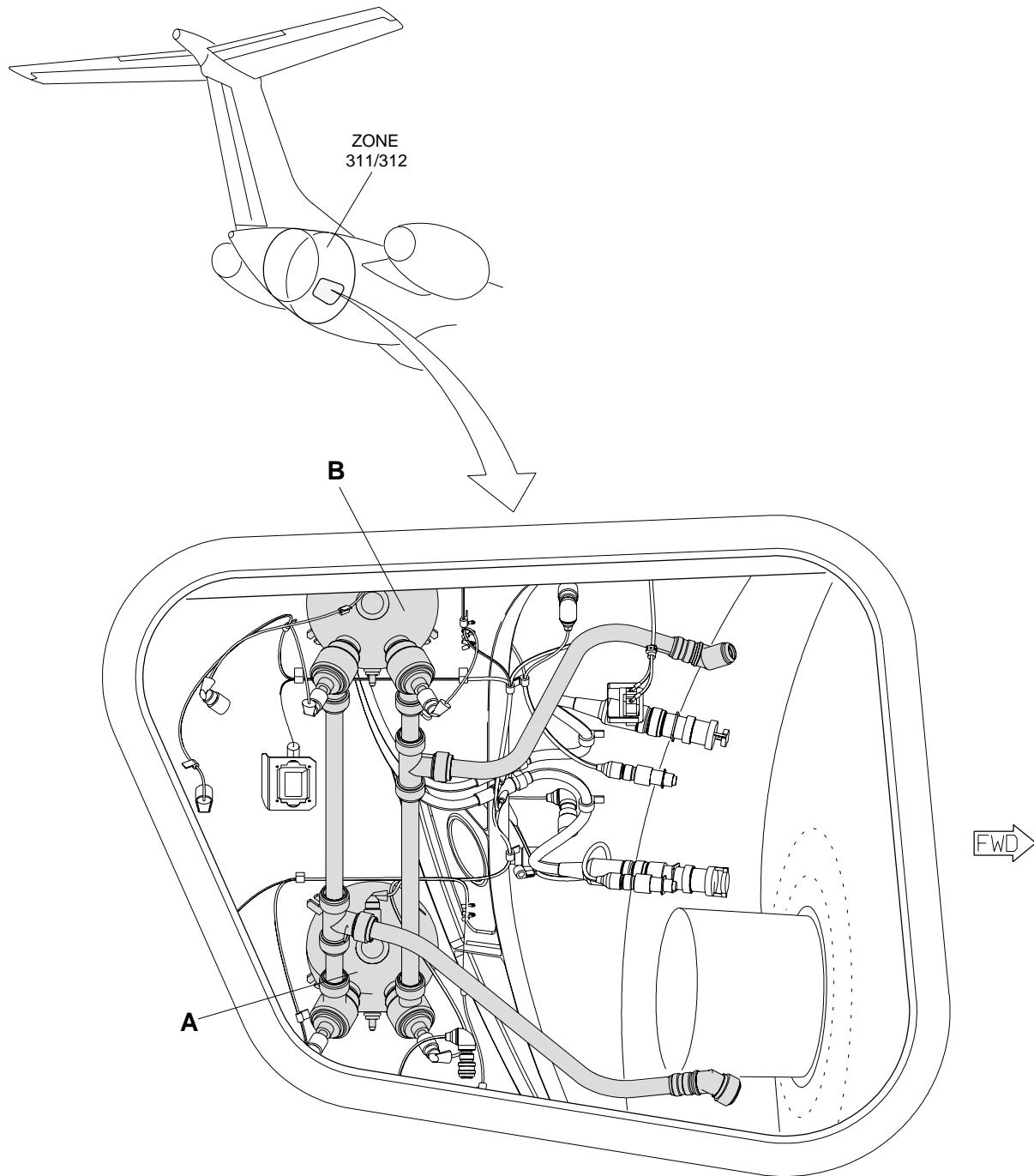
- DO NOT MOVE THE BOTTLE WITH THE OUTLETS OF THE DISCHARGE TUBING WITHOUT PROTECTION. DO NOT HIT THE BOTTLE AGAINST AIRCRAFT PARTS. PREVENT DAMAGE TO THE BOTTLE BECAUSE AN ACCIDENTAL DISCHARGE CAN CAUSE INJURIES.

- (1) Disconnect the electrical connectors (1) and (2) from the engine fire-extinguishing bottle (3).
- (2) Disconnect the discharge pipings (4) from the engine fire-extinguishing bottle (3).
- (3) Remove the bolts (6) and washers (5) which attach the bottle to the tail-cone support, and remove the bottle (3).
- (4) Install protection caps to the disconnected points.

**EFFECTIVITY: ALL**

Engine Fire-Extinguishing Bottle - Removal/Installation

Figure 401 - Sheet 1

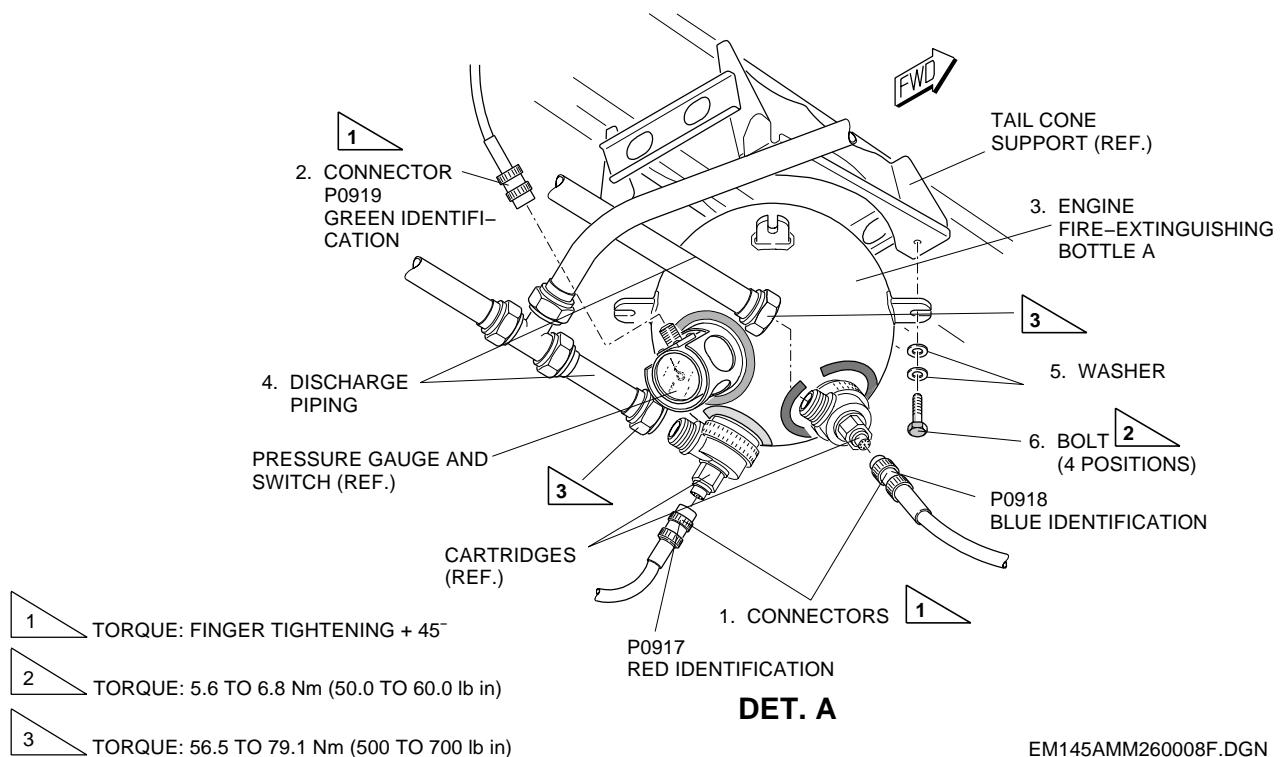
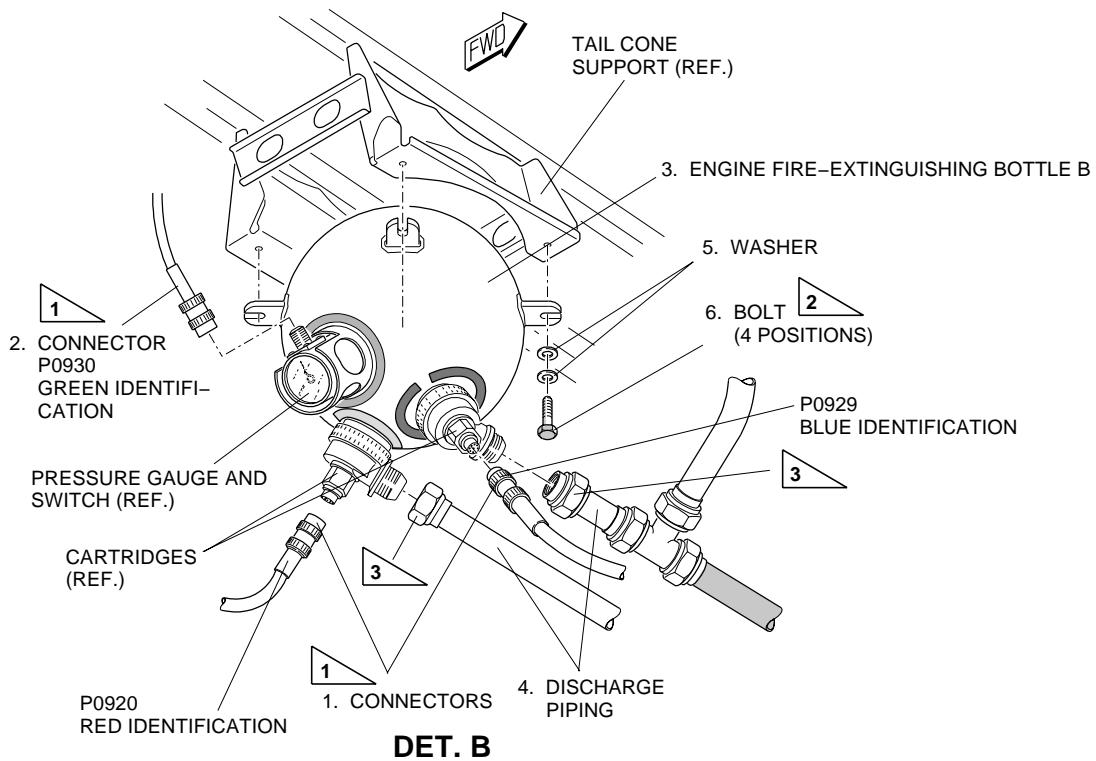


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**EFFECTIVITY: ALL**

Engine Fire-Extinguishing Bottle - Removal/Installation

Figure 401 - Sheet 2



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TASK 26-21-02-400-801-A

EFFECTIVITY: ALL

3. ENGINE FIRE-EXTINGUISHING BOTTLE - INSTALLATION

A. General

- (1) Figure 401 shows the location of the engine fire-extinguishing bottle in the aircraft tail cone compartment.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM MPP 20-10-01/200	- MAINTENANCE PRACTICES
AMM MPP 71-00-00/200	- MAINTENANCE PRACTICES
AMM TASK 20-13-21-910-801-A/200	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
SB145-26-0010	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Ladder	To get access to the tail cone compartment	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Tail cone compartment



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I. Installation Figure 401

SUBTASK 420-002-A

**WARNING:** • BEFORE YOU DO THE TASK, OBEY THE SAFETY PRECAUTIONS GIVEN IN [AMM MPP 71-00-00/200](#) TO PREVENT INJURY TO PERSONS AND DAMAGE TO MATERIAL.

- THE CARTRIDGE IS AN EXPLOSIVE DEVICE . ACCIDENTAL DETONATION OF A CARTRIDGE BY ELECTROSTATIC DISCHARGE CAN CAUSE INJURY. FOR SAFE HANDLING, DO NOT TOUCH THE CARTRIDGE CONNECTOR PINS AFTER YOU REMOVE THE PROTECTIVE CAP OR ELECTRICAL CONNECTOR.
- DO NOT MOVE THE BOTTLE WITH THE OUTLETS OF THE DISCHARGE TUBING WITHOUT PROTECTION. DO NOT HIT THE BOTTLE AGAINST AIRCRAFT PARTS. PREVENT DAMAGE TO THE BOTTLE BECAUSE AN ACCIDENTAL DISCHARGE CAN CAUSE INJURIES.

**WARNING:** ON AIRCRAFT POST-MOD SB 145-26-0010, DO NOT INSTALL BOTTLES WITHOUT RING STICKERS INSTALLED ON THEM.

- (1) Remove the protection caps from the disconnected points, if applicable.
- (2) Put the bottle (3) in its installation position, on the tail cone support.
- (3) NOTE: For torques not given in the figure, refer to [AMM MPP 20-10-01/200](#).

**CAUTION:** IF THE ELECTRICAL BONDING DEVICE DOES NOT MAKE UP A GOOD ELECTRIC CONDUCTIVE PATH, DAMAGE CAN OCCUR TO THE AIRCRAFT OR THE EQUIPMENT.

- (4) Refer to [AMM TASK 20-13-21-910-801-A/200](#) for the electrical bonding procedures and put the bolts (6) and washers (5) in their installation position. Tighten the bolts (6).

NOTE: Use a torque wrench to torque the bolts to 5.6 – 6.8 N.m (50.0 – 60.0 lb.in).

**CAUTION:** DO NOT TRANSMIT THE AIRCRAFT TUBE WEIGHT OR STRAIN TO THE VALVE. ALIGN BEFORE YOU CONNECT THEM.

- (5) Connect the discharge pipings (4) to the engine fire-extinguishing bottle (3).

**CAUTION:** BEFORE YOU CONNECT THE ELECTRICAL CONNECTORS, MAKE SURE THAT THE "ENGINE FIRE EXTG BTL A/B" CIRCUIT BREAKER IS OPEN.

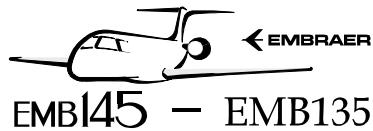
- (6) Connect the electrical connectors (1) and (2) to the bottle (3).

NOTE: For aircraft POST-MOD [SB145-26-0010](#), make sure that the connector colored identification and inscription match those of the ring sticker applied around the bottle outlets and the pressure gauge guard.

J. Follow-on

SUBTASK 842-002-A

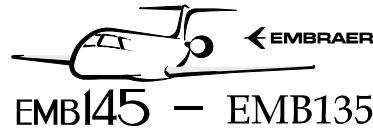
- (1) Close access door 312AR (AMM MPP 06-42-00/100).
- (2) Remove the ladder.



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- (3) On the circuit breaker panel, close the circuit breakers below and remove the DO-NOT-CLOSE tag from them:
  - FIRE EXTG BTL A 1/2.
  - FIRE EXTG BTL B 1/2.
- (4) On the EICAS display, make sure that the messages below are not shown.
  - E1 EXT BTLA INOP.
  - E1 EXT BTLB INOP.
  - E2 EXT BTLA INOP.
  - E2 EXT BTLB INOP.



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TASK 26-21-02-040-801-A

EFFECTIVITY: ALL

4. ENGINE FIRE-EXTINGUISHING BOTTLE - DEACTIVATION

A. General

- (1) It is permitted to operate the aircraft with two E1 (or E2) EXTBTLA (or B) INOP caution messages inoperative if you make sure that the fire protection systems are operational once each flight day.
- (2) This procedure refers to item 26-21-02 - E1 (or E2) EXTBTLA (or B) INOP CAUTION MESSAGES of the DDPM.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-00/100	-
AMM SDS 24-36-00/1	
AMM SDS 31-41-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Digital Multimeter	To measure continuity/voltage	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Ladder	To get access to the tail cone compartment	1

F. Consumable Materials

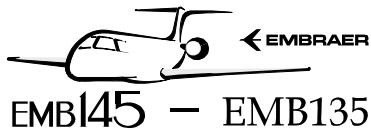
Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit



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(Continued)

QTY	FUNCTION	PLACE
1	Does the task	Tail cone compartment

## I. Deactivation (Figure 401)

## SUBTASK 040-002-A

**WARNING:** • THE CARTRIDGE IS AN EXPLOSIVE DEVICE . ACCIDENTAL DETONATION OF A CARTRIDGE BY ELECTROSTATIC DISCHARGE CAN CAUSE INJURY. FOR SAFE HANDLING, DO NOT TOUCH THE CARTRIDGE CONNECTOR PINS AFTER YOU REMOVE THE PROTECTIVE CAP OR ELECTRICAL CONNECTOR.

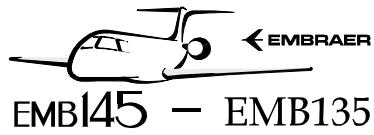
- DO NOT MOVE THE BOTTLE WITH THE OUTLETS OF THE DISCHARGE TUBING WITHOUT PROTECTION. DO NOT HIT THE BOTTLE AGAINST AIRCRAFT PARTS. PREVENT DAMAGE TO THE BOTTLE BECAUSE AN ACCIDENTAL DISCHARGE CAN CAUSE INJURIES.
- WHEN YOU CONNECT OR DISCONNECT THE ELECTRIC CONNECTOR OF THE BOTTLE CARTRIDGE, OR WHEN YOU KEEP IT DISCONNECTED, YOU MUST BE VERY CAREFUL WITH THE PINS OF ITS RECEPTACLE.

- (1) Attach an "E1 (or E2) EXTBTLA (or B) INOP MESSAGE NOT AVAIL" placard to the related Engine Fire Detection/Extinguishing panel.
- (2) Do the functional check of the engine-fire extinguishing bottle system as follows:
  - (a) On the circuit breaker panel, open these circuit breakers and attach a DO-NOT-CLOSE tag to them.
    - FIRE EXTG BTL A 1/2.
    - FIRE EXTG BTL B 1/2.
  - (b) Open access door 312AR (AMM MPP 06-41-00/100) to get access to the tail cone compartment.
  - (c) Disconnect the electrical connectors (1) from the fire extinguishing bottle cartridges. Seal the receptacles with plastic caps.
  - (d) Energize the aircraft with a DC power supply ([AMM TASK 20-40-01-860-801-A/200](#)).
  - (e) Set MFD 1 (or 2) to the ELEC page ([AMM SDS 31-41-00/1](#)):
    - 1 Read the battery 1 voltage and record it as V<sub>1</sub> ([AMM SDS 24-36-00/1](#)).
    - 2 Read the battery 2 voltage and record it as V<sub>2</sub> ([AMM SDS 24-36-00/1](#)).
  - (f) Make sure that there is continuity to ground from pin A of the electrical connectors (1).
  - (g) On the circuit breaker panel, close these circuit breakers:
    - FIRE EXTG BTL A 1/2.

- FIRE EXTG BTL B 1/2.
- (h) Examine fire handle 1 as follows:
- 1 Pull fire handle 1 and turn it left.
    - a The voltage between pins A and B, and between pins A and C of connector P0917 must be  $V_1 \pm 0.5$  V DC.
  - 2 Turn fire handle 1 right.
    - a The voltage between pins A and B, and between pins A and C of connector P0920 must be  $V_2 \pm 0.5$  V DC.
- (i) Push fire handle 1 to put it back to the normal condition.
- 1 Make sure that there is a voltage of approximately 21.5 V DC between pins A and B, and between pins A and C of electrical connectors P0917 and P0920.
- (j) Examine fire handle 2 as follows:
- 1 Pull fire handle 2 and turn it left.
    - a The voltage between pins A and B, and between pins A and C of connector P0918 must be  $V_1 \pm 0.5$  V DC.
  - 2 Turn fire handle 2 to the right.
    - a The voltage between pins A and B, and between pins A and C of connector P0929 must be  $V_2 \pm 0.5$  V DC.
- (k) Push fire handle 2 to put it back to the normal condition.
- 1 Make sure that there is a voltage of approximately 21.5 V DC between pins A and B, and between A and C of electrical connectors P0918 and P0929.
- (3) Check of Pressure of Engine Fire-Extinguishing Bottles:
- (a) Look at the pressure gauges of the related extinguisher bottles before the first flight of each calendar day to make sure that the values are higher then the values given in the table that follows:

Table 401

Temperature		Minimum Pressure Indication on Pressure Gauge (psi)
°C	°F	
-54 to -40	-65 to -40	300
-29	-20	350
-18	0	400
-7	20	450
4	40	500
16	60	550

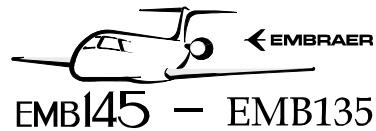


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Table 401 (Continued)

21 to 27	70 to 80	600
38	100	700
49	120	800
60	140	900



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TASK 26-21-02-440-801-A

EFFECTIVITY: ALL

5. ENGINE FIRE-EXTINGUISHING BOTTLE - REACTIVATION

A. General

- (1) This procedure refers to item 26-21-02 - E1 (or E2) EXTBTLA (or B) INOP CAUTION MESSAGES of the DDPM.

B. References

REFERENCE	DESIGNATION
AMM TASK 26-21-00-700-801-A/500	ENGINE FIRE EXTINGUISHING SYSTEM - FUNCTIONAL CHECK

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Ladder	To get access to the tail cone compartment	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit
1	Does the task	Tail cone compartment

I. Reactivation

SUBTASK 440-002-A

- (1) Do the functional check of the engine fire extinguishing system ( [AMM TASK 26-21-00-700-801-A/500](#)).
- (2) Remove the "E1 (or E2) EXTBTLA (or B) INOP MESSAGE NOT AVAIL" placard from the related Engine Fire Detection/Extinguishing panel.

