

APU FIRE EXTINGUISHER BOTTLE - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove/install and deactivate/reactivate the APU fire-extinguisher 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
26-22-01-000-801-A	APU FIRE-EXTINGUISHER BOTTLE - REMOVAL	ALL
26-22-01-400-801-A	APU FIRE-EXTINGUISHER BOTTLE - INSTALLATION	ALL
26-22-01-040-801-A	APU FIRE-EXTINGUISHER BOTTLE - DEACTIVATION	ALL
26-22-01-440-801-A	APU FIRE-EXTINGUISHER BOTTLE - REACTIVATION	ALL

TASK 26-22-01-000-801-A

EFFECTIVITY: ALL

2. APU FIRE-EXTINGUISHER BOTTLE - REMOVAL

A. General

(1) This task gives the instructions to remove the APU fire-extinguisher bottle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM MPP 49-00-00/200	- MAINTENANCE PRACTICES

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Protective cap	To protect the disconnected points	
Commercially available	Protective cap (ESD)	To protect the electrical connections	

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 49-00-00/200](#) TO PREVENT INJURY TO PERSONS AND DAMAGE TO MATERIAL.

- (1) On the circuit breaker panel, open these circuit breakers and attach a DO-NOT-CLOSE tag to them.
 - APU FIRE EXTG.
 - APU CONTROL.
- (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 connector (6) from the cartridge connection (REF.).
- (2) Disconnect the electrical connector (10) from the pressure gauge and switch connection (REF.).
- (3) Install protective caps (ESD) to the electrical connectors (6) and (10), pressure gauge and switch connection (REF.), and cartridge connection.

CAUTION: DAMAGE TO THE DISCHARGE PIPING OF THE APU FIRE EXTINGUISHER SYSTEM CAN BE CAUSED BY CHAFING OF THE CLAMP (5), IF IT IS NOT ATTACHED TIGHTLY. SUCH DAMAGE TO THE PIPING CAN DECREASE THE EFFICIENCY OF THE APU FIRE EXTINGUISHER SYSTEM IN AN EMERGENCY CONDITION. MAKE SURE THAT THE CLAMP (5) IS ATTACHED TIGHTLY TO THE DISCHARGE PIPING AND THE ELECTRICAL BONDING JUMPER (3) IS NOT UNDER TENSION.

- (4) Disconnect the discharge piping (4) from the discharge outlet (REF.). Do not loosen the clamp (5).
- (5) Install protective caps on the connection of the discharge piping (4), discharge outlet (REF.) and pressure relief valve (REF.).
- (6) Remove the nuts (1), bolts (7), washers (8) and lock washers (2).

NOTE: The bottle (11) must be removed together with its clamp kit, which incorporates the clamps (9) and clips (12).

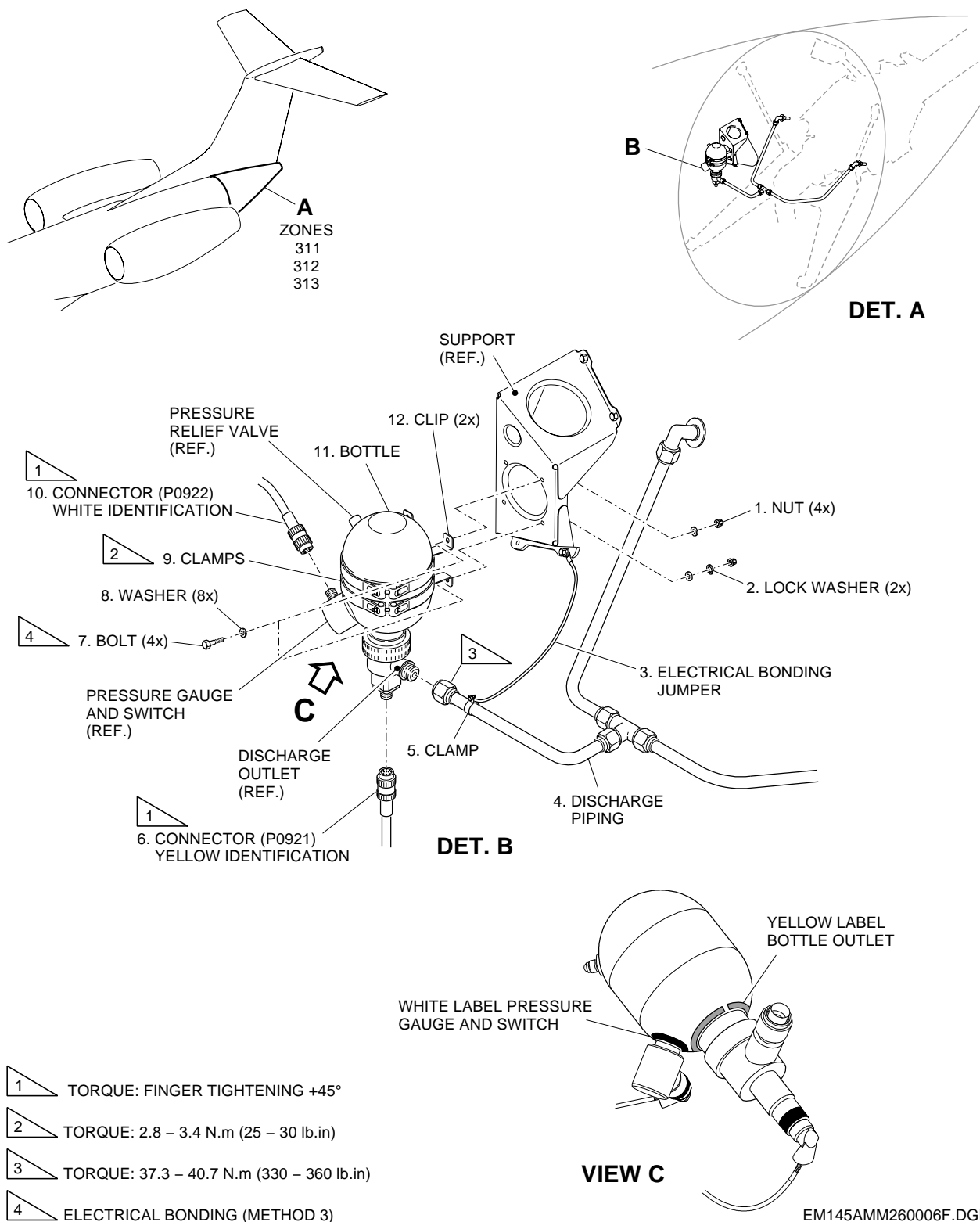
- (7) Remove the bottle (11) together with its clamp kit.

- (8) If necessary, loosen the nuts of the clamps (9) and remove the bottle (11) from them.

EFFECTIVITY: ALL

APU Fire-Extinguisher Bottle - Removal/Installation

Figure 401



TASK 26-22-01-400-801-A

EFFECTIVITY: ALL

3. APU FIRE-EXTINGUISHER BOTTLE - INSTALLATION

A. General

(1) This task gives the instructions to install the APU fire-extinguisher bottle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM MPP 49-00-00/200	- MAINTENANCE PRACTICES
AMM TASK 20-13-21-700-801-A/200	ELECTRICAL BONDING TEST - STANDARD PROCEDURES
AMM TASK 20-13-21-910-801-A/200	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
AMM TASK 20-13-21-910-802-A/200	ELECTRICAL BONDING PROTECTION - STANDARD PROCEDURES
S.B.145-26-0010	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Tail cone compartment

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Torque wrench (For the torque range, refer to Figure 401)	To torque the fasteners correctly.	

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. Installation (Figure 401)

SUBTASK 420-002-A

WARNING: • BEFORE YOU DO THE TASK, OBEY THE SAFETY PRECAUTIONS GIVEN IN **AMM MPP 49-00-00/200** 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 S.B. 145-26-0010, DO NOT INSTALL BOTTLES WITHOUT RING STICKERS INSTALLED ON THEM.

- (1) Do the bonding procedure, method 3 (**AMM TASK 20-13-21-910-801-A/200**) to install the clips (12) to the support (REF.).
- (2) If the bottle (11) was removed from the clamps (9), hold the bottle (11) and tighten the nuts of the clamps (9) to attach the bottle (11) to it. With a torque wrench, apply a tightening torque of 2.8 to 3.4 N.m (25 to 30 lb.in).
- (3) Put the bottle (11) with the clamp kit in the installation position.
- (4) Install the washers (8), lock washers (2), bolts (7) and nuts (1) to attach the clips (12) to the support (REF.).
- (5) Remove the protective caps from the connections of the discharge piping (4), discharge outlet (REF.) and pressure relief valve (REF.).

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

- DAMAGE TO THE DISCHARGE PIPING OF THE APU FIRE EXTINGUISHER SYSTEM CAN BE CAUSED BY CHAFING OF THE CLAMP (5), IF IT IS NOT ATTACHED TIGHTLY. SUCH DAMAGE TO THE PIPING CAN DECREASE THE EFFICIENCY OF THE APU FIRE EXTINGUISHER SYSTEM IN AN EMERGENCY CONDITION. MAKE SURE THAT THE CLAMP (5) IS ATTACHED TIGHTLY TO THE DISCHARGE PIPING AND THE ELECTRICAL BONDING JUMPER (3) IS NOT UNDER TENSION.

- (6) Connect the discharge piping (4) to the discharge outlet (REF.). With a torque wrench, apply a tightening torque of 37.3 to 40.7 N.m (330 to 360 lb.in).
- (7) Remove the protective caps (ESD) from the electrical connectors (6) and (10), pressure gauge and switch connections (REF.), and cartridge connection.

CAUTION: BEFORE YOU CONNECT THE ELECTRICAL CONNECTORS, MAKE SURE THAT THE "APU FIRE EXTG" CIRCUIT BREAKER IS OPEN.

- (8) Connect the electrical connector (6) to the cartridge connection (REF.). Apply finger tightening of +45° (degree).
- (9) Connect the electrical connector (10) to the pressure gauge and switch connection (REF.). Apply finger tightening of +45° (degree).

NOTE: For aircraft POST-MOD [S.B.145-26-0010](#), make sure that the connector color identification and inscription match those of the ring stickers applied around the pressure gauge and switch (REF.) and discharge outlet (REF.).

- (10) Do the electrical bonding test on the clamp kit ([AMM TASK 20-13-21-700-801-A/200](#)).
- (11) Do the bonding protection ([AMM TASK 20-13-21-910-802-A/200](#)) on the area around the clips (12) attachment.

J. Follow-on

SUBTASK 842-002-A

- (1) Close access door 312AR (AMM MPP 06-42-00/100).
- (2) Remove the ladder from the work area.
- (3) On the circuit breaker panel, close these circuit breakers and remove the DO-NOT-CLOSE tag from them:
 - APU FIRE EXTG.
 - APU CONTROL.
- (4) On the EICAS display, make sure that the APU EXTBTL INOP message is not shown.

TASK 26-22-01-040-801-A

EFFECTIVITY: ALL

4. APU FIRE-EXTINGUISHER BOTTLE - DEACTIVATION

A. General

- (1) You can operate the aircraft with the APU EXTBL INOP caution message inoperative if the fire protection system are operational or the APU is considered inoperative and is not used once each flight day.
- (2) This procedure refers to item 26-22-01 - APU EXTBL INOP CAUTION MESSAGE of the DDPM.

B. References

REFERENCE	DESIGNATION
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
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 the "APU EXTBTL INOP NOT AVAIL" placard to the APU Fire Detection/Extinguishing Panel.
- (2) Do the APU fire extinguishing bottle system functional check as follows:
 - (a) Gain access to the APU shut-off valve.
 - (b) On the circuit breaker panel, open the circuit breaker APU FIRE EXTG.
 - (c) Disconnect the electrical connector (1) from the bottle cartridge.
 - (d) Energize the aircraft with an External DC Power Supply ([AMM TASK 20-40-01-860-801-A/200](#)).
 - (e) Do a check for continuity to the ground from pin A of the electrical connector (1).
 - 1 Set the APU master switch to the "ON" position.
 - a The mechanical position indicator of the APU fuel shut-off valve goes to the "OPEN" position.

CAUTION: MAKE SURE THAT THE ELECTRIC CONNECTOR OF THE EXTINGUISHING BOTTLE CARTRIDGE IS DISCONNECTED.

- (f) On the circuit breaker panel, close the APU FIRE EXTG circuit breaker.
 - 1 Push the APU fire-extinguishing switch and keep it pushed.
 - a The mechanical position indicator of the APU fuel shut-off valve goes to the "CLOSE" position.
 - b Make sure that there is 28 V DC between pins A and B and pins A and C of the connector (1).
 - 2 Release the APU fire extinguishing switch.
 - a Make sure that there is approximately 21.5 V DC between pins A and B and pins A and C of the connector (1).

- (g) Set the APU master switch to the OFF position.
- (h) On the circuit breaker panel, open the APU FIRE EXTG circuit breaker and attach a DO-NOT-CLOSE tag to it.
- (i) Install a jumper between pins A and B of the electrical connector (1).
- (j) On the circuit breaker panel, close the APU FIRE EXTG circuit breaker and remove the DO-NOT-CLOSE tag from it.

TASK 26-22-01-440-801-A

EFFECTIVITY: ALL

5. APU FIRE-EXTINGUISHER BOTTLE - REACTIVATION

A. General

- (1) This procedure refers to item 26-22-01 - APU EXTBL INOP CAUTION MESSAGE of the DDPM.

B. References

REFERENCE	DESIGNATION
AMM MPP 26-22-00/500	- ADJUSTMENT/TEST

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 APU fire-extinguishing system ([AMM MPP 26-22-00/500](#)).
- (2) Remove the "APU EXTBL INOP NOT AVAIL" placard from the APU Fire Detection/Extinguishing Panel.