



AIRCRAFT
MAINTENANCE MANUAL

THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the engine thrust-reverser door tertiary-lock actuator.
- B. These procedures are applicable to the LH and RH thrust reversers.
- C. 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
78-32-05-000-801-A	ENGINE THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - REMOVAL	ALL
78-32-05-400-801-A	ENGINE THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - INSTAL- LATION	ALL



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TASK 78-32-05-000-801-A

EFFECTIVITY: ALL

2. ENGINE THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - REMOVAL

A. General

(1) Obey the instructions below to remove the engine thrust-reverser door tertiary-lock actuator.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM TASK 78-31-01-940-801-A/200	THRUST REVERSER - OPENING PROCEDURE
AMM TASK 78-31-01-980-802-A/200	LOCK/UNLOCK THE TR EXHAUST DOOR - DEPLOYED POSITION

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
416	416HT/416BB	LH Thrust reverser
426	426HT/426BB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the engine nacelle	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	in the work area



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I. Preparation

SUBTASK 841-002-A

- WARNING:** • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.
- MAKE SURE THAT THE THRUST REVERSERS ARE DEENERGIZED. ENERGIZED CIRCUITS CAN CAUSE INJURY TO PERSONS.
 - MAKE SURE THAT THE HYDRAULIC TEST STAND IS NOT CONNECTED.

- (1) Put the workstand under the engine thrust reverser.

WARNING: MAKE SURE THAT THERE IS NO OBJECTS, PERSONS, AND SUPPORT EQUIPMENT IN THE AREA BEFORE YOU OPERATE THE THRUST REVERSER.

- (2) Open the thrust-reverser doors ([AMM TASK 78-31-01-940-801-A/200](#)).
- (3) Make sure that the thrust reverser door is locked in deployed position and the Hold-Open Stay is installed on the thrust reverser ([AMM TASK 78-31-01-980-802-A/200](#)).
- (4) On the circuit breaker panel, open the circuit breakers below and attach a DO-NOT-CLOSE tag to them:
 - THRUST REVERSER 1/2.
 - HYD. ELEC. PUMP 1/2.
- (5) Put a DO-NOT-OPERATE-THE-THRUST-REVERSERS sign on the instrument panel, in the cockpit.

WARNING: DO NOT APPLY HYDRAULIC POWER TO THE AIRCRAFT, AND DO NOT OPERATE THE THRUST REVERSER WHILE THE MAINTENANCE PERSONS ARE AT WORK.

- (6) Remove access panels 416HT, 426HT, 416BB, or 426BB ([AMM MPP 06-43-00/100](#)) as applicable.

J. Removal ([Figure 401](#))

SUBTASK 020-002-A

WARNING: BE VERY CAREFUL WHEN YOU DISCONNECT HYDRAULIC LINES, SKYDROL FLUID IS VERY DANGEROUS.

- (1) Disconnect the hydraulic line (17) from the reverser actuator (18) and install applicable caps to the hose and the actuator port.
- (2) Remove the bolts (1) from the torsion box rear bulkhead and the washers (2) and nuts (3) from the upper panel access hole.

NOTE: Be careful during the removal of the washers and nuts not to let them fall into the torsion box.
- (3) Remove the inhibition socket mount bracket (4).



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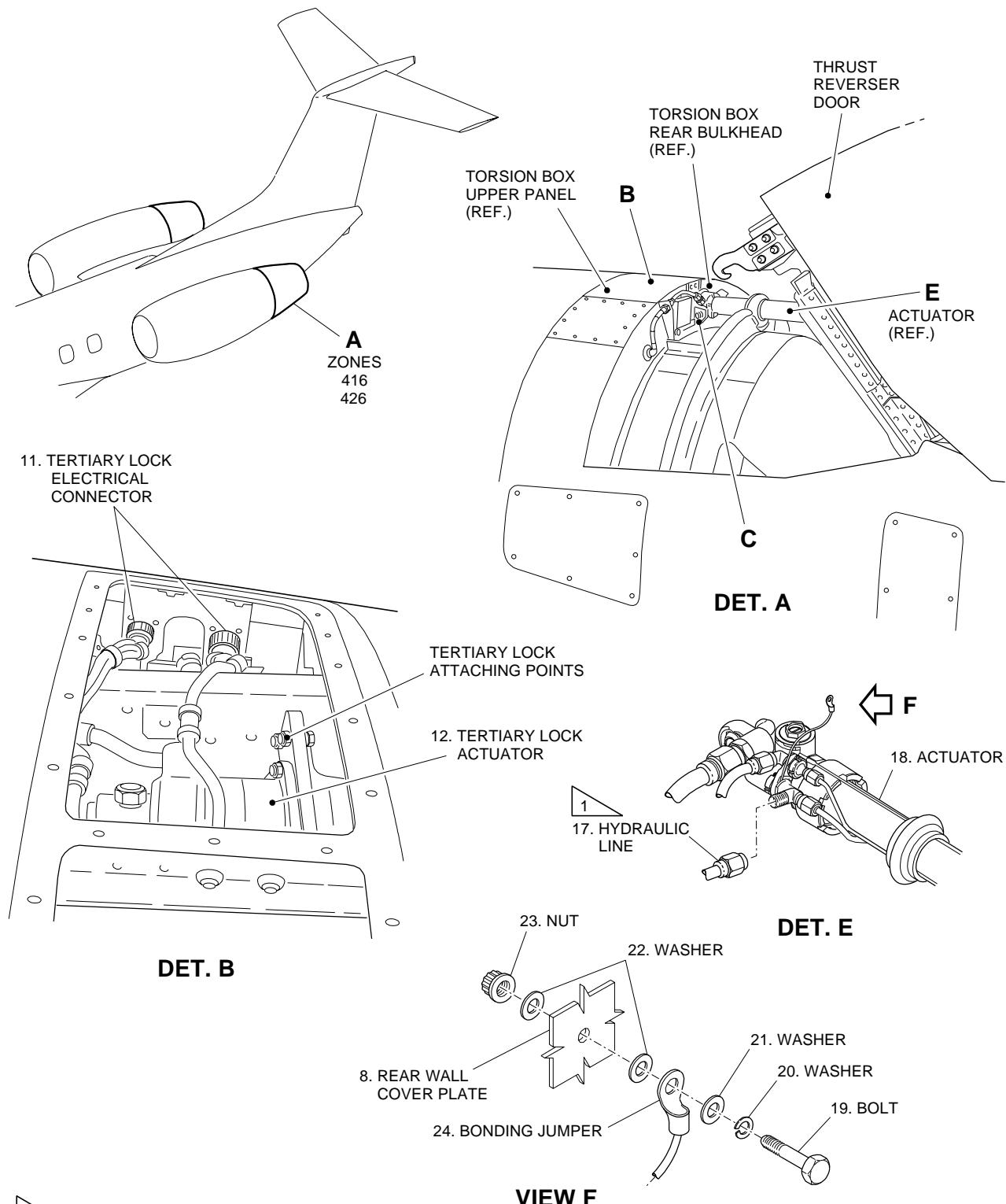
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- (4) Remove the bolts (5), washers (6), and nuts (7).
- (5) (For IN-SERVICE-INSTALLED JUMPER-BONDED tertiary-lock actuator) Remove the bonding jumper (13) from the thrust-reverser structure (Figure 401, Sheet 3).
- (6) Remove the bolt (19), washer (20), washer (21), washers (22) and nut (23) that attach the thrust reverser actuator bonding jumper (24) to the rear wall cover plate (8).
- (7) Carefully slide the rear wall cover plate (8) on the thrust reverser actuator surface to get access to the tertiary lock actuator.
- (8) (For FACTORY-INSTALLED JUMPER-BONDED tertiary-lock actuator) Remove the bolt (14), washers (15) and nut (16). Remove the bonding jumper (13) from the thrust-reverser structure (Figure 401, Sheet 4).
- (9) Remove the bolts (9) and nuts (10).
- (10) Disconnect the electrical connectors (11), remove the applicable clamps and install protection caps on the connectors.
- (11) Remove the tertiary-lock actuator (12) from the rear-wall access hole.

EFFECTIVITY: ALL

Engine Thrust-Reverser Door Tertiary-Lock Actuator - Removal/Installation

Figure 401 - Sheet 1

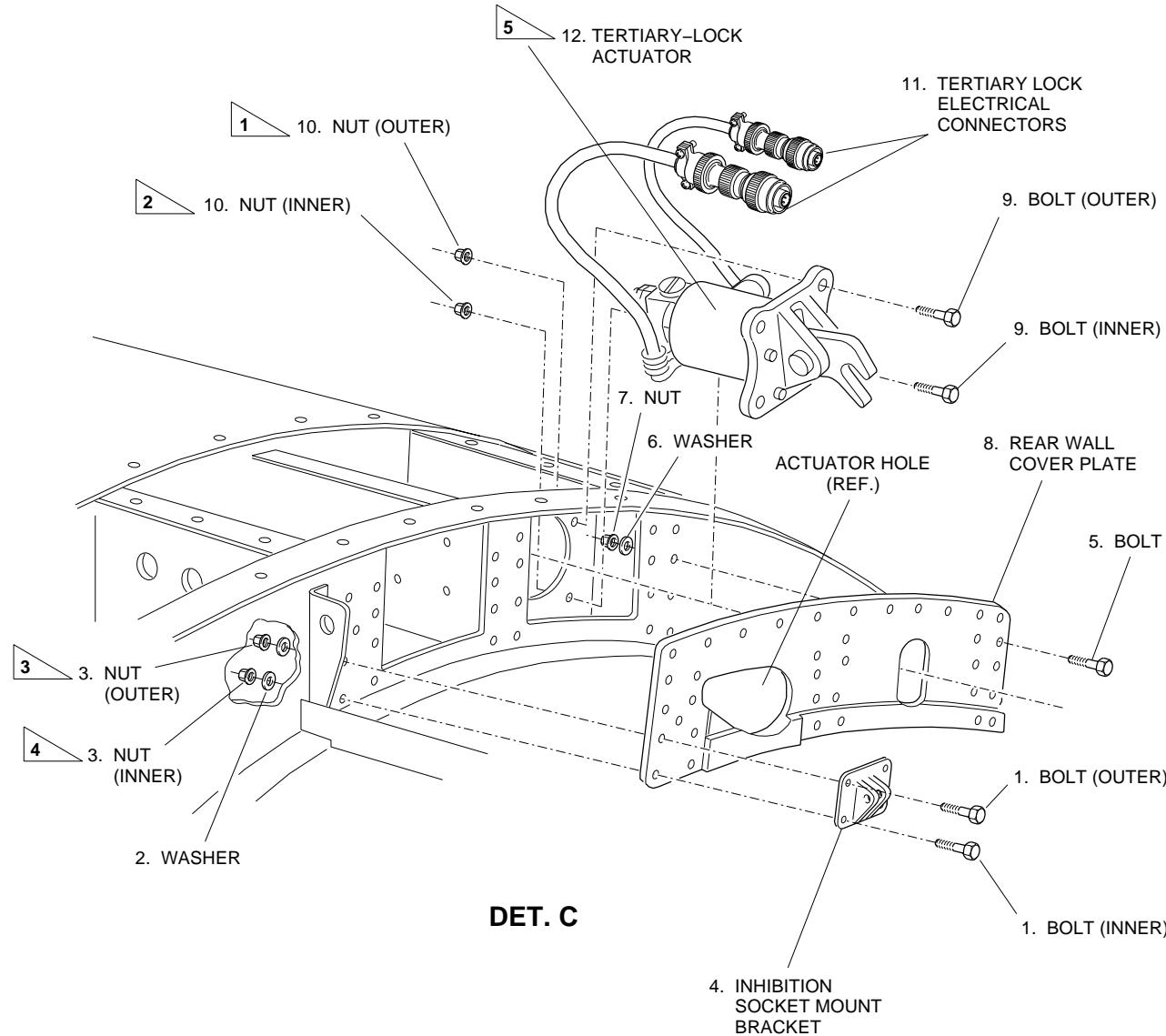


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EFFECTIVITY: ALL

Engine Thrust-Reverser Door Tertiary-Lock Actuator - Removal/Installation

Figure 401 - Sheet 2



1 TORQUE: 11.5 Nm (101.8 lb.in)

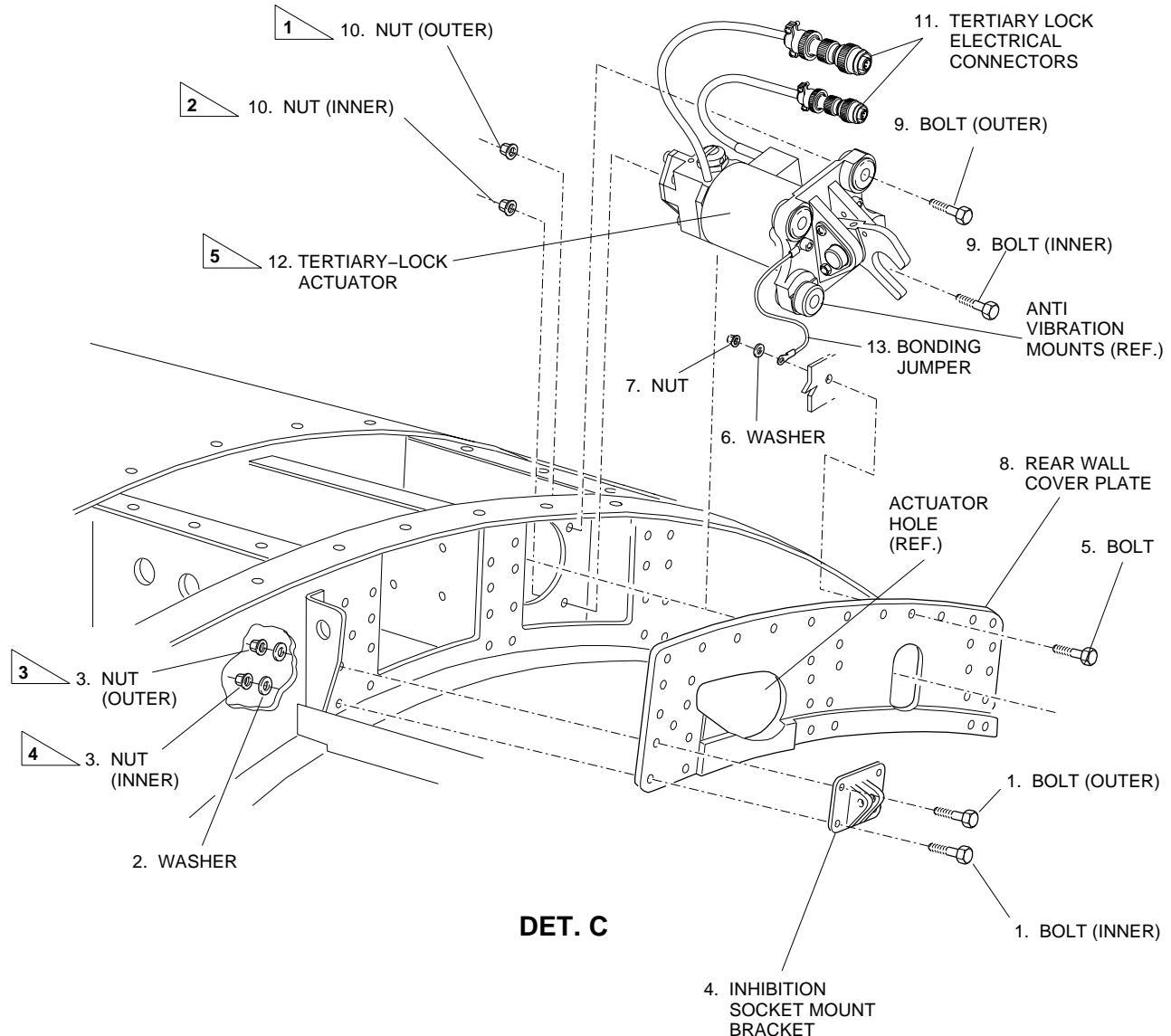
2 TORQUE: 24 Nm (212.4 lb.in)

3 TORQUE: 2.8 Nm (24.8 lb.in)

4 TORQUE: 3.4 Nm (30 lb.in)

5 BOLT-BONDED TERTIARY-LOCK ACTUATOR

EM145AMM780079B.DGN

EFFECTIVITY: ALL
Engine Thrust-Reverser Door Tertiary-Lock Actuator - Removal/Installation
Figure 401 - Sheet 3


1 TORQUE: 11.5 Nm (101.8 lb.in)

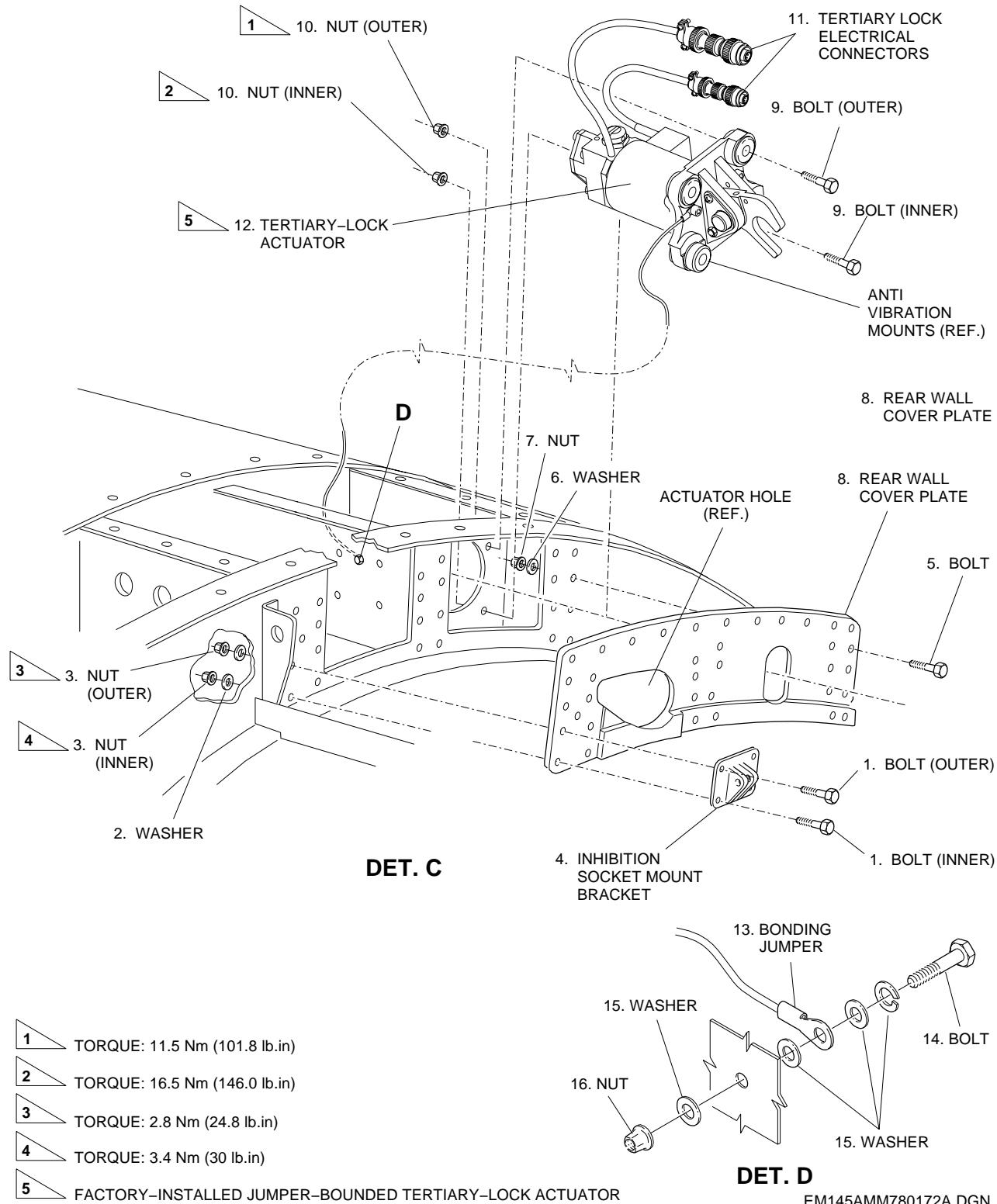
2 TORQUE: 16.5 Nm (146.0 lb.in)

3 TORQUE: 2.8 Nm (24.8 lb.in)

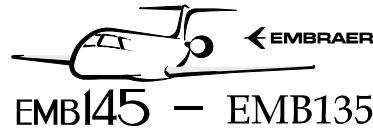
4 TORQUE: 3.4 Nm (30 lb.in)

5 IN-SERVICE-INSTALLED JUMPER-BOUNDED TERTIARY-LOCK ACTUATOR

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EFFECTIVITY: ALL
Engine Thrust-Reverser Door Tertiary-Lock Actuator - Removal/Installation
Figure 401 - Sheet 4


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TASK 78-32-05-400-801-A

EFFECTIVITY: ALL

3. ENGINE THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - INSTALLATION

A. General

(1) Obey the instructions below to install the engine thrust-reverser door tertiary-lock actuator.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- 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
AMM TASK 78-31-01-700-801-A/500	THRUST REVERSER - OPERATIONAL CHECK
AMM TASK 78-31-01-940-802-A/200	THRUST REVERSER - CLOSURE PROCEDURE
AMM TASK 78-32-05-000-801-A/400	ENGINE THRUST-REVERSER DOOR TERTIARY-LOCK ACTUATOR - REMOVAL
IPC 78-31-00	THRUST REVERSER STRUCTURE
IPC 78-32-01	THRUST REVERSER ACTUATION SYSTEM

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
416	416HT/416BB	LH Thrust reverser
426	426HT/426BB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the engine nacelle	
Commercially available	Torque wrench	To tighten the attachment nuts	

E. Auxiliary Items

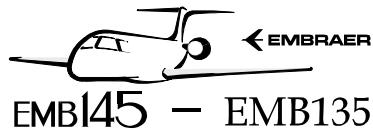
Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable



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H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Thrust reverser

I. Preparation

SUBTASK 841-003-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

• CLEANING PRODUCTS ARE TOXIC AND FLAMMABLE. A GOOD FLOW OF AIR MUST BE AVAILABLE WHEN THE WORK IS DONE IN A CLOSED AREA.

CAUTION: • MAKE SURE THAT ALL THE HYDRAULIC LINES ARE CONNECTED NOT TO LET HYDRAULIC OIL FALL OUT.

• DO NOT LET THE CLEANING PRODUCT TOUCH PAINT-FINISH SURFACES NOT TO CAUSE DAMAGE TO THEM.

• USE CLEAN, SOFT (COTTON), NON-SYNTHETIC AND LINT-FREE CLOTHS ONLY. DO NOT PUT REMAINING CLEANING MATERIAL BACK INTO ORIGINAL CONTAINERS TO PREVENT CONTAMINATION.

• DO NOT POUR CLEANING PRODUCT DIRECTLY ON THE SURFACE TO BE CLEANED.

• DO NOT PERMIT CLEANING PRODUCT TO EVAPORATE BEFORE IT IS DRIED WITH THE CLOTH.

(1) Make sure that the aircraft is in the same configuration as it was at the end of the removal ([AMM TASK 78-32-05-000-801-A/400](#)).

(2) On the circuit breaker panel, open the circuit breakers below and attach a DO-NOT-CLOSE tag to them:

• THRUST REVERSER 1/2.

• HYD. ELEC. PUMP 1/2.

J. Installation (Figure 401)

SUBTASK 420-002-A

WARNING: • MAKE SURE THAT THE ELECTRICAL POWER SUPPLY IS REMOVED FROM THE THRUST REVERSERS. ENERGIZED CIRCUITS CAN CAUSE INJURY TO PERSONS.

• MAKE SURE THAT THE HYDRAULIC TEST STAND IS NOT CONNECTED.

(1) (For BOLT-BONDED tertiary-lock actuator).

- (a) Prepare the tertiary-lock actuator base surface for bonding. Do the bonding procedures, method 3 ([AMM TASK 20-13-21-910-801-A/200](#)).

- (b) Install the tertiary-lock actuator (12) to the rear-wall access hole.

- (c) Install the bolts (9) and nuts (10) and torque them as shown in Figure 401.

NOTE: • The torque values for the outer and inner nuts are different.
• The torque values for bolt-bonded and jumper-bonded tertiary-lock actuators are different.

- (d) Do the bonding test ([AMM TASK 20-13-21-700-801-A/200](#)).

- (e) Do the bonding protection procedures for the tertiary-lock actuator base ([AMM TASK 20-13-21-910-802-A/200](#)).

- (f) Remove the protection caps from the electrical connectors (11). Install the applicable clamps and connect the connectors back.

(2) (For IN-SERVICE-INSTALLED JUMPER-BONDED tertiary-lock actuator).

- (a) Prepare the thrust-reverser structure for bonding (Figure 401, Sheet 3). Do the bonding procedures, method 7 ([AMM TASK 20-13-21-910-801-A/200](#)).

- (b) Install the tertiary-lock actuator (12) to the rear-wall access hole.

- (c) Install the bolts (9) and nuts (10) and torque them as shown in Figure 401.

NOTE: • The torque values for the outer and inner nuts are different.
• The torque values for bolt-bonded and jumper-bonded tertiary-lock actuators are different.

- (d) Slide the rear-wall cover plate in the same position it was and attach the bonding jumper (13) to the thrust-reverser structure with the rear-wall cover plate bolt (5).

NOTE: Refer to (IPC 78-31-00), if necessary.

- (e) Do the bonding test ([AMM TASK 20-13-21-700-801-A/200](#)).

- (f) Do the bonding protection procedures for the thrust-reverser structure ([AMM TASK 20-13-21-910-802-A/200](#)).

- (g) Remove the protection caps from the electrical connectors (11). Install the applicable clamps and connect the connectors back.

(3) (For FACTORY-INSTALLED JUMPER-BONDED tertiary-lock actuator).

- (a) Prepare the thrust-reverser structure for bonding (Figure 401, Sheet 4). Do the bonding procedures, method 7 ([AMM TASK 20-13-21-910-801-A/200](#)).

- (b) Install the tertiary-lock actuator (12) to the rear-wall access hole.

- (c) Install the bolts (9) and nuts (10) and torque them as shown in Figure 401.

- NOTE: • The torque values for the outer and inner nuts are different.
- The torque values for bolt-bonded and jumper-bonded tertiary-lock actuators are different.

- (d) Attach the bonding jumper (13) to the thrust-reverser structure. Tighten the bolt (14), washers (15), and nut (16).
- (e) Do the bonding test ([AMM TASK 20-13-21-700-801-A/200](#)).
- (f) Do the bonding protection procedures for the thrust-reverser structure ([AMM TASK 20-13-21-910-802-A/200](#)).
- (g) Remove the protection caps from the electrical connectors (11). Install the applicable clamps and connect the connectors back.

- (4) Install the rear-wall cover plate (8), bolts (5), washers (6), and nuts (7).

NOTE: Refer to (IPC 78-31-00), if necessary.

- (5) Prepare the rear-wall cover plate for bonding (Figure 401, Sheet 5). Do the bonding procedures, method 7 ([AMM TASK 20-13-21-910-801-A/200](#)).

- (6) Install the bolt (19), washer (20), washer (21), washers (22) and nut (23) that attach the thrust reverser actuator bonding jumper (24) to the rear wall cover plate (8).

NOTE: Refer to (IPC 78-32-01), if necessary.

- (7) Do the bonding test ([AMM TASK 20-13-21-700-801-A/200](#)).

- (8) Do the bonding protection procedures for the rear wall cover plate ([AMM TASK 20-13-21-910-802-A/200](#)).

- (9) Install the inhibition socket mount bracket (4) and bolts (1).

- (10) Install the washers (2) and nuts (3) and torque them as shown in Figure 401.

NOTE: The torque values for the outer and inner nuts are different.

- (11) Apply spiral wraps to the thrust-reverser actuator hydraulic line (17), if applicable.

WARNING: BE VERY CAREFUL WHEN YOU CONNECT HYDRAULIC LINES, SKYDROL FLUID IS VERY DANGEROUS.

- (12) Remove the caps from the actuator port and hydraulic line (17). Connect and torque it as shown in Figure 401.

K. Follow-on

SUBTASK 842-002-A

CAUTION: EXAMINE ALL THE WORK AREAS TO MAKE SURE YOU DID NOT LET TOOLS OR OTHER EQUIPMENT STAY BEHIND.

- (1) Install access panels 416HT, 426HT, 416BB, and 426BB ([AMM MPP 06-43-00/100](#)) as applicable.



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- (2) On the circuit breaker panel, close the circuit breakers below and remove the DO-NOT-CLOSE tag from them:
 - THRUST REVERSER 1/2.
 - HYD. ELEC. PUMP 1/2.
- (3) Remove the DO-NOT-OPERATE-THE-THRUST-REVERSERS sign from the instrument panel, in the cockpit.
- (4) Close the thrust-reverser doors ([AMM TASK 78-31-01-940-802-A/200](#)).
- (5) Remove the workstand from the work area.
- (6) Do the engine thrust reverser operational check ([AMM TASK 78-31-01-700-801-A/500](#)) (two cycles minimum).

