



## AIRCRAFT MAINTENANCE MANUAL

### RUDDER REAR TORQUE TUBE - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

#### 1. General

- A. This section gives the procedures to remove and install the rear torque tube of the rudder control system.
- 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
27-21-06-000-801-A	REAR TORQUE TUBE - REMOVAL	ALL
27-21-06-400-801-A	REAR TORQUE TUBE - INSTALLATION	ALL



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TASK 27-21-06-000-801-A

EFFECTIVITY: ALL

2. REAR TORQUE TUBE - REMOVAL

A. General

- (1) This procedure gives the instructions to remove the rear torque tube of the rudder control system.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
311		Structural area aft of the rear pressure bulkhead - LH
312	312AR	Structural area aft of the rear pressure bulkhead - RH

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 058	Kit, rig pins, flight controls	To lock the rudder control system in the neutral position	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Structural area aft of rear pressure bulkhead

I. Preparation

SUBTASK 841-002-A

- (1) Open door 312AR (AMM MPP 06-42-00/100).
- (2) Install the rig pins in the PCU and torque tube of the rudder control system to lock it in the neutral position.



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

SUBTASK 020-002-A

- (1) Release the tension on the control cables (15), (16), (17), and (18), and disconnect them from the sectors at the torque tube (1). For this, remove the cotter pin (21), pin (20), and cotter pin (22) (refer to DET. D).

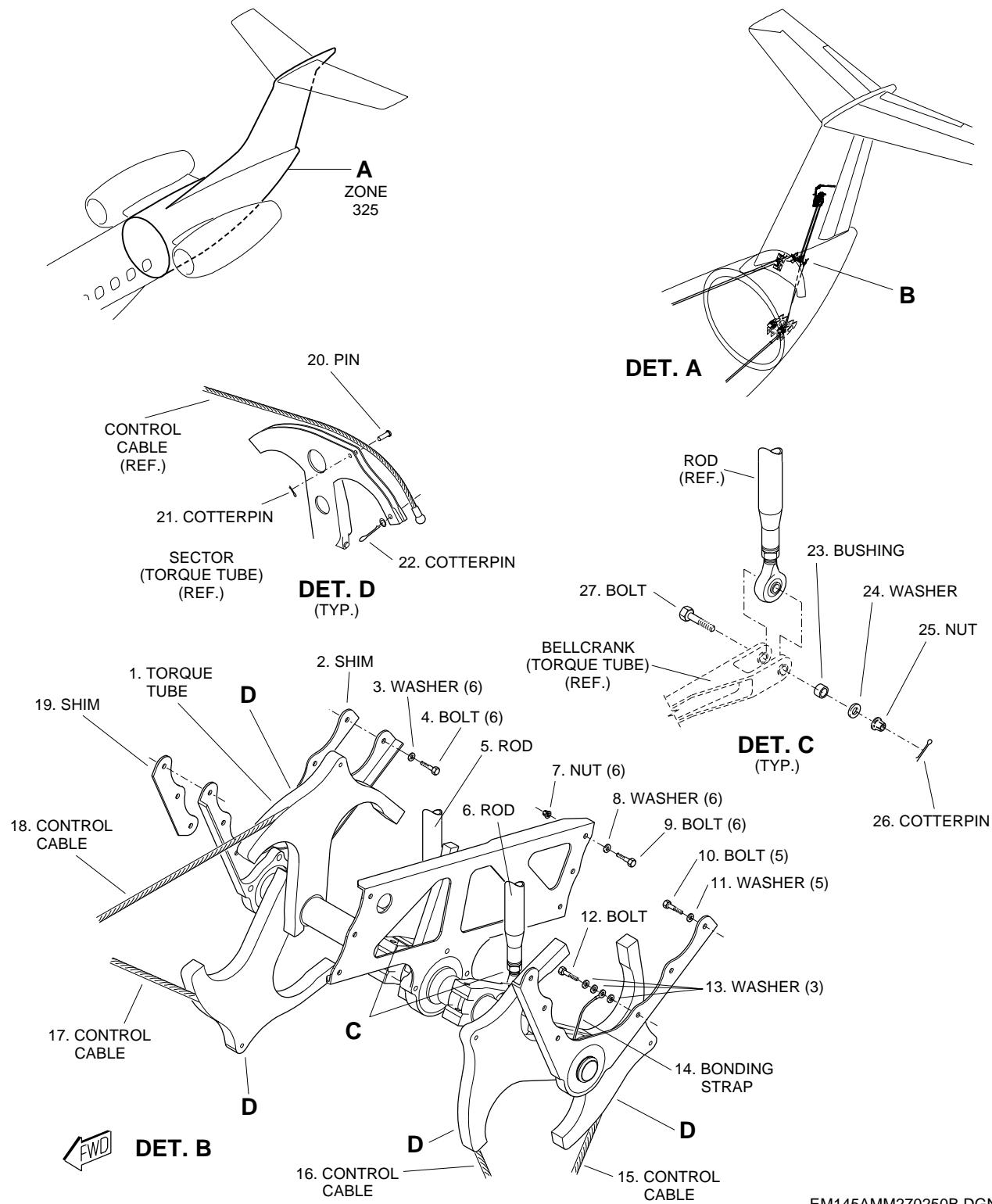
**NOTE:** Identify the positions of the control cables (15), (16), (17), and (18) to install them again in the same positions.

- (2) Disconnect the ends of the rods (5) and (6) from the bellcranks at the torque tube (1). For this, remove the cotter pin (26), nut (25), washer (24), bushing (23), and bolt (27) (refer to DET. C).
- (3) Disconnect the end of the bonding strap (14) from the fuselage structure. For this, remove the bolt (12) and three washers (13).
- (4) Remove the bolts (10) and washers (11) (5 positions) to release the LH support of the torque tube (1) from the fuselage structure.
- (5) Remove the bolts (4) and washers (3) (6 positions), and shims (2) and (19), to release the RH support of the torque tube (1) from the fuselage structure.
- (6) Remove the bolts (4) and washers (3) (6 positions) to release the RH support of the torque tube (1) from the fuselage structure.
- (7) Remove the bolts (9), washers (8), and nuts (7) (6 positions) to release the center support of the torque tube (1) from the fuselage structure.
- (8) Remove the torque tube (1).

**EFFECTIVITY: ALL**

Rear Torque Tube - Removal/Installation

Figure 401



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TASK 27-21-06-400-801-A

EFFECTIVITY: ALL

### 3. REAR TORQUE TUBE - INSTALLATION

#### A. General

- (1) This procedure gives the instructions to install the rear torque tube of the rudder control system.

#### B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
<a href="#">AMM TASK 20-13-21-910-801-A/200</a>	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
AMM TASK 27-21-01-700-801-A/500	-
<a href="#">AMM TASK 27-25-00-700-801-A/500</a>	RUDDER PEDALS AUTOSHUTOFF AND RUDDER MANUAL SHUTOFF FUNCTIONS- OPERATIONAL CHECK
IPC 27-21-00	RUDDER PRIMARY MECHANICAL CONTROL
IPC 27-21-04	FORWARD TORQUE TUBE ASSY
IPC 27-21-05	TORQUE TUBE

#### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
311		Structural area aft of the rear pressure bulkhead - LH
312	312AR	Structural area aft of the rear pressure bulkhead - RH

#### D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
<a href="#">GSE 058</a>	Kit, rig pins, flight controls	To lock the rudder control system in the neutral position	

#### E. Auxiliary Items

Not Applicable

#### F. Consumable Materials

Not Applicable

#### G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-21-00	2
Cotter pin	IPC 27-21-05	4



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ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-21-04	4

## H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Structural area aft of rear pressure bulk-head

## I. Installation (Figure 401)

## SUBTASK 420-002-A

- (1) Put the torque tube (1) in its installation position.
- (2) Install the bolts (9), washers (8), and nuts (7) (6 positions), to attach the center support of the torque tube (1) to the fuselage structure.
- (3) Put the shims (19) and (2) between the RH support of the torque tube (1) and the fuselage structure.
- (4) Install the bolts (4) and washers (3) (6 positions) to attach the RH support of the torque tube (1) to the fuselage structure.
- (5) Install the bolts (10) and washers (11) (5 positions) to attach the LH support of the torque tube (1) to the fuselage structure.
- (6) Connect the end of the bonding strap (14) to the fuselage structure. For this, install the bolt (12) and three washers (13).

**NOTE:** Refer to [AMM TASK 20-13-21-910-801-A/200](#) for the correct installation of the bonding strap (14).

- (7) Connect the end of the rods (5) and (6) to the bellcranks at the torque tube (1). For this, install the bolt (27), bushing (23), washer (24), nut (25), and cotter pin (26) (refer to DET. C).

- (8) Connect the control cables (18), (17), (16), and (15) to the sectors at the torque tube (1). Install the cotter pin (22), pin (20), and cotter pin (21) (refer to DET. D).

**NOTE:** The control cables (15), (16), (17), and (18) must be installed in the same positions as those they were removed from. Refer to their position identification.

## J. Follow-on

## SUBTASK 842-002-A

- (1) Apply tension to the control cables of the rudder control system ([AMM TASK 27-21-01-700-801-A/500](#)).
- (2) Remove the rig pins from the rudder control system.
- (3) Do a check on the rudder control system ([AMM TASK 27-25-00-700-801-A/500](#)).



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- (4) Close door 312AR (AMM MPP 06-42-00/100).

