



AIRCRAFT MAINTENANCE MANUAL

RUDDER PCU - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the rudder PCU in the vertical stabilizer.
- 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
27-22-03-000-801-A	RUDDER PCU - REMOVAL	ALL
27-22-03-400-801-A	RUDDER PCU - INSTALLATION	ALL



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TASK 27-22-03-000-801-A

EFFECTIVITY: ALL

2. RUDDER PCU - REMOVAL

A. General

(1) This task gives the procedures to remove the rudder PCU from the vertical stabilizer.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM TASK 27-24-00-000-801-A/400	RUDDER YAW TRIM - REMOVAL
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
325	325HR	Vertical stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Hydraulic Platform	To get access to the vertical stabilizer	
GSE 058	Kit, Rig Pins	To lock the rudder system in the neutral position	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Phosphate Ester-Base, Fluid-Resistant	Protection for the hands	1
Commercially available	Rubber Goggles, Phosphate Ester-Base, Fluid-Resistant	Protection for the eyes	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Vertical stabilizer



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I. Preparation

SUBTASK 841-002-A

- (1) Release the pressure of the hydraulic system ([AMM TASK 29-10-00-860-801-A/200](#)).
- (2) On the circuit breaker panel, open the ELEC PUMP 1, ELEC PUMP 2, RUDDER 1, and RUDDER 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (3) Get access to the vertical stabilizer and open access door 325HR (AMM MPP 06-42-00/100).

J. Rudder PCU - Removal ([Figure 401](#))

SUBTASK 020-002-A

WARNING: THE HYDRAULIC SYSTEM CONTAINS PHOSPHATE-ESTER HYDRAULIC FLUID. THE FLUID CAN CAUSE IRRITATION IN YOUR SKIN OR INJURY TO YOUR EYES. USE THE APPLICABLE RUBBER GOGGLES AND GLOVES. IF THE FLUID TOUCHES YOU, FLUSH YOUR SKIN WITH WATER. IF IT GETS IN YOUR EYES, FLUSH THEM WITH WATER AND GET MEDICAL HELP.

- (1) Remove the electrical connectors from the rudder PCU.
- (2) Remove the rudder trim actuator (1) from the rudder PCU (2) ([AMM TASK 27-24-00-000-801-A/400](#)). Refer to sheet 1 (DET. B) and sheet 2 (DET. D) of [Figure 401](#).
- (3) Remove the hydraulic tubes (21), (26), (27) and (29). Refer to sheet 4 of [Figure 401](#).
 - (a) Remove the unions (22) and (25).
 - (b) Remove and discard the O-rings (23), (24) and (28).
- (4) Install the rig pin to the bellcrank installed below the rudder PCU (2) to keep the rudder control in the neutral position (Refer to sheet 5 of [Figure 401](#)).

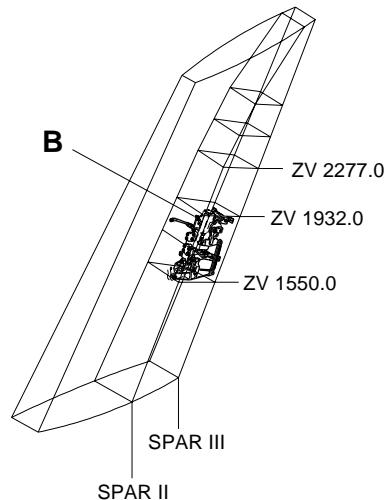
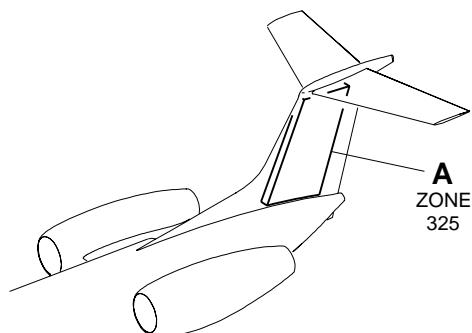
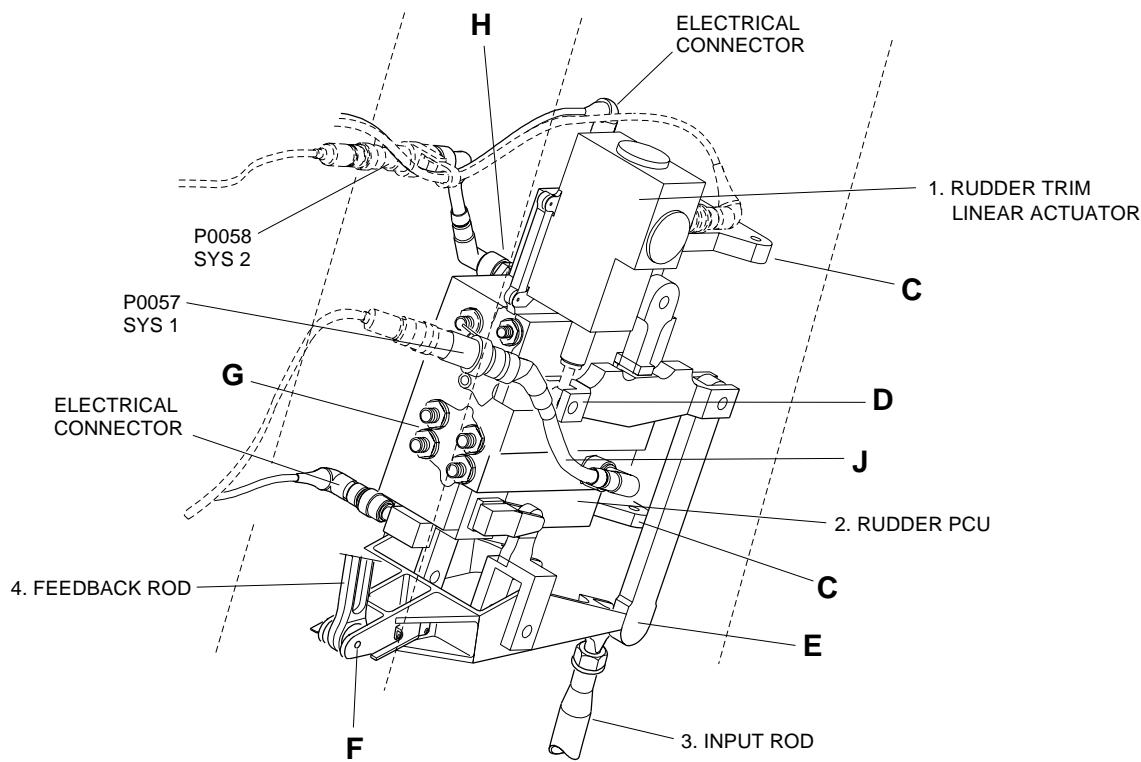
CAUTION: BE CAREFUL NO TO CAUSE DAMAGE TO THE PIN LOCK-RIGHT AND PIN LOCK-LEFT.

- (5) Remove the cotter pin (17), nut (16), washer (18) and bolt (19) to disconnect the feedback rod (4) from the PCU. Refer to sheet 3 (DET. F) of [Figure 401](#).
- (6) Remove the cotter pin (20), nut (13), washers (14) and bolt (15) to disconnect the input rod (3) from the PCU (2). Refer to sheet 1 (DET. E) of [Figure 401](#).
- (7) Remove the bolts (5), washers (6), nuts (7) and bushing (8). Remove the PCU (2) from the vertical stabilizer. Refer to sheet 1 (DET. C) of [Figure 401](#).

EFFECTIVITY: ALL

Rudder PCU - Removal/Installation

Figure 401 - Sheet 1

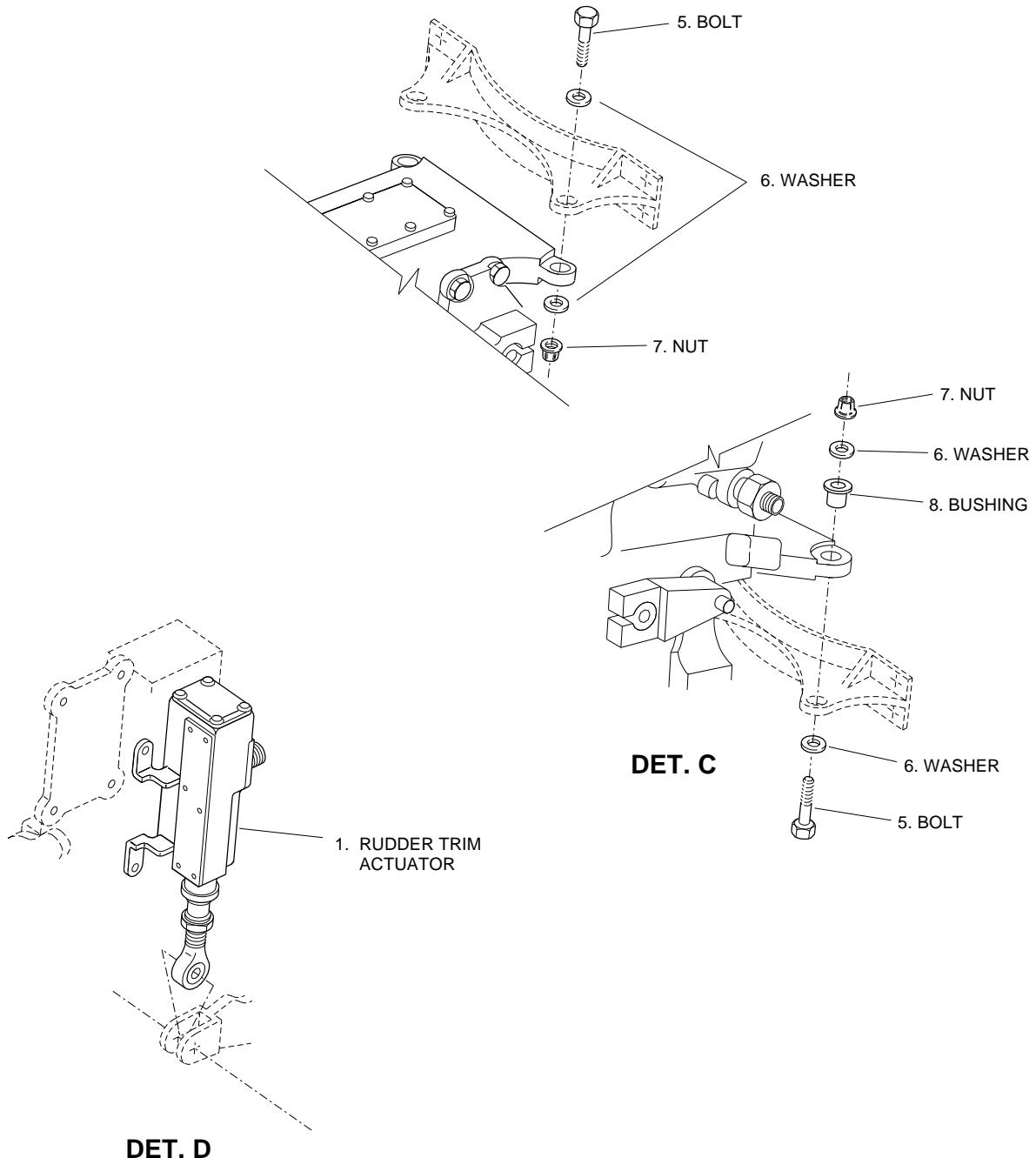

DET. A

DET. B

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EFFECTIVITY: ALL

Rudder PCU - Removal/Installation

Figure 401 - Sheet 2

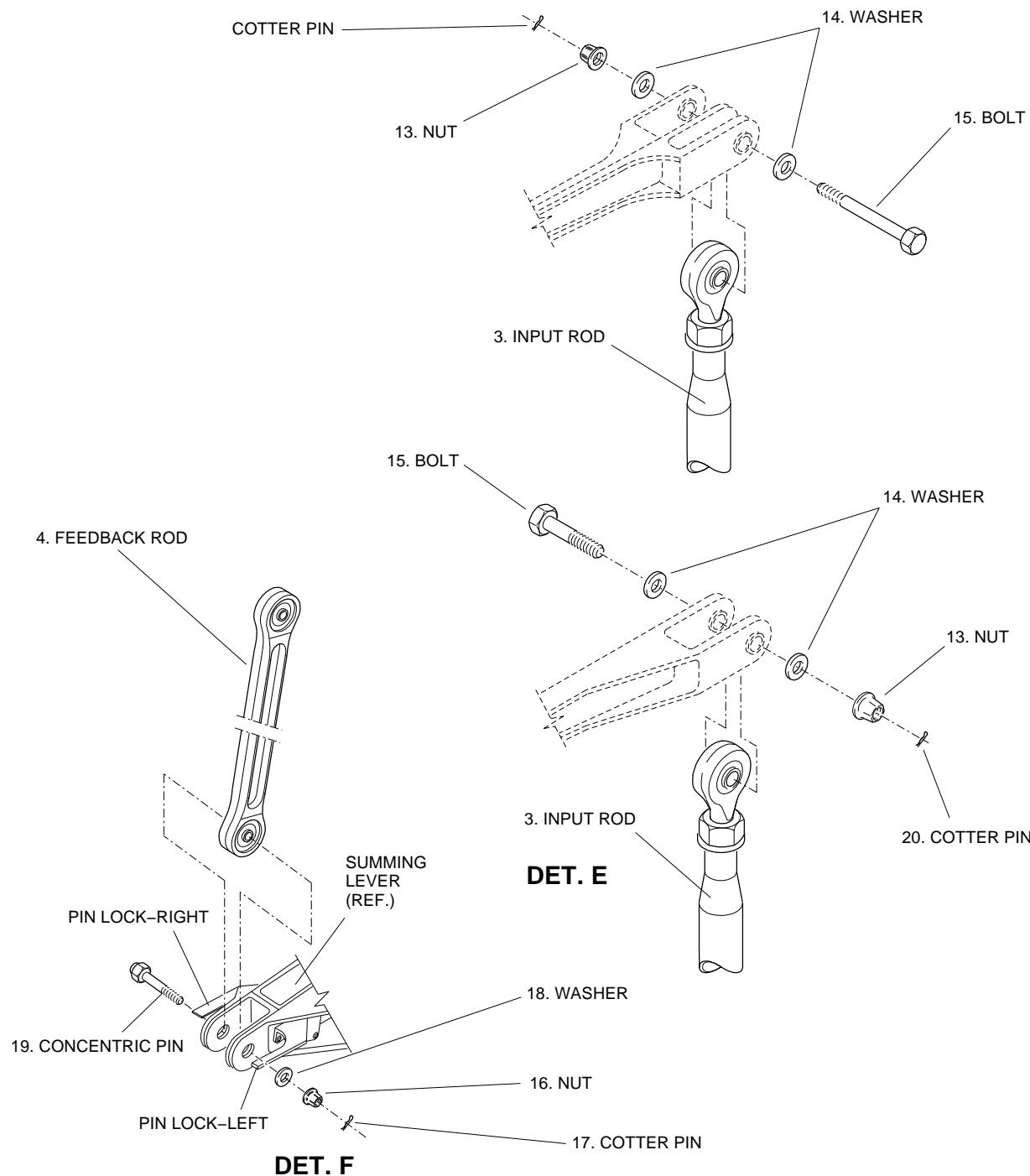


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EFFECTIVITY: ALL

Rudder PCU - Removal/Installation

Figure 401 - Sheet 3

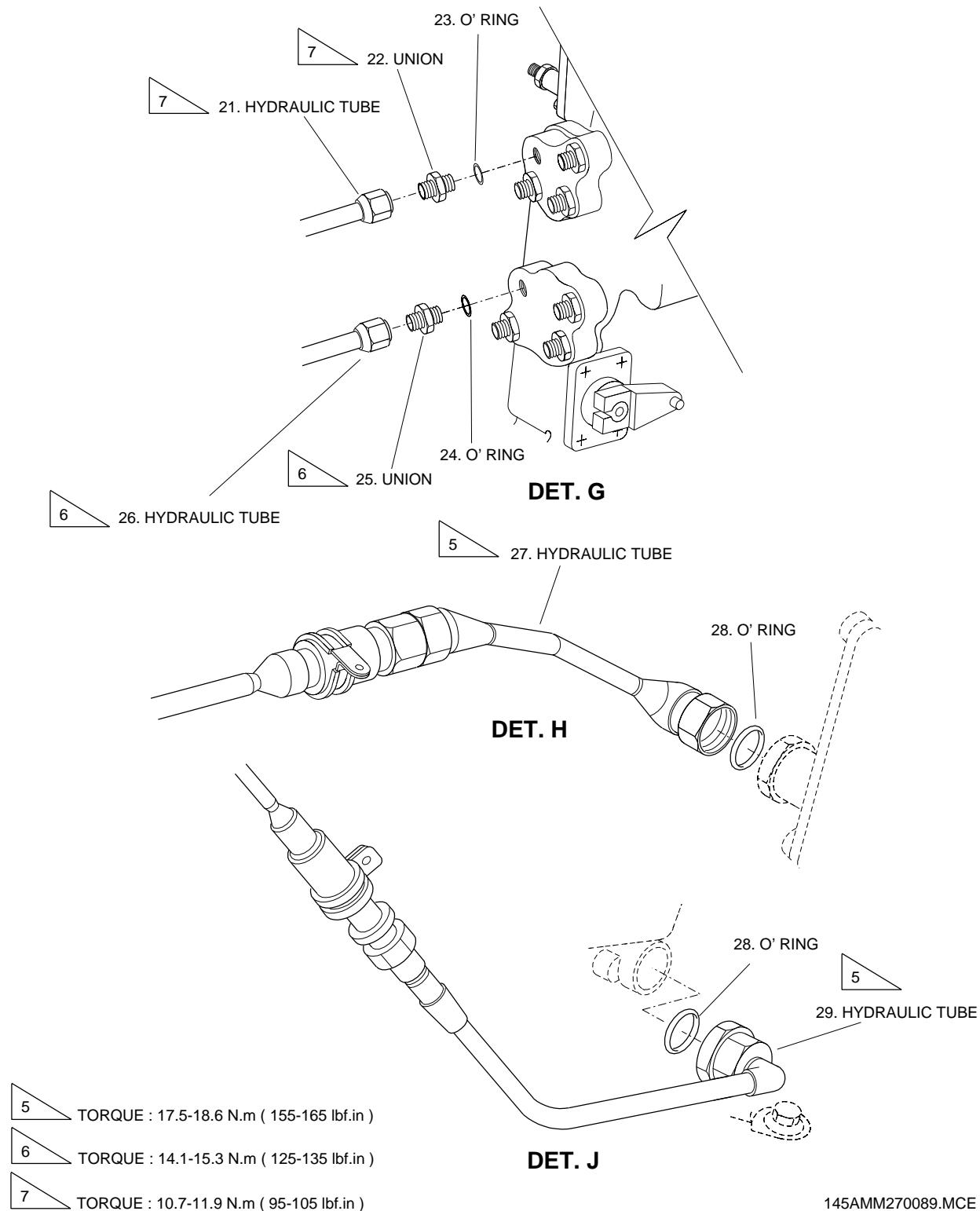


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EFFECTIVITY: ALL

Rudder PCU - Removal/Installation

Figure 401 - Sheet 4

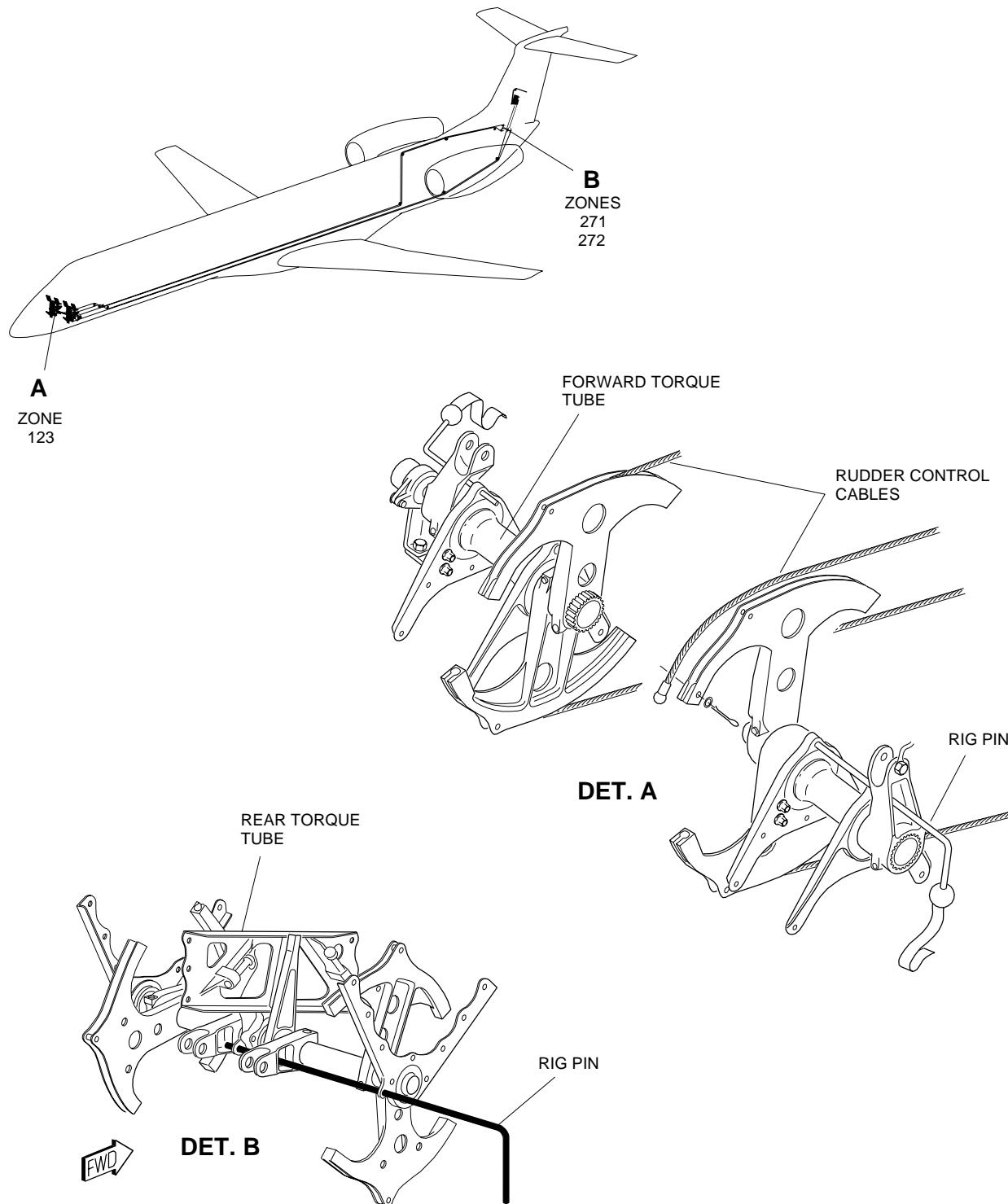


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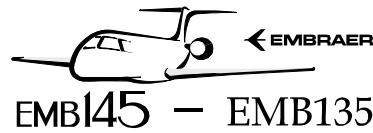
EFFECTIVITY: ALL

Rudder PCU - Removal/Installation

Figure 401 - Sheet 5



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TASK 27-22-03-400-801-A

EFFECTIVITY: ALL

3. RUDDER PCU - INSTALLATION

A. General

(1) This task gives the procedures to install the rudder PCU in the vertical stabilizer.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM TASK 27-22-01-700-801-A/500	RUDDER POWER CONTROL UNIT/ACTUATORS DIFFERENTIAL PRESSURE -FUNCTIONAL CHECK
AMM TASK 27-23-00-700-804-A/500	RUDDER SYSTEM - OPERATIONAL CHECK
AMM TASK 27-24-00-400-801-A/400	RUDDER YAW TRIM - INSTALLATION
AMM TASK 29-10-00-860-803-A/200	HYDRAULIC SYSTEM - BLEED OF AIR
IPC 27-21-00	RUDDER PRIMARY MECHANICAL CONTROL
IPC 27-22-00	RUDDER HYDRAULIC ACTUATION
IPC 27-24-00	YAW TRIM ACTUATOR
SB145-27-0015	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
325	325HR	Vertical stabilizer

D. Tools and Equipment

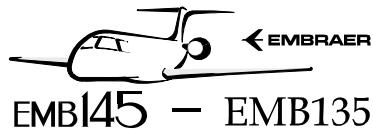
ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Hydraulic Platform	To get access to the vertical stabilizer	
GSE 058	Kit, Rig Pins	To lock the rudder system in the neutral position	
Commercially available	Torque wrench	To apply the torques	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Phosphate Ester-Base, Fluid-Resistant	Protection for the hands	1
Commercially available	Rubber Goggles, Phosphate Ester-Base, Fluid-Resistant	Protection for the eyes	1

F. Consumable Materials

Not Applicable



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G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-24-00	1
Cotter pin	IPC 27-21-00	2
Cotter pin	IPC 27-24-00	1
O-ring	IPC 27-22-00	2
O-ring	IPC 27-22-00	4
O-ring	IPC 27-22-00	4

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Vertical stabilizer

I. Preparation

SUBTASK 841-006-A

- (1) Remove the storage fluid from the PCU. Keep the caps installed.

J. Rudder PCU - Installation (Figure 401)

SUBTASK 420-004-A

WARNING: THE HYDRAULIC SYSTEM CONTAINS PHOSPHATE-ESTER HYDRAULIC FLUID. THE FLUID CAN CAUSE IRRITATION IN YOUR SKIN OR INJURY TO YOUR EYES. USE THE APPLICABLE RUBBER GOGGLES AND GLOVES. IF THE FLUID TOUCHES YOU, FLUSH YOUR SKIN WITH WATER. IF IT GETS IN YOUR EYES, FLUSH THEM WITH WATER AND GET MEDICAL HELP.

- (1) Use the bolt (5), washers (6), nuts (7) and bushing (8) to install the rudder PCU (2) in the vertical stabilizer. Refer to sheets 1 and 2 of (Figure 401).
- (2) Torque the nut (7) (20-10-01/201).

CAUTION: BE CAREFUL NO TO CAUSE DAMAGE TO THE PIN LOCK-RIGHT AND PIN LOCK-LEFT.

- (3) Install the input rod (3) and feedback rod (4) to the rudder PCU (2). Refer to sheets 1 and 3 of (Figure 401).
 - Use bolts (15), washers (14) and nuts (13) to install input rod (3) (2 units) to the rudder PCU (2). Refer to sheet 3 (DET. E) of (Figure 401). Torque the nut (13) (20-10-01/201).
 - Use bolts (19), washers (18), nuts (16) to install the feedback rod (4) to the rudder PCU (2). Refer to sheet 3 (DET. F) of (Figure 401). Torque the nut (16) (20-10-01/201).
- (4) Install the hydraulic lines to the rudder PCU (2). Refer to sheets 1 and 4 of (Figure 401).

- Install union (22) and (25) to the rudder PCU. Use new O-rings (23), (24) and (28).
 - Torque the unions as shown on sheet 4 of (Figure 401).
 - Install hydraulic tubes (21), (26), (27) and (29) to the rudder PCU (2).
 - Torque the nuts of the tubes as show on sheet 4 of (Figure 401).
- (5) Install the rudder trim actuator (1) to the rudder PCU (2) ([AMM TASK 27-24-00-400-801-A/400](#)). Refer to sheet 1 (DET. B) and sheet 2 (DET. D) of (Figure 401).
- (6) Install the electrical connectors to the rudder PCU.
- (7) Remove the rig pin from the bellcrank installed below the rudder PCU (2).
- (8) Torque the nuts as shown in (Figure 401) and install the cotter pins.

K. Follow-on

SUBTASK 842-004-A

- (1) On the circuit breaker panel, close the ELEC PUMP 1, ELEC PUMP 2, RUDDER 1, and RUDDER 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE RUDDER TRAVEL AREA.

- (2) Bleed the air from the hydraulic system lines ([AMM TASK 29-10-00-860-803-A/200](#)).
- (3) Make sure that there are no leaks in the rudder PCU.
- (4) Do a check of the deflection of rudder I. See [Table 401](#).

Table 401 - RUDDER I DEFLECTION

	FAA/CTA/IAC-AR-CERTIFIED AIRCRAFT	JAA-CERTIFIED AIRCRAFT	
		PRE-MOD SB145-27-001 5	POST-MOD SB145-27-0015 or equipped with MOVABLE PRIMARY STOP SYSTEM
On the Ground condition	15 degrees \pm 1 degree	10 degrees \pm 30 minutes	15 degrees \pm 1 degree
In flight condition			10 degrees \pm 30 minutes

- (5) Do the rudder differential pressure test ([AMM TASK 27-22-01-700-801-A/500](#)).
- (6) Do the operational check of the rudder system ([AMM TASK 27-23-00-700-804-A/500](#)).
- (7) Close access door 325JR (AMM MPP 06-42-00/100).
- (8) Remove platform GSE 036.

