



AIRCRAFT MAINTENANCE MANUAL

RUDDER DIFFERENTIAL PRESSURE - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to do the functional check of the rudder differential pressure.
- 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
27-22-01-700-801-A ♦	RUDDER POWER CONTROL UNIT/ ACTUATORS DIFFERENTIAL PRESSURE -FUNCTIONAL CHECK	ALL



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 27-22-01-700-801-A

EFFECTIVITY: ALL

2. RUDDER POWER CONTROL UNIT/ACTUATORS DIFFERENTIAL PRESSURE -FUNCTIONAL CHECK

A. General

(1) This task gives the procedures to do the functional check of the rudder differential pressure.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM TASK 27-22-00-870-801-A/300	RUDDER ACTUATOR BLEEDING
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
IPC 27-24-00	YAW TRIM ACTUATOR

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223		Cockpit LH
224		Cockpit RH
325	325AL	Vertical stabilizer
325	325CL	Vertical stabilizer
325	325HR	Vertical stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Hydraulic Platform	To get access to the vertical stabilizer	
GSE 044	Head Set	For communications	
Commercially available	Pressure gauge, 3500 psig	To measure the pressure	

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
Commercially available	Hose (SKYDROL-resistant)	To connect the hydraulic ports	AR

F. Consumable Materials

Not Applicable

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-24-00	2

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Vertical stabilizer
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-002-A

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

- (1) Release the pressure of the hydraulic system ([AMM TASK 29-10-00-860-801-A/200](#)).
- (2) Get access to the vertical stabilizer. Open access door 325AL, 325CL and 325HR ([AMM MPP 06-42-00/100](#)).

J. Functionally Check Rudder Power Control Unit/Actuators Differential Pressure ([Figure 501](#))

SUBTASK 720-002-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.

- MAKE SURE THAT THE HYDRAULIC SYSTEM IS NOT PRESSURIZED.

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

- (1) Disconnect the lower rudder feedback rod from the summing lever. See [Figure 501](#).
 - (2) Cut the lockwire from the bleed valves of the upper and lower actuators.
 - (3) Install the hoses in the upper rudder actuator bleed valves. See [Figure 501](#).
- NOTE:** The hoses must be SKYDROL fluid-resistant and approved for 3500 psi.
- (4) Install the pressure gauges (3500 psig) to the two hoses. See [Figure 501](#).
 - (5) On the Flight Control Panel, make sure that the pushbuttons of rudder system 1 and rudder system 2 are off.
 - (6) Pressurize hydraulic system 1 ([AMM TASK 29-10-00-860-801-A/200](#)).

WARNING: MAKE SURE THAT THERE ARE NO PERSONS IN THE RUDDER TRAVEL AREA BECAUSE, WHEN YOU TURN ON RUDDER SYSTEM 1, THE RUDDER WILL MOVE UNTIL IT REACHES ITS STOP.

- (7) Turn on rudder system 1.
- (8) Open the bleed valves of the upper actuator 1/4 of turn.
- (9) Manually move the rudder fully to the left and fully to the right to cycle the rudder system, two times. For this, use the summing lever.
- (10) Manually operate the summing lever up to its stop to move the rudder to the full left position. Refer to [Figure 501](#).

NOTE: Make sure that the lower feedback rod is disconnected from the summing lever.

- (11) Write down the values shown on the pressure gauges and calculate the differential pressure.

$$Pa = \underline{\hspace{2cm}} \text{ psi}$$

$$Pb = \underline{\hspace{2cm}} \text{ psi}$$

$$\Delta P = |\underline{\hspace{2cm}}| \text{ psi}$$

- (12) Make sure that the differential pressure between the pressure gauges is 2700 psi.
- (13) Manually move the rudder fully to the left and fully to the right to cycle the rudder system, two times. For this, use the summing lever.
- (14) Manually operate the summing lever down to its stop to move the rudder to the full right position. Refer to [Figure 501](#).

NOTE: Make sure that the lower feedback rod is disconnected from the summing lever.

- (15) Write down the values shown on the pressure gauges and calculate the differential pressure.

$$Pa = \underline{\hspace{2cm}} \text{ psi}$$

$$Pb = \underline{\hspace{2cm}} \text{ psi}$$

$$\Delta P = |\underline{\hspace{2cm}}| \text{ psi}$$

- (16) Make sure that the differential pressure between the pressure gauges is 2700 psi.
- (17) Turn off rudder system 1 and release the pressure of hydraulic system 1 ([AMM TASK 29-10-00-860-801-A/200](#)).

CAUTION: IF YOU APPLY TOO MUCH TORQUE OR IF THE TORQUE VALUE IS BELOW THE SPECIFIED VALUE, LOSS OF THE APPLICABLE HYDRAULIC SYSTEM CAN OCCUR.

- (18) Close the bleed valves. Apply a torque of 3.5 - 4.5 N.m (31 - 40 lbf.in). See [Figure 501](#).

- (19) Remove the hoses ([Figure 501](#)) from the upper rudder actuator hydraulic service lines.
- (20) Do a check on the bleed valves to make sure that the torque applied is 3.5 - 4.5 N.m (31 - 40 lbf.in).
- (21) Install the hoses on the lower actuator.
- (22) Open the bleed valves of the lower rudder actuator 1/4 of turn.
- (23) Pressurize hydraulic system 2 ([AMM TASK 29-10-00-860-801-A/200](#)).

WARNING: MAKE SURE THAT THERE ARE NO PERSONS IN THE RUDDER TRAVEL AREA BECAUSE, WHEN YOU TURN ON RUDDER SYSTEM 2, THE RUDDER WILL MOVE UNTIL IT REACHES ITS STOP.

- (24) Turn on rudder system 2.
 - (25) Do steps 9 thru 20 again for the lower rudder actuator. Use hydraulic system 2 and rudder system 2.
 - (26) Bleed the rudder actuators ([AMM TASK 27-22-00-870-801-A/300](#)).
- CAUTION: SAFETY THE BLEED VALVE TO PREVENT ITS OPENING IN FLIGHT.**
- (27) Safety the bleed valves of the two rudder actuators. See ([Figure 501](#)).
 - (28) Turn off rudder system 2 and release the pressure of hydraulic system 2 ([AMM TASK 29-10-00-860-801-A/200](#)).

K. Follow-on

SUBTASK 842-002-A

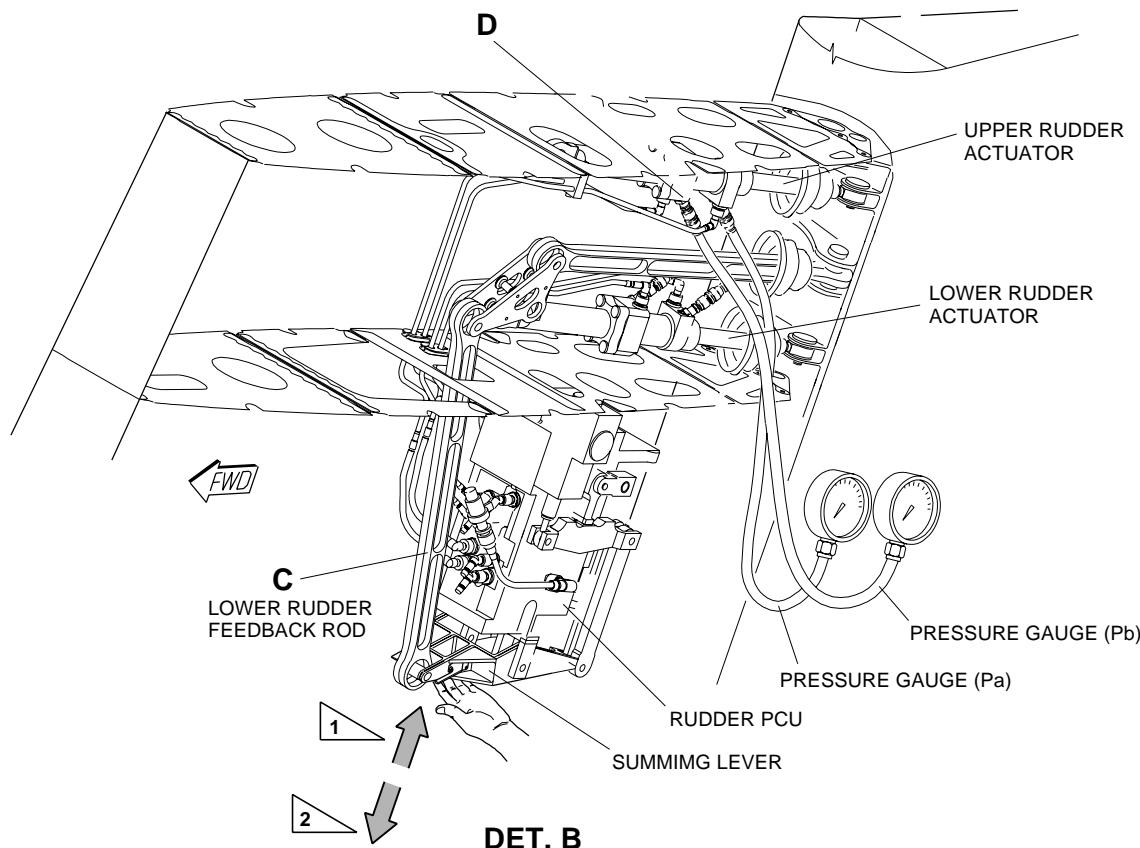
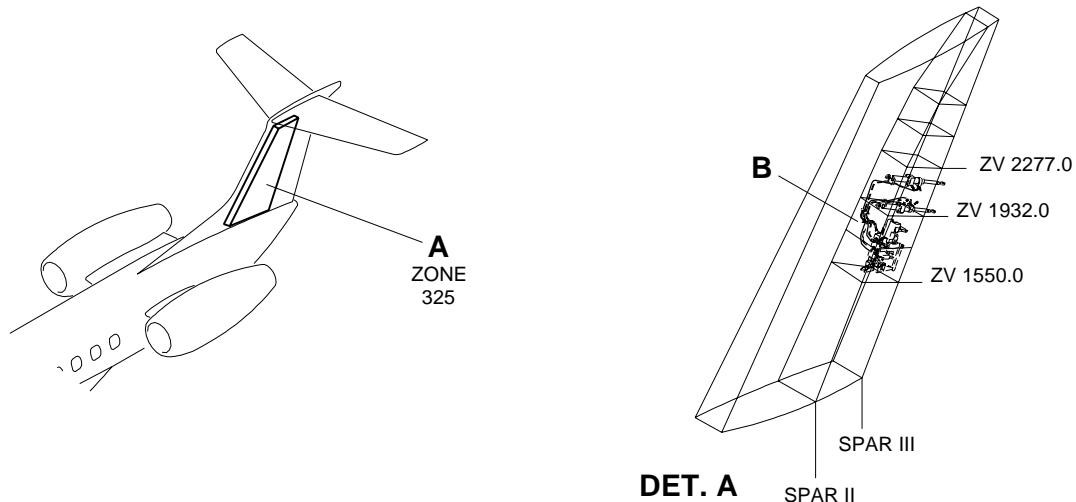
CAUTION: BE CAREFUL NO TO CAUSE DAMAGE TO THE PIN LOCK-RIGHT AND PIN LOCK-LEFT.

- (1) Connect the lower rudder feedback rod to the summing lever and to the bellcrank. See [Figure 501](#).
- (2) Close access door 325AL, 325CL and 325HR ([AMM MPP 06-42-00/100](#)).
- (3) Remove platform GSE 036.

EFFECTIVITY: ALL

Check Rudder Differential Pressure - Test

Figure 501 - Sheet 1



1 MOVE UP THE SUMMING LEVER – TO MOVE THE RUDDER TO THE FULL LEFT.

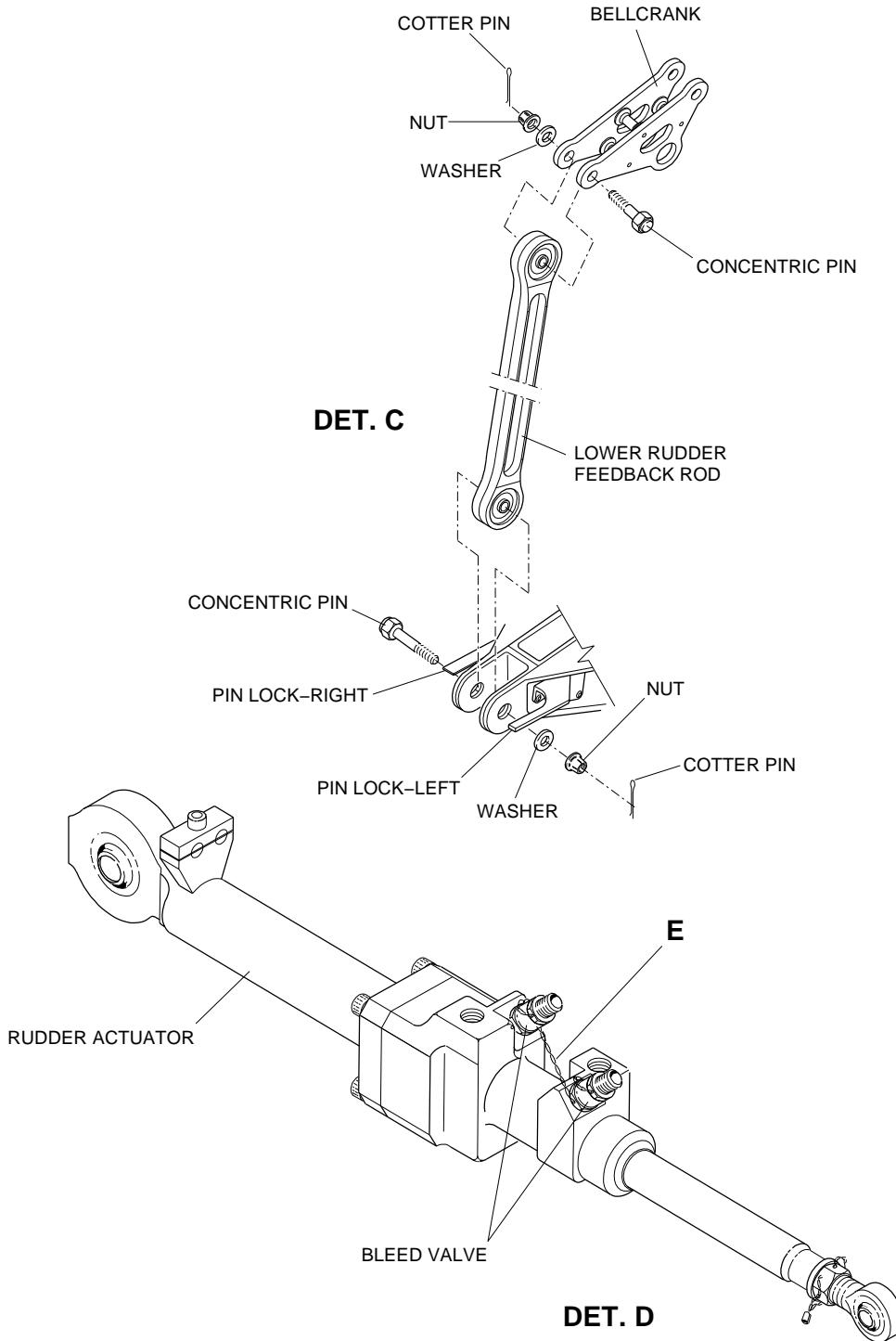
2 MOVE DOWN THE SUMMING LEVER – TO MOVE THE RUDDER TO THE FULL RIGHT.

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EFFECTIVITY: ALL

Check Rudder Differential Pressure - Test

Figure 501 - Sheet 2

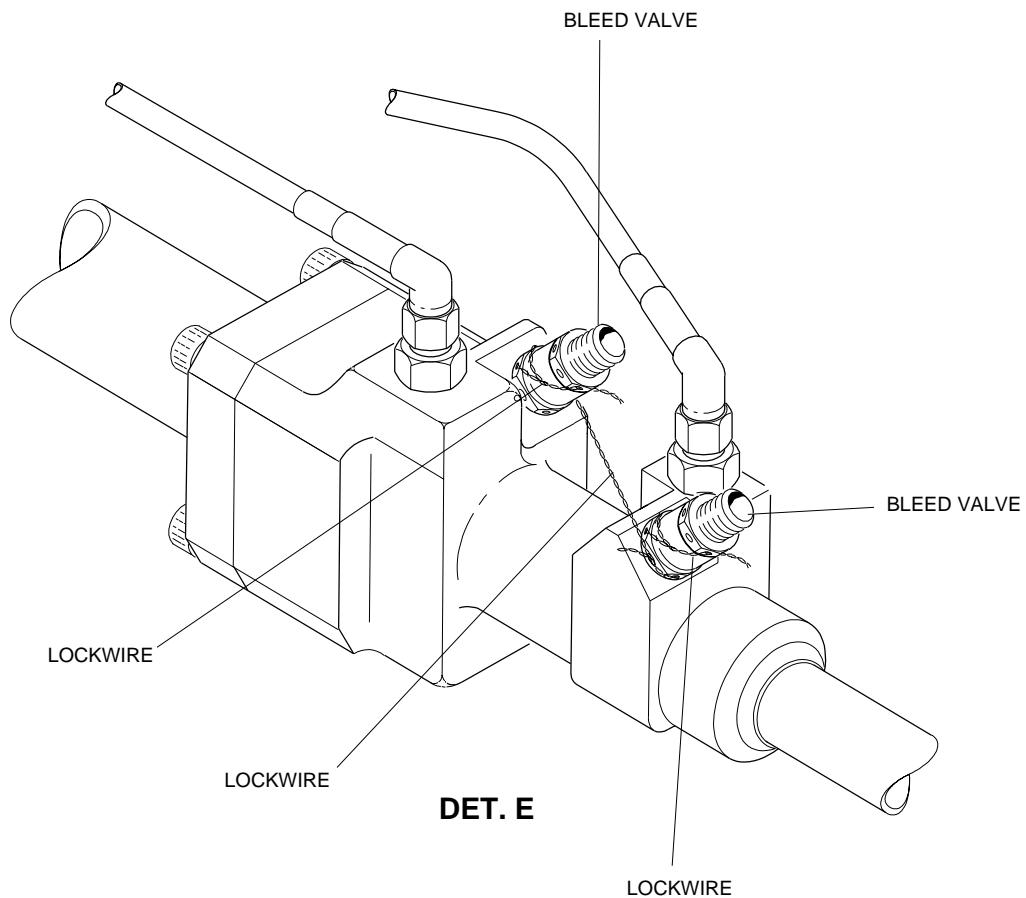


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EFFECTIVITY: ALL

Check Rudder Differential Pressure - Test

Figure 501 - Sheet 3



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