



AIRCRAFT MAINTENANCE MANUAL

HORIZONTAL-STABILIZER ACTUATOR - SERVICING

EFFECTIVITY: ALL

1. General

- A. This section gives the procedure to refill the horizontal-stabilizer actuator and the procedure to do a check for external leakage.
- 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
27-40-02-600-801-A ♦	HORIZONTAL-STABILIZER ACTUATOR - ALL GEAR OIL FILLING	



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 27-40-02-600-801-A

EFFECTIVITY: ALL

2. HORIZONTAL-STABILIZER ACTUATOR - GEAR OIL FILLING

A. General

- (1) This task gives the procedure to refill the horizontal-stabilizer actuator with gear oil and to do a check for external leakage.
- (2) This task is applicable only to aircraft equipped with Horizontal Stabilizer Actuator (HSA) -1009 and on.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 27-40-02-000-801-A/400	HORIZONTAL STABILIZER ACTUATOR - REMOVAL
CMM 27-41-07	-
CMM 27-41-07 / IPL 27-41-07-01-25	-

C. Zones and Accesses

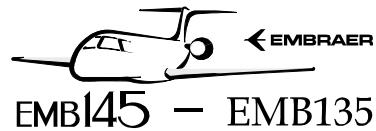
ZONE	PANEL/DOOR	LOCATION
324	324EL	Vertical stabilizer
324	324FR	Vertical stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Hydraulic platform	To get access to the vertical stabilizer	
Commercially available	Torquemeter	To apply a torque of 2.3 to 2.8 N.m (20 to 25 lb.in) to the actuator fill plugs	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Flashlight	To inspect the oil level	1
Commercially available	Inspection mirror	To inspect the oil level	1
Commercially available	Syringe	To fill the HSA	1



AIRCRAFT MAINTENANCE MANUAL

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
Royco 757	Gear oil	AR
MS20995C32	Lockwire	AR
Brayco Micronic 762	Gear oil	AR
Radcolube NLT	Gear oil	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
O-ring	CMM 27-41-07 / IPL 27-41-07-01-25	AR

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Vertical stabilizer

I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Energize the aircraft with the external DC power supply ([AMM TASK 20-40-01-860-801-A/200](#)).
- (3) On the circuit breaker panel, open the PITCH TRIM 1, PITCH TRIM 2, RUDDER1 and RUDDER2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (4) Make sure that the rudder hydraulic systems 1 and 2 are off.
NOTE: The RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbutton lights are on.
- (5) Remove access panels 324EL and 324FR (AMM MPP 06-42-00/100).

J. Filling of the Horizontal-Stabilizer Actuator ([Figure 301](#))

SUBTASK 640-002-A

WARNING: MAKE SURE THAT THE PITCH TRIM CANNOT BE OPERATED ACCIDENTALLY, AN ACCIDENTAL OPERATION OF THE PITCH TRIM CAN CAUSE INJURY TO PERSONS.

- (1) Clean the area around the actuator fill plugs to avoid contamination during the removal of the plug.
- (2) Clean the actuator to remove the evidence of external leakage from around the rubber boot located between the 2 actuator halves, and on the adjacent surface.

- (3) On the circuit breaker panel, close the PITCH TRIM 1, PITCH TRIM 2, RUDDER1 and RUDDER2 circuit breakers and remove the DO-NOT-CLOSE tag from them.
- (4) Cycle the horizontal stabilizer up and down for 3 seconds.
- (5) On the circuit breaker panel, open the PITCH TRIM 1, PITCH TRIM 2, RUDDER1 and RUDDER2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (6) Make sure that the rudder hydraulic systems 1 and 2 are off.

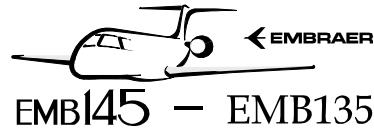
NOTE: The RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbutton lights are on.
 - (7) Remove the lockwire from the two fill plugs.
 - (8) Remove the two fill plugs.
 - (9) Use flashlight and inspection mirror to visually inspect the oil level in each gear box through the plug holes.

NOTE: Make sure that the worm gear is wet with oil.
- (10) If the worm gear is dry or partially dry, fill the gear box with oil as follows:
 - (a) Fill each gear box through the plug hole with gear oil Royco 757, Radcolube NLT or Brayco Micronic 762 until the oil is visible near the top of the worm gear. Use a syringe to do this.

NOTE: Royco 757, Radcolube NLT and Brayco Micronic 762 are compatible and can be mixed at any proportion so that there is no need to drain and flush the HSA.
 - (b) If overfilled, use the syringe to remove the excess oil from the port.
- (11) If the left side of the actuator is filled with more than 70 ml of oil, or the right side is filled with more than 40 ml, do a check of the actuator for external leakage as follows:
 - (a) On the circuit breaker panel, close the PITCH TRIM 1, PITCH TRIM 2, RUDDER1 and RUDDER2 circuit breakers and remove the DO-NOT-CLOSE tag from them.
 - (b) Operate the pilot or copilot trim switch continuously until the horizontal stabilizer stops automatically. Do this operation 20 times upwards and 20 times downwards.

NOTE: The horizontal stabilizer takes 3 seconds to stop automatically.
 - (c) On the circuit breaker panel, open the PITCH TRIM 1, PITCH TRIM 2, RUDDER 1 and RUDDER 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
 - (d) Make sure that the rudder hydraulic systems 1 and 2 are off.

NOTE: The RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbutton lights are on.



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

- (e) If there is external leakage sufficient to form a drop in 5 minutes on the area around the rubber boot, replace the horizontal stabilizer actuator ([AMM TASK 27-40-02-000-801-A/400](#)) or repair it. Refer to CMM 27-41-07.

- (12) Install the fill plugs as follows:

- (a) Apply a light coat of gear oil, Royco 757, Radcolube NLT or Brayco Micronic 762 to the threads of the fill plugs.
- (b) Check if the O-rings are free from nicks, cuts, grooves, and/or other imperfections, and replace it, if necessary.
- (c) Install the two fill plugs and apply a torque of 2.3 to 2.8 N.m (20 to 25 lb.in).
- (d) Safety the fill plugs with lockwire.

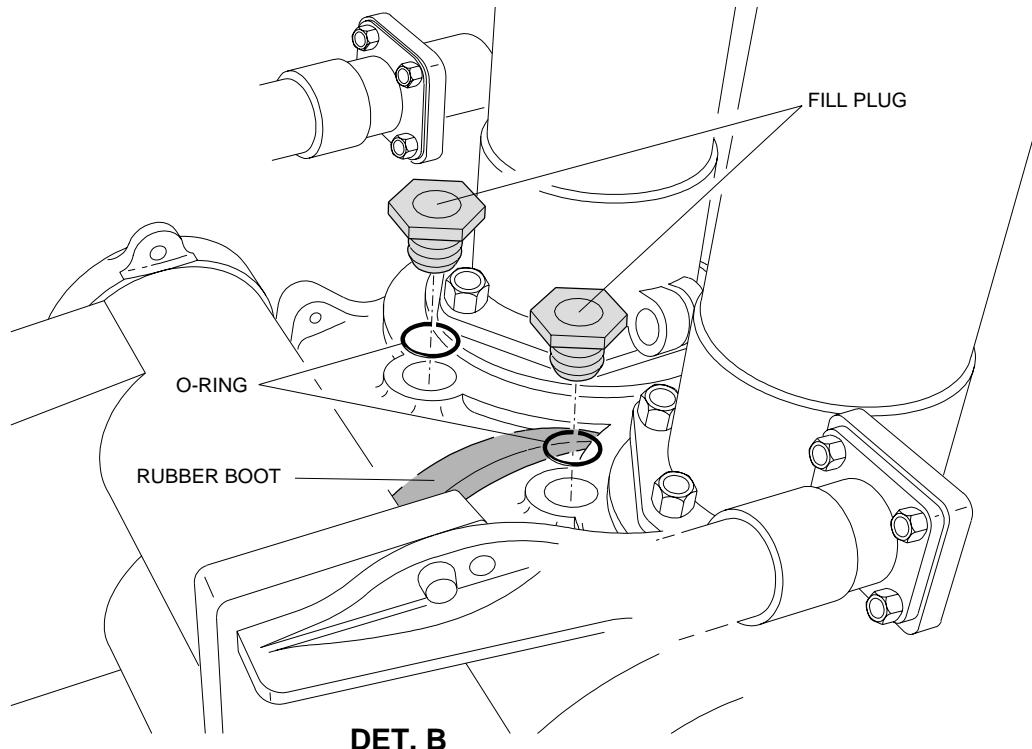
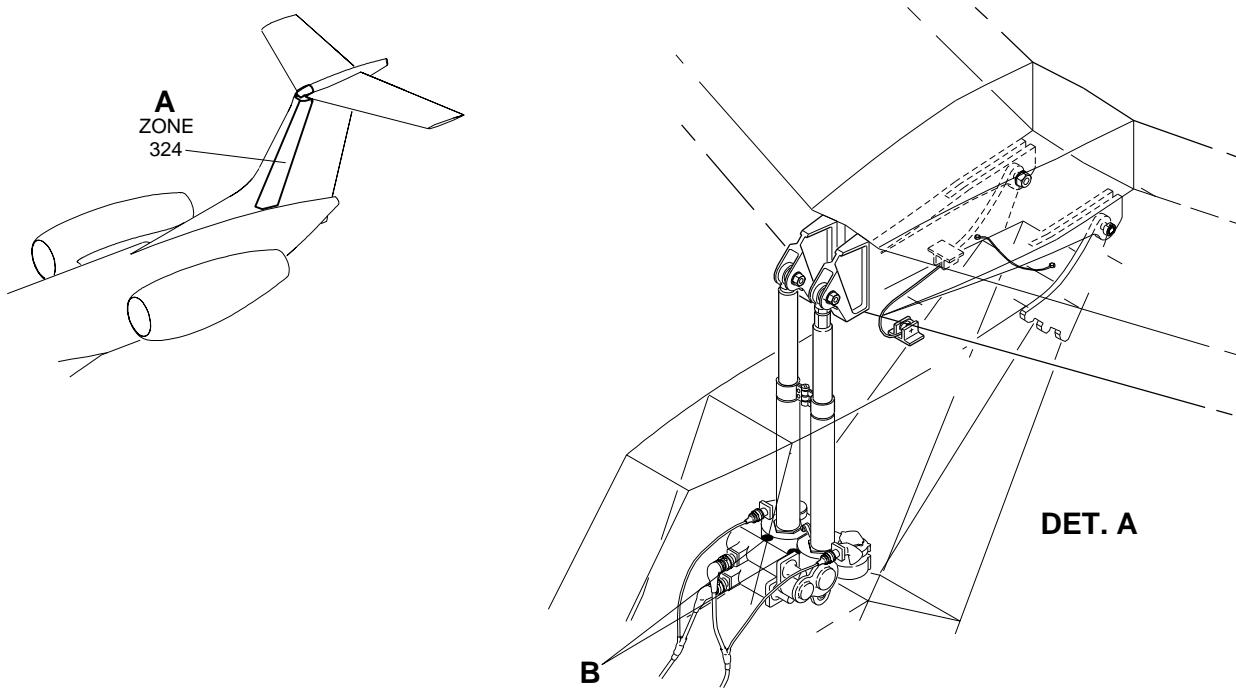
- (13) If there is oil on the base of each actuator, clean it.

K. Follow-on

SUBTASK 842-002-A

- (1) On the circuit breaker panel, close the PITCH TRIM 1, PITCH TRIM 2, RUDDER 1 and RUDDER 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.
- (2) Make sure that the RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbutton lights are off.
- (3) De-energize the aircraft.
- (4) Install access panels 324EL and 324FR ([AMM MPP 06-42-00/100](#)).

EFFECTIVITY: ALL
Fill Plug - Location
Figure 301



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