



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

HORIZONTAL STABILIZER - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the horizontal 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
55-10-00-000-801-A	HORIZONTAL STABILIZER - REMOVAL	ALL
55-10-00-400-801-A	HORIZONTAL STABILIZER - INSTALLATION	ALL



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TASK 55-10-00-000-801-A

EFFECTIVITY: ALL

2. HORIZONTAL STABILIZER - REMOVAL

A. General

(1) This procedure gives the instructions to remove the horizontal stabilizer.

B. References

REFERENCE	DESIGNATION
AMM TASK 27-31-01-000-802-A/400	ELEVATOR CONTROL CABLES - REMOVAL
AMM TASK 27-31-04-700-802-A/500	SERVO-TAB - DEFLECTION
AMM TASK 27-40-02-000-801-A/400	HORIZONTAL STABILIZER ACTUATOR - REMOVAL
AMM TASK 30-12-07-000-801-A/400	DUCTS - REMOVAL
AMM TASK 55-11-01-000-801-A/400	HORIZONTAL-TO-VERTICAL-STABILIZER BONDING JUMPERS - REMOVAL
AMM TASK 55-36-00-000-801-A/400	TAIL BOOM - REMOVAL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
333		Horizontal stabilizer
334		Horizontal stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 145	Sling, horizontal stabilizer	To remove the horizontal stabilizer	
Commercially available	Hoist	To remove the horizontal stabilizer	
GSE 271	Puller - Hinge Pin, Stabilizer	Used to remove the horizontal stabilizer hinge pin.	

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	Horizontal stabilizer

I. Preparation

SUBTASK 841-002-A

- (1) On the circuit breaker panel, open the PITCH TRIM 1 circuit breaker and attach a DO-NOT-CLOSE tag to it.
- (2) On the left electrical power control/distribution box, open the PITCH TRIM 1 circuit breaker and attach a DO-NOT-CLOSE tag to it.
- (3) On the right electrical power control/distribution box, open the PITCH TRIM 2 circuit breaker and attach a DO-NOT-CLOSE tag to it.
- (4) Put a DO-NOT-OPERATE-THE-HORIZONTAL-STABILIZER sign on the pitch trim panel, in the cockpit.
- (5) Install the elevator locking clamp ([AMM TASK 27-31-04-700-802-A/500](#)).
- (6) Remove the tail boom ([AMM TASK 55-36-00-000-801-A/400](#)).
- (7) Disconnect the elevator control cables and the pulleys ([AMM TASK 27-31-01-000-802-A/400](#)).
- (8) Disconnect the anti-icing ducts, as applicable ([AMM TASK 30-12-07-000-801-A/400](#)).
- (9) Remove the electrical connector (7) and the three clamps (6) from the wire. See DET. H.
- (10) Remove the bonding jumpers ([AMM TASK 55-11-01-000-801-A/400](#)). See DET. F.
- (11) Remove the cotter pin (12), nut (13), washers (16), and bolt (15) that attach the cable (14). See DET. G.
- (12) Install horizontal stabilizer lifter GSE 145 and keep it under tension with the hoist.
- (13) Release the actuator rods attached to the horizontal stabilizer ([AMM TASK 27-40-02-000-801-A/400](#)).

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

SUBTASK 020-002-A

- (1) Remove the access panel (1).
- (2) Remove the two nuts (4), washers (3), and four bolts (2) that attach the support (5). See DET. D.
- (3) Remove the cotter pins (17), nuts (18), washers (19), hinge pins (21), and bushings (20) that attach the horizontal stabilizer to the bearings. See DET. C and DET. E.
NOTE: Use the GSE 271 to remove hinge pins (21).

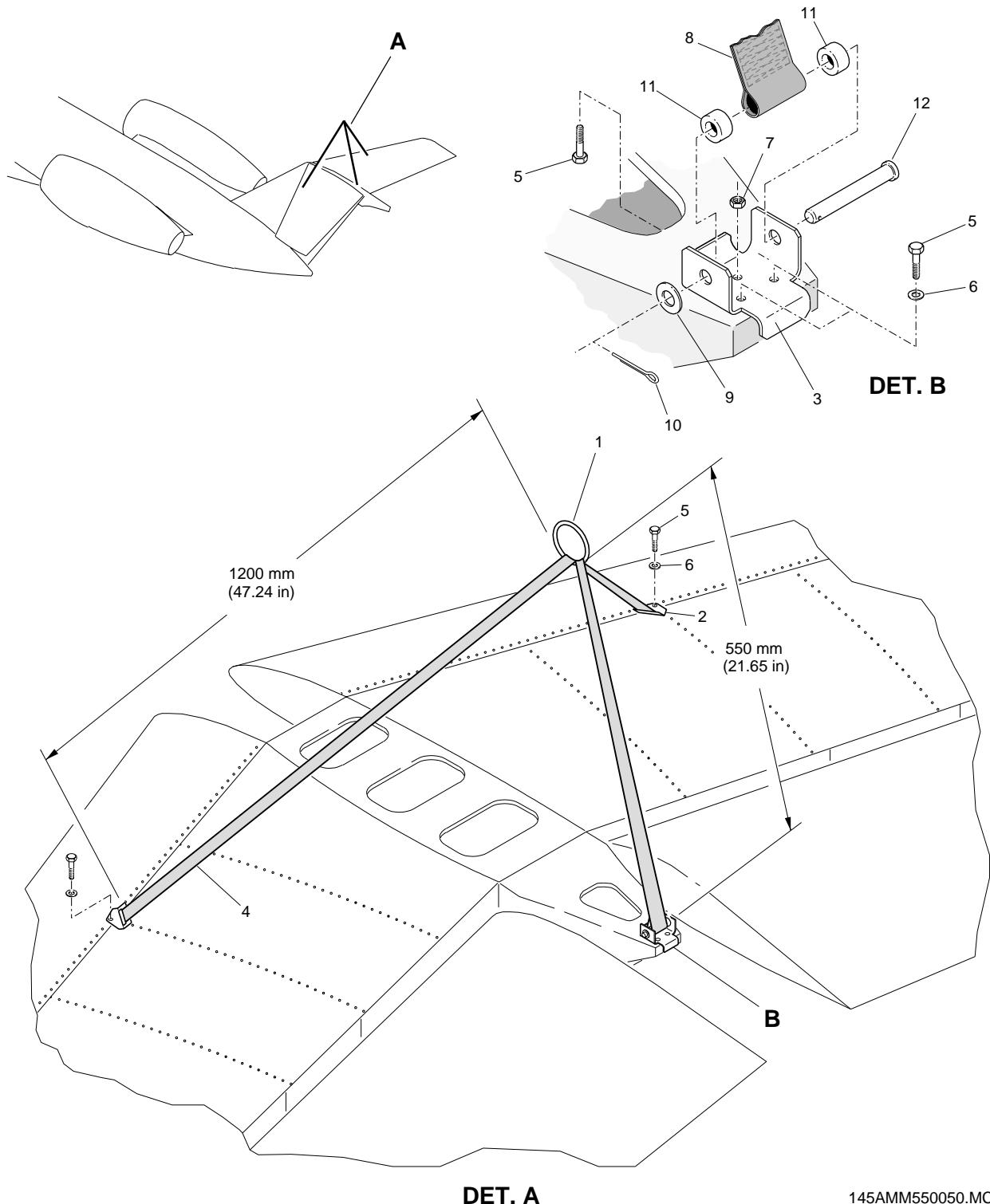
CAUTION: LIFT THE HORIZONTAL STABILIZER CAREFULLY. PREVENT JERK AND HIT. TO REMOVE AND MOVE THE HORIZONTAL STABILIZER ASSEMBLY, KEEP IT AT THE HORIZONTAL POSITION.

- (4) Remove the horizontal stabilizer.

EFFECTIVITY: ALL

Horizontal Stabilizer - Removal/Installation

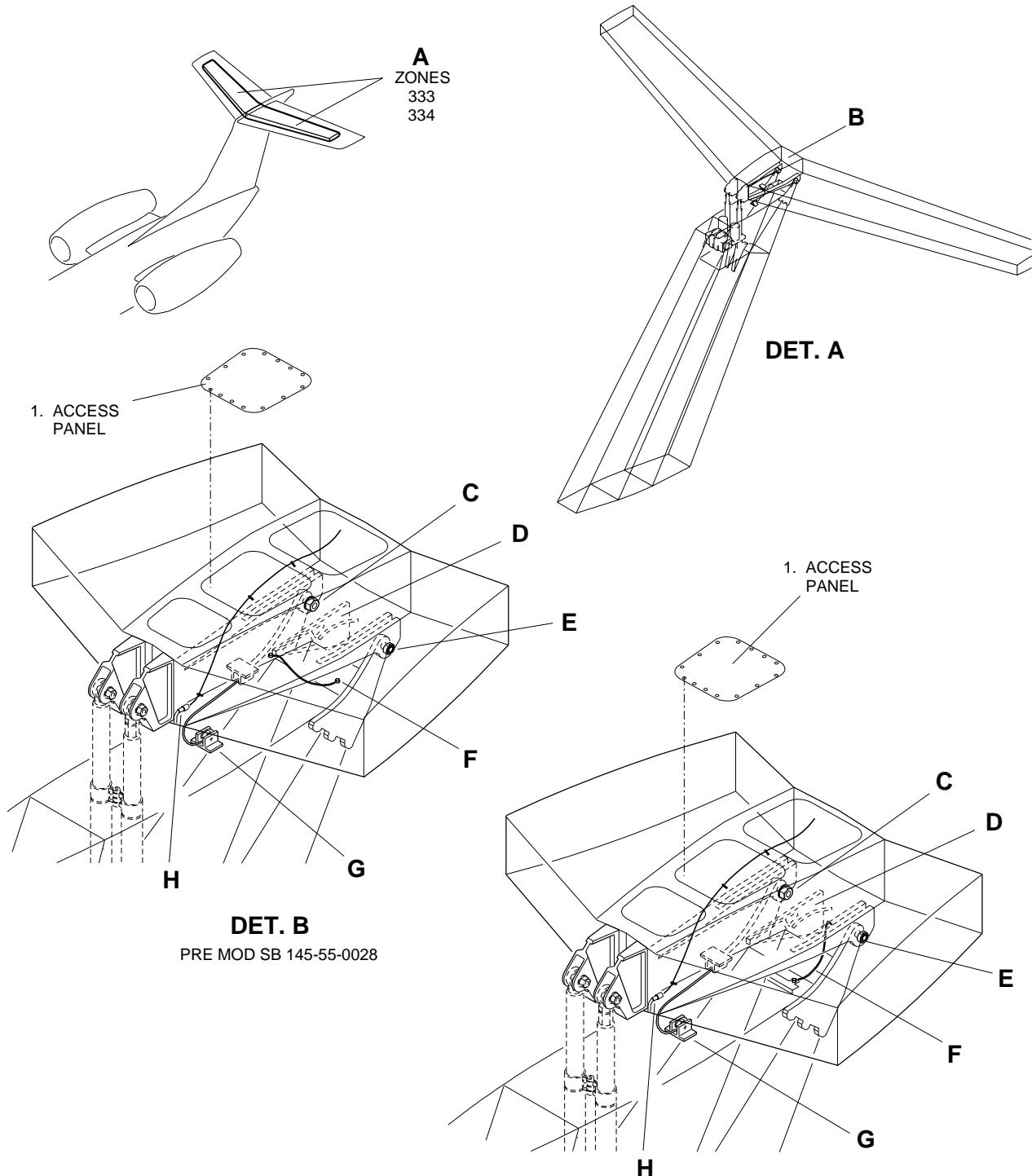
Figure 401 - Sheet 1



EFFECTIVITY: ALL

Horizontal Stabilizer - Removal/Installation

Figure 401 - Sheet 2


DET. B

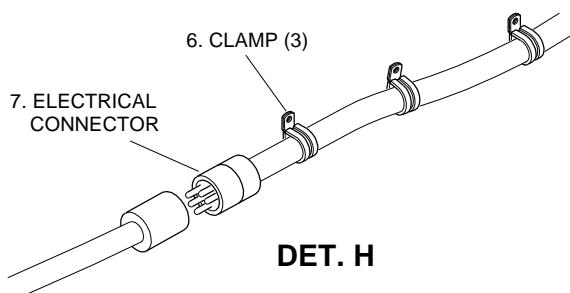
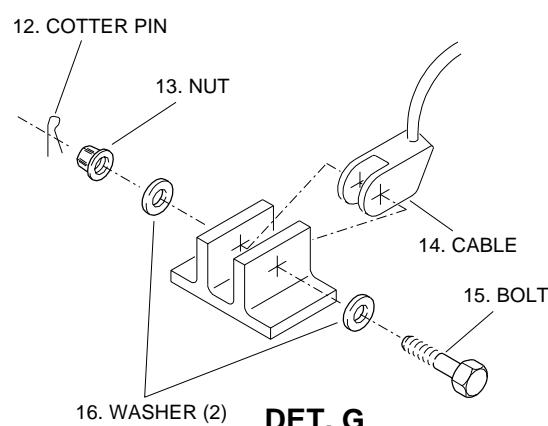
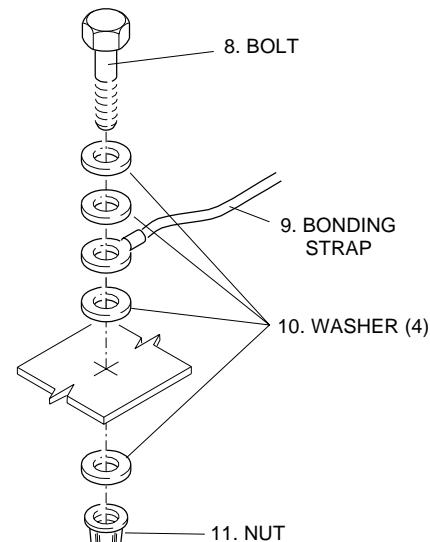
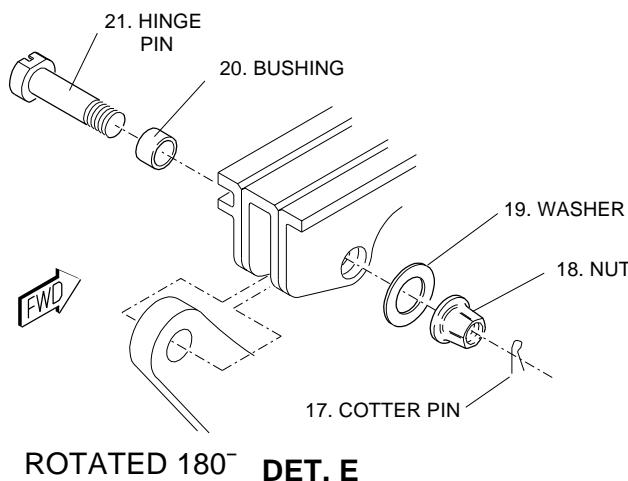
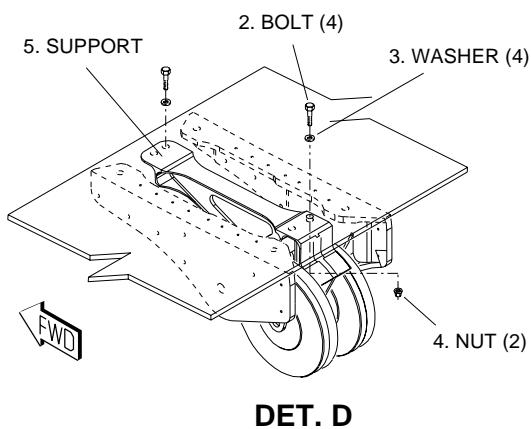
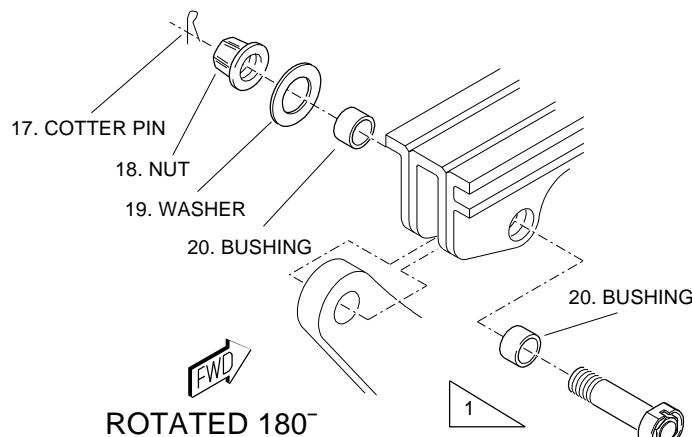
POST MOD SB 145-55-0028

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EFFECTIVITY: ALL

Horizontal Stabilizer - Removal/Installation

Figure 401 - Sheet 3



1 APPLY CORROSION-INHIBITING COMPOUND COR-BAN 27L.

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TASK 55-10-00-400-801-A

EFFECTIVITY: ALL

3. HORIZONTAL STABILIZER - INSTALLATION

A. General

(1) This procedure gives the instructions to install the horizontal stabilizer.

B. References

REFERENCE	DESIGNATION
AMM TASK 27-30-00-700-801-A/500	ELEVATOR CALIBRATION WITH CONTROL-COLUMN POSITION TRANSDUCERS
AMM TASK 27-31-01-400-802-A/400	ELEVATOR CONTROL CABLES - INSTALLATION
AMM TASK 27-31-04-700-801-A/500	SPRING AND SERVO TABS - OPERATIONAL CHECK
AMM TASK 27-40-00-700-801-A/500	HORIZONTAL STABILIZER BACKLASH - FUNCTIONAL CHECK
AMM TASK 27-40-02-400-801-A/400	HORIZONTAL STABILIZER ACTUATOR - INSTALLATION
AMM TASK 27-40-02-700-801-A/500	ADJUSTMENT OF THE ELECTRICAL ZERO POSITION OF THE HORIZONTAL STABILIZER ACTUATOR
AMM TASK 30-12-07-400-801-A/400	DUCTS - INSTALLATION
AMM TASK 55-11-01-400-801-A/400	HORIZONTAL-TO-VERTICAL-STABILIZER BONDING JUMPERS - INSTALLATION
AMM TASK 55-36-00-400-801-A/400	TAIL BOOM - INSTALLATION

C. Zones and Accesses

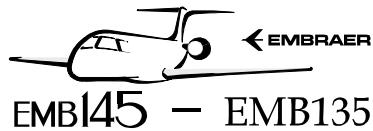
ZONE	PANEL/DOOR	LOCATION
333		Horizontal stabilizer
334		Horizontal stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 145	Sling, horizontal stabilizer	To install the horizontal stabilizer	
Commercially available	Hoist	To install the horizontal stabilizer	
Commercially available	Torque wrench (0 to 1000 lb.in)	To install the horizontal stabilizer	

E. Auxiliary Items

Not Applicable



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F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MEP 09-075	Corrosion-Inhibiting Compound (COR-BAN 27L)	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Horizontal stabilizer

I. Installation (Figure 401)

SUBTASK 420-002-A

- (1) Install the horizontal stabilizer.

WARNING: CORROSION PREVENTIVE COMPOUND TYPE COR-BAN 27L IS TOXIC TO SKIN, EYES, AND RESPIRATORY TRACT. USE PVC GLOVES AND EYE PROTECTION. USE ONLY IN WELL VENTILATED AREAS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

- (2) Apply COR-BAN 27L to the bushings (20) and to the hinge pins (21).
- (3) Install the bushings (20), hinge pins (21), washers (19), and nuts (18) that attach the horizontal stabilizer on the bearings. See DET. C and DET. E.

NOTE: It can be necessary to install more than one washer for you to get the correct torque.

- (4) Measure the prevailing torque.
 - For nut PE22072L20, is acceptable a prevailing torque in the range of 16.14 to 112.89 N.m (143 to 1000 lb.in).
 - For nut PE22072P20L is acceptable a prevailing torque in the range of 16.14 to 79.02 N.m (143 to 700 lb.in).

NOTE: • Prevailing torque is the torque required to overcome kinetic friction of the mating threads plus the torque required to overcome the locking feature when 100% of the locking feature is engaged and fastener is unseated. It can be measured in either loosening or tightening direction, while the fastener is in motion.

• Discard the nut and use a new one if the measured prevailing torque is outside the specified ranges.

- (5) Write down the measured prevailing torque.
- (6) Apply a torque of 40.64 to 59.84 N.m (360 to 530 lb.in) more than the measured prevailing torque, to the nuts (18).

- (7) Install the cotter pin (17). See DET. C and DET. E.
- (8) Install the four bolts (2), washers (3), and two nuts (4) that attach the support (5). See DET. D.
- (9) Install the access panel (1).

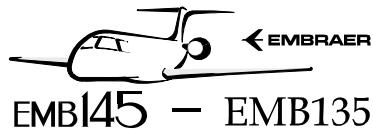
J. Follow-on

SUBTASK 842-002-A

- (1) Attach the actuator rods to the horizontal stabilizer ([AMM TASK 27-40-02-400-801-A/400](#)).
- (2) Adjust the electrical zero position of the horizontal stabilizer actuator ([AMM TASK 27-40-02-700-801-A/500](#)).
- (3) Remove the elevator locking clamp ([AMM TASK 27-31-04-700-801-A/500](#)).
- (4) Remove horizontal stabilizer lifter GSE 145 and the hoist.
- (5) Install the bolt (15) and washers (16). Tighten the nut (13) and install the cotter pin (12) that attaches the cable (14). See DET. G.

CAUTION: IF THE ELECTRICAL BONDING DEVICE DOES NOT MAKE UP A GOOD ELECTRIC CONDUCTIVE PATH, DAMAGE CAN OCCUR TO THE AIRCRAFT OR THE EQUIPMENT.

- (6) Refer to [AMM TASK 55-11-01-400-801-A/400](#) to install the bonding jumpers. See DET. F.
- (7) Install the electrical connector (7) and the three clamps (6) of the wire. See DET. H.
- (8) Connect the anti-icing ducts, as applicable ([AMM TASK 30-12-07-400-801-A/400](#)).
- (9) Install the pulleys and the elevator control cables ([AMM TASK 27-31-01-400-802-A/400](#)).
- (10) Install the tail boom ([AMM TASK 55-36-00-400-801-A/400](#)).
- (11) On the circuit breaker panel, close the PITCH TRIM 1 circuit breaker and remove the DO-NOT-CLOSE tag from it.
- (12) On the left power control/distribution box, close the PITCH TRIM 1 circuit breaker and remove the DO-NOT-CLOSE tag from it.
- (13) On the right power control/distribution box, close the PITCH TRIM 2 circuit breaker and remove the DO-NOT-CLOSE tag from it.
- (14) Remove the DO-NOT-OPERATE-THE-HORIZONTAL-STABILIZER sign from the pitch trim panel, in the cockpit.
- (15) Do the elevator calibration with control-column position transducers ([AMM TASK 27-30-00-700-801-A/500](#)) and the horizontal stabilizer backlash functional check ([AMM TASK 27-40-00-700-801-A/500](#)), if:
 - You replaced the elevator and/or the horizontal stabilizer with a new one; or



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- You replaced them with an elevator and/or an horizontal stabilizer used on other aircraft.

NOTE: Do not do these procedures ([AMM TASK 27-30-00-700-801-A/500](#)) and ([AMM TASK 27-40-00-700-801-A/500](#)) when you install the same elevator and the same horizontal stabilizer again on the same aircraft.

- (16) Do the horizontal stabilizer backlash functional check ([AMM TASK 27-40-00-700-801-A/500](#)) if the horizontal stabilizer bushings or the vertical stabilizer spherical bearings were replaced.