



## AIRCRAFT MAINTENANCE MANUAL

### ELEVATOR TORSION BAR - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

#### 1. General

- A. This section gives the procedures to remove and install the left and right elevator torsion bars and bearings.
- B. The left elevator torsion bar is installed in the left torque tube of the elevator (zone 335) and the right elevator torsion bar is installed in the right torque tube of the elevator (zone 336).
- C. To remove the elevator torsion bar, do [AMM TASK 55-20-02-000-801-A/400](#). To install, do [AMM TASK 55-20-02-400-801-A/400](#).
- D. To remove bearings, do [AMM TASK 55-20-02-000-802-A/400](#). To install bearings, do [AMM TASK 55-20-02-400-802-A/400](#).
- E. 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
<a href="#">55-20-02-000-801-A</a>	ELEVATOR TORSION BAR - REMOVAL	ALL
<a href="#">55-20-02-400-801-A</a>	ELEVATOR TORSION BAR - INSTALLATION	ALL
<a href="#">55-20-02-000-802-A</a>	ELEVATOR TORSION-BAR BEARING - REMOVAL	ALL
<a href="#">55-20-02-400-802-A</a>	ELEVATOR TORSION-BAR BEARING - INSTALLATION	ALL



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TASK 55-20-02-000-801-A

EFFECTIVITY: ALL

## 2. ELEVATOR TORSION BAR - REMOVAL

### A. General

(1) This procedure gives the instructions to remove the left and right elevator torsion bars.

### B. References

REFERENCE	DESIGNATION
AMM TASK 27-30-00-000-801-A/400	ELEVATOR - REMOVAL

### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
335	335CB	Elevator
336	336CB	Elevator

### D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the work area	
Commercially available	Torque wrench	To remove the bolts	

### E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Protective Gloves	For protection of technician's hands	1
Commercially available	Safety Goggles	For protection of technician's eyes	1

### F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
ASTM-D-740	Methyl Ethyl Ketone - MEK	AR

### G. Expandable Parts

Not Applicable

### H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Elevator



I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Remove the left or right elevator assembly ( [AMM TASK 27-30-00-000-801-A/400](#)).

**CAUTION:** THE SUPPORT MUST BE CUSHIONED TO PREVENT DAMAGE TO THE ELEVATOR SURFACE.

- (3) Put the elevator on the support with the lower side turned up.
- (4) Open access panel 335CB or 336CB.

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

SUBTASK 020-002-A

- (1) Release the bolts (1). It is not necessary to remove them. Refer to [Figure 401](#); DET. B.
- (2) Remove the bolt, washer, and nut. Refer to [Figure 401](#); DET. C.
- (3) Push with your finger the elevator torsion bar (3) and remove it, as shown in [Figure 401](#).

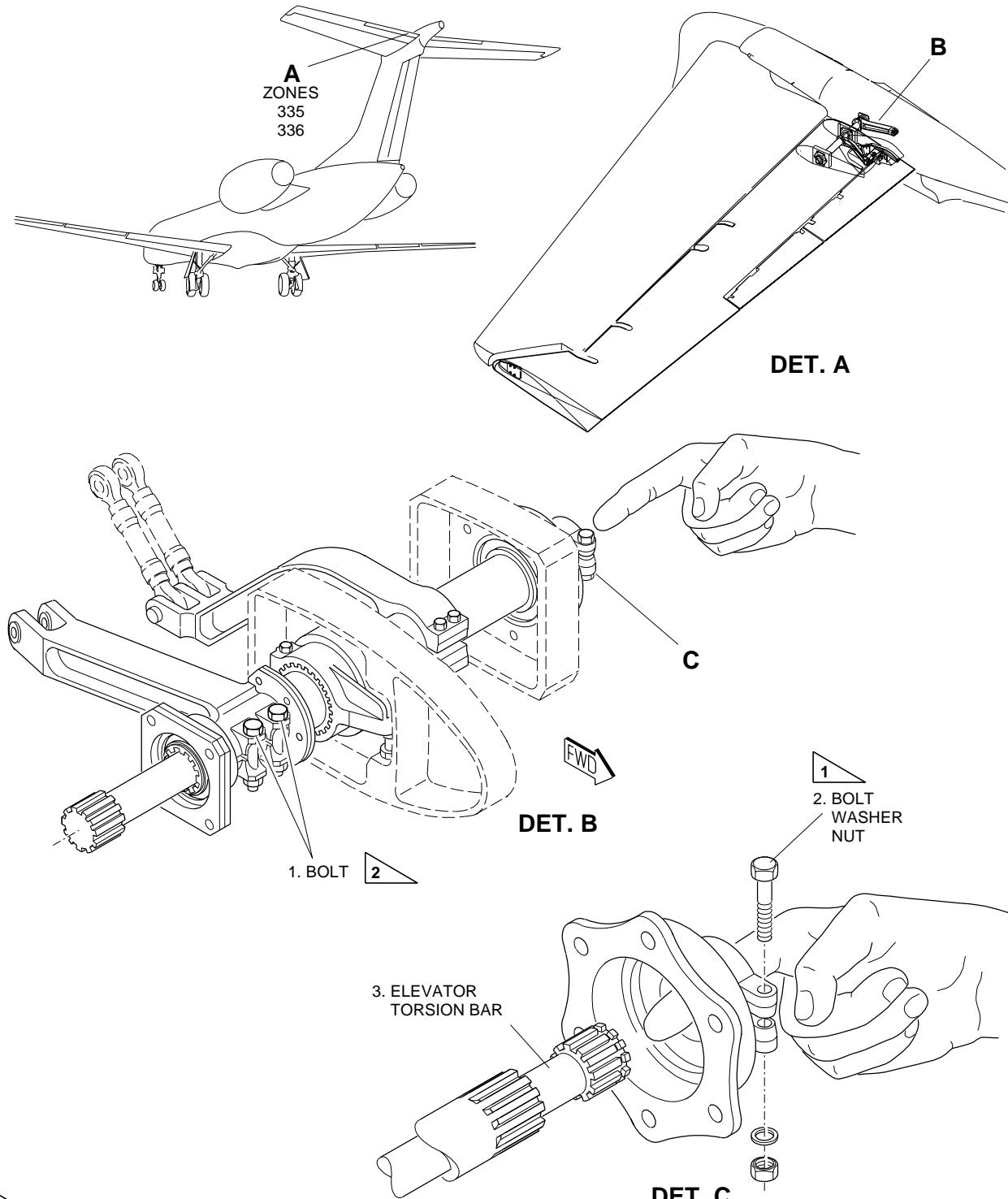
**WARNING:** BE CAREFUL WHEN YOU USE SOLVENTS BECAUSE THEY ARE A HEALTH AND FIRE HAZARD. USE SAFETY GOGGLES AND PROTECTIVE CLOTHING WHEN YOU HANDLE THEM. DO NOT BREATHE THEIR GASES AND WORK IN A WELL VENTILATED AREA.

- (4) With a cloth soaked in MEK, clean the parts torsion bar.

**EFFECTIVITY: ALL**

Elevator Torsion Bar - Removal/Installation

Figure 401



 1 TORQUE: 6.55 – 7.00 N.m (58 – 62 lb.in)

 2 TORQUE: 13.56 – 16.38 N.m (70 – 90 lb.in)

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TASK 55-20-02-400-801-A

EFFECTIVITY: ALL

3. ELEVATOR TORSION BAR - INSTALLATION

## A. General

(1) This procedure gives the instructions to install the left and right elevator torsion bars.

## B. References

REFERENCE	DESIGNATION
AMM TASK 27-30-00-400-801-A/400	ELEVATOR - INSTALLATION
AMM TASK 27-31-04-700-802-A/500	SERVO-TAB - DEFLECTION
AMM TASK 27-31-08-700-801-A/500	SPRING TAB - ADJUSTMENT
IPC 55-20-00	ELEVATORS

## C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
335	335CB	Elevator
336	336CB	Elevator

## D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the work area	
Commercially available	Torque wrench	To remove the bolts	

## E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Protective Gloves	For protection of technician's hands	1
Commercially available	Safety Goggles	For protection of technician's eyes	1

## F. Consumable Materials

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



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G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Elevators	IPC 55-20-00	AR

H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Elevator

I. Installation (Figure 401)

SUBTASK 420-002-A

**CAUTION: THERE IS A SPECIFIC TORSION BAR FOR EACH SIDE OF THE ELEVATOR.**  
**MAKE SURE THAT YOU INSTALL THEM CORRECTLY.**

- (1) Put the elevator torsion bar (3) in the elevator torque tube.
- (2) Put the bolt, washer, and nut. Do not tighten them now. Refer to (Figure 401); DET. C.
- (3) Make sure that the torsion bar is locked by the bolt (2):
  - (a) Push with your finger the torsion bar as shown in (Figure 401); DET. B. The torsion bar must not go out of the torque tube.
- (4) Tighten the bolt and nut. Refer to (Figure 401); DET. C.
- (5) Tighten the bolts (1). Refer to (Figure 401); DET. B.

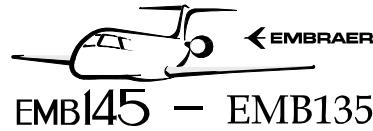
J. Follow-on

SUBTASK 842-002-A

- (1) Close access panel 335CB or 336CB.
- (2) Install the left or right elevator assembly ([AMM TASK 27-30-00-400-801-A/400](#)).

**NOTE:** Do not necessary adjustment of the backstops of the spring tab ([AMM TASK 27-31-08-700-801-A/500](#)) and inspection of the servo tab deflection ([AMM TASK 27-31-04-700-802-A/500](#)).

- (3) Put the aircraft in original conditional.



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TASK 55-20-02-000-802-A

EFFECTIVITY: ALL

4. ELEVATOR TORSION-BAR BEARING - REMOVAL

## A. General

- (1) This procedure gives the instructions to remove the left and right bearings contained in the elevator torsion bars.

## B. References

REFERENCE	DESIGNATION
AMM TASK 27-30-00-000-801-A/400	ELEVATOR - REMOVAL

## C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
335	335CB	Elevator
336	336CB	Elevator

## D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the work area	
Commercially available	Torque wrench	To remove the bolts	

## E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Protective Gloves	For protection of technician's hands	1
Commercially available	Safety Goggles	For protection of technician's eyes	1

## F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
ASTM-D-740	Methyl Ethyl Ketone - MEK	AR

## G. Expandable Parts

Not Applicable

## H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Elevator



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I. Preparation

SUBTASK 841-003-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Remove the left or right elevator assembly ( [AMM TASK 27-30-00-000-801-A/400](#)).

**CAUTION:** THE SUPPORT MUST BE CUSHIONED TO PREVENT DAMAGE TO THE ELEVATOR SURFACE.

- (3) Put the elevator on the support with its bottom side up.
- (4) Open access panel 335CB or 336CB.

J. Removal ([Figure 402](#))

SUBTASK 020-003-A

- (1) Remove the bolts (25), (18), and (5), nuts (27), (21), and (17), and washers (26), (20), and (16).
- (2) Remove the elevator torsion bar (19) and torque tube.
- (3) Remove the fastener (24), bearing tip, and bearing (23).
- (4) Remove the lever assembly and retainer ring (22).
- (5) Remove the bolt (7), nut (10), washer (8), bearing tip, bearing (9), and support.
- (6) Remove the bolt (28), nut (30), washer (29) and limiter (6).
- (7) Remove the bolt (15), nut (13), washer (14), bellcrank trim tab and bellcrank assembly.
- (8) Remove the retainers (4) and (1), bearing (3), and retainer ring (2).

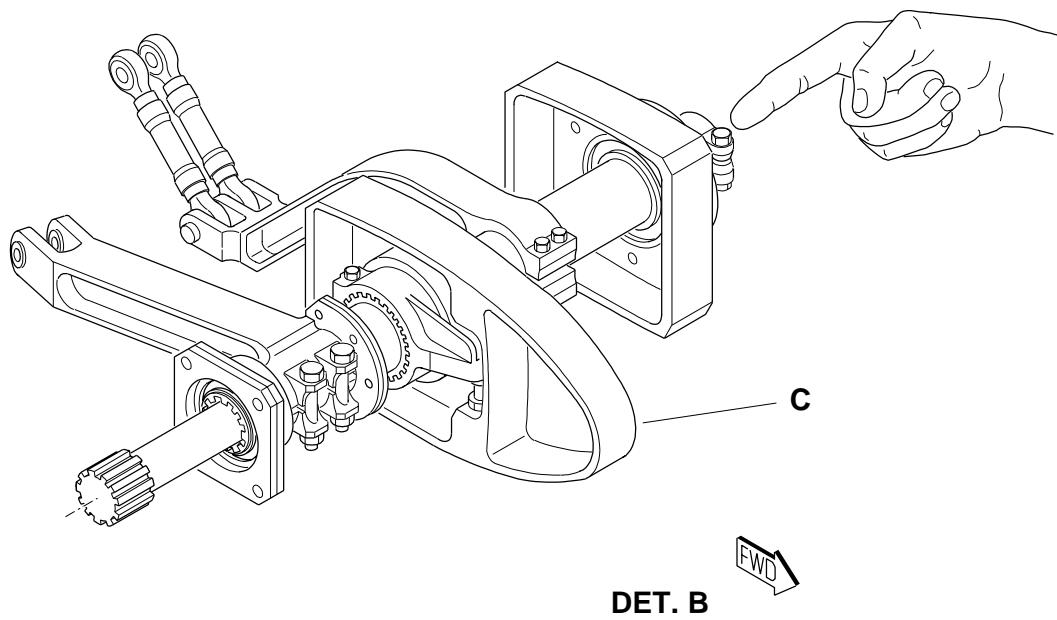
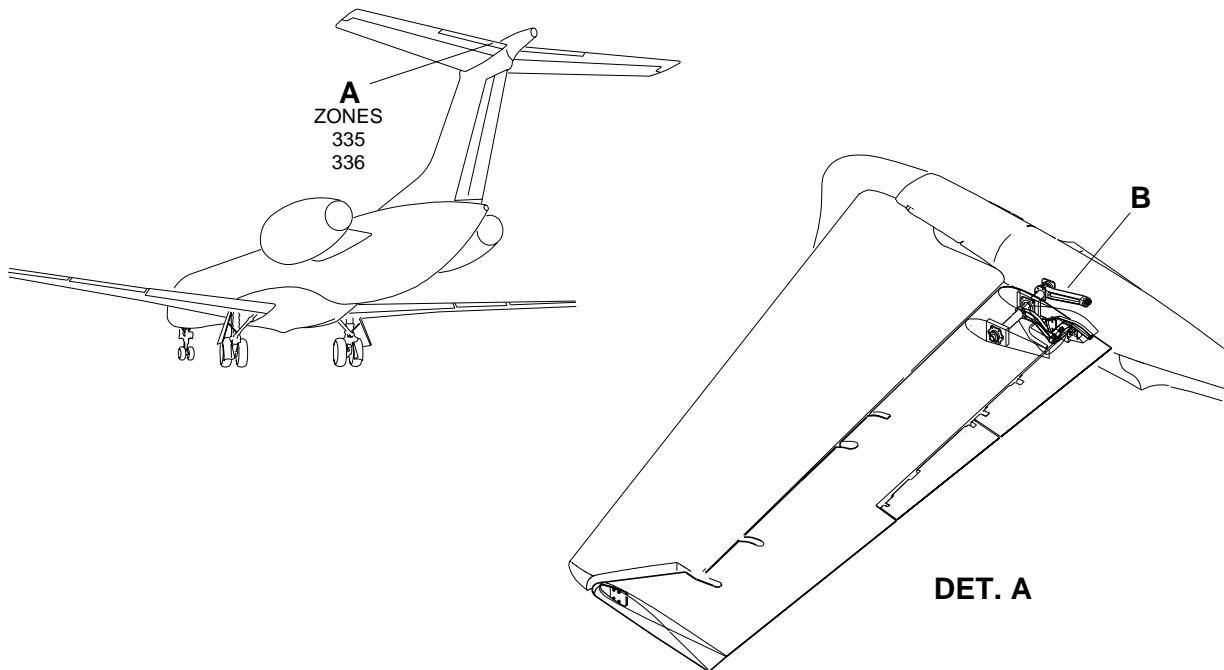
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- (9) With a cloth soaked in MEK, clean the parts.

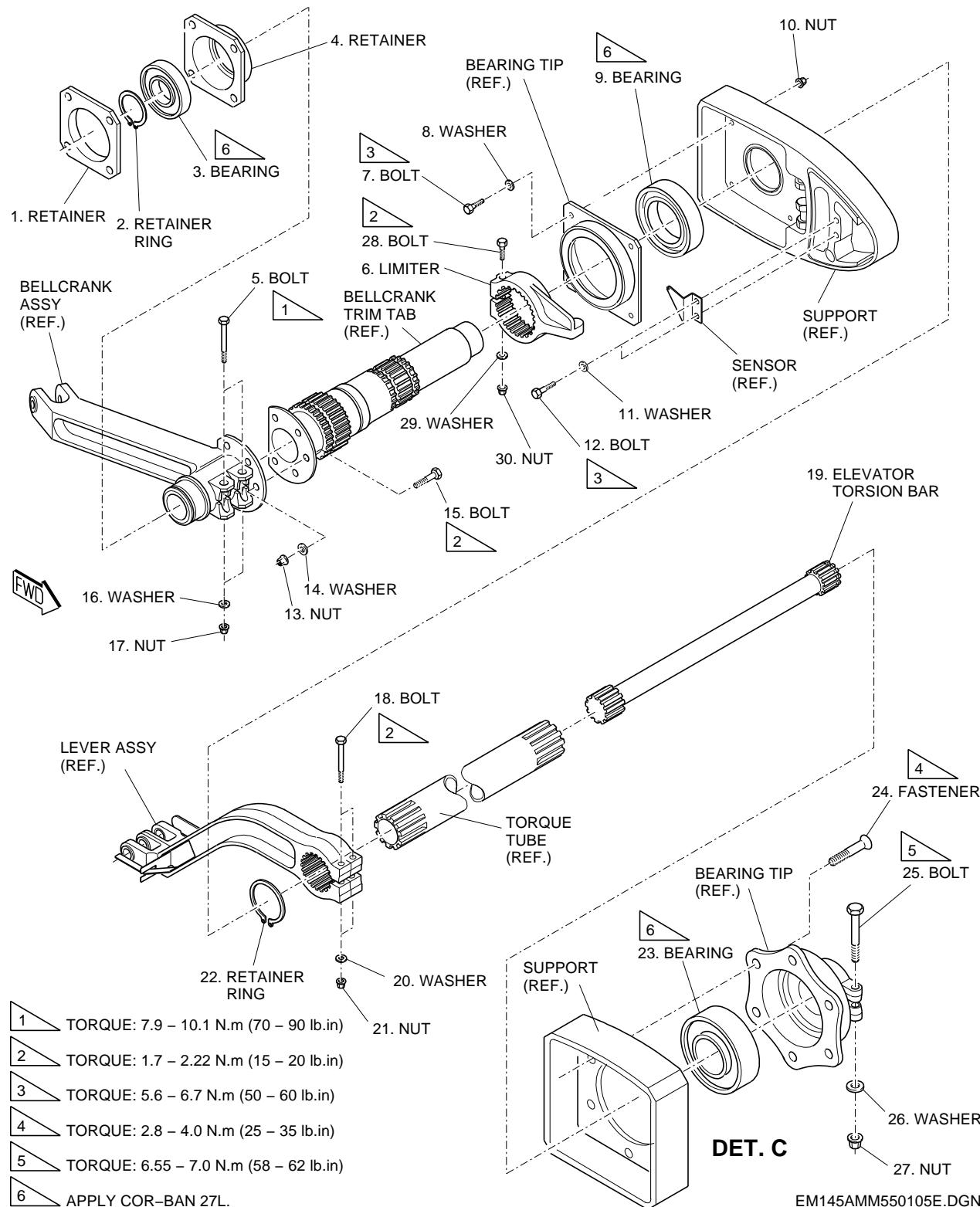
**EFFECTIVITY: ALL**

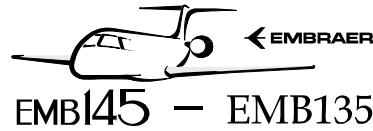
Elevator Torsion-Bar Bearing - Removal/Installation

Figure 402 - Sheet 1



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**EFFECTIVITY: ALL**
**Elevator Torsion-Bar Bearing - Removal/Installation**
**Figure 402 - Sheet 2**

**EM145AMM550105E.DGN**



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TASK 55-20-02-400-802-A

EFFECTIVITY: ALL

5. ELEVATOR TORSION-BAR BEARING - INSTALLATION

A. General

- (1) This procedure gives the instructions to install the left and right bearings contained in the elevator torsion bars.

B. References

REFERENCE	DESIGNATION
AMM TASK 27-30-00-400-801-A/400	ELEVATOR - INSTALLATION
AMM TASK 27-31-04-700-802-A/500	SERVO-TAB - DEFLECTION
AMM TASK 27-31-08-700-801-A/500	SPRING TAB - ADJUSTMENT
IPC 55-20-00	ELEVATORS

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
335	335CB	Elevator
336	336CB	Elevator

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the work area	
Commercially available	Torque wrench	To install the bolts	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Protective Gloves	For protection of technician's hands	1
Commercially available	Safety Goggles	For protection of technician's eyes	1

F. Consumable Materials

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



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## G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Elevators	IPC 55-20-00	AR

## H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Elevator

## I. Installation (Figure 402)

## SUBTASK 420-003-A

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

- (1) Apply COR-BAN 27L to all interface parts of the elevator torsion-bar assembly.
- (2) Apply COR-BAN 27L to the bearing (3), install the retainer ring (2) and put the bearing between the retainers (4) and (1).
- (3) Soak in COR-BAN 27L and install the bolt (15), washer (14), nut (13), trim tab bellcrank, and bellcrank assembly.

NOTE: Apply a torque of 1.7 - 2.22 N.m (15 - 20 lbf.in).

- (4) Soak in COR-BAN 27L and install the bolt (28), washer (29), nut (30) and limiter (6).

NOTE: Apply a torque of 1.7 - 2.22 N.m (15 - 20 lbf.in).

- (5) Apply COR-BAN 27L to the bearing (9) and put it in the bearing tip.

- (6) Soak in COR-BAN 27L and install the bolt (7), washer (8), and nut (10).

NOTE: Apply a torque of 5.6 - 6.7 N.m (50 - 60 lbf.in).

- (7) Install the retainer ring (22).

**CAUTION: THERE IS A SPECIFIC TORSION BAR FOR EACH SIDE OF THE ELEVATOR. MAKE SURE THAT YOU INSTALL THEM CORRECTLY.**

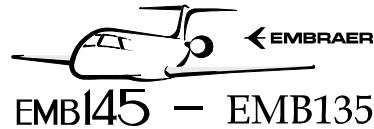
- (8) Put the lever assembly in the elevator torque tube and elevator torsion bar (19).

- (9) Apply COR-BAN 27L in the bearing (23) and put it in the bearing tip.

- (10) Soak in COR-BAN 27L and install the fastener (24).

NOTE: Apply a torque of 2.8 - 4.0 N.m (25 - 35 lbf.in)

- (11) Soak in COR-BAN 27L and install the bolts (25), (18), and (5), washers (26), (20), and (16), and nuts (27), (21), and (17).



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- NOTE:
- For bolts (25), apply a torque of 6.55 - 7.0 N.m (58 - 62 lbf.in).
  - For bolts (18), apply a torque of 1.7 - 2.22 N.m (15 - 20 lb.in).
  - For bolts (5), apply a torque of 7.9 - 10.1 N.m (70 - 90 lb.in).

J. Follow-on

SUBTASK 842-003-A

- (1) Close access panel 335CB or 336CB.
- (2) Install the left or right elevator assembly ([AMM TASK 27-30-00-400-801-A/400](#)).

NOTE: The adjustment of the backstops of the spring tab ([AMM TASK 27-31-08-700-801-A/500](#)) and inspection of the servo tab deflection ([AMM TASK 27-31-04-700-802-A/500](#)) are not necessary.

- (3) Put the aircraft back to its original configuration .

