SERVO TAB - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to remove and install the servo tabs.

   B. These procedures are applicable to the LH and RH servo tabs.

   C. 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*
27-31-04-000-801-A	SERVO TAB - REMOVAL	ALL
27-31-04-400-801-A	SERVO TAB - INSTALLATION	ALL

TASK 27-31-04-000-801-A
EFFECTIVITY: ALL

2. SERVO TAB - REMOVAL

A. General

(1) This procedure gives the instructions to remove the servo tab.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 55-14-00-000-801-A/400	HORIZONTAL-STABILIZER ATTACHMENT FAIRING - REMOVAL

C. Zones and Accesses

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

D. Tools and Equipment

Not Applicable

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	Elevator
1	Helps the other technician	Elevator

I. Removal (Figure 401)

SUBTASK 020-002-A

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

(1) Remove the fairing (40) (AMM TASK 55-14-00-000-801-A/400). Refer to DET. G.

(2) Remove the cotter pins (30) and (38) and discard them. Refer to DET. D.

(3) Remove the nut (31), two washers (32), bushing (33), and pins (36) and (37) to disconnect the end of the control lever (35) from the hinge (34) at the servo tab (1). Refer to DET. D.

(4) Remove the cotter pin (18) and discard it. Refer to DET. C.

(5) Remove the nut (19), two washers (22), two bushings (21), and bolt (23) to disconnect the hinge (20) of the servo tab (1) from the support (14) at the elevator structure. Refer to DET. C.

WARNING: USE EYE PROTECTION WHEN YOU REMOVE OR INSTALL LOCKWIRE OR SAFETY CABLE. IF YOU DO NOT USE EYE PROTECTION, CUT PIECES OF WIRE CAN HIT YOUR EYES AND CAUSE INJURY.

CAUTION: DO NOT LET PIECES OF DISCARDED LOCK WIRE STAY IN THE AIRCRAFT OR IN THE WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

(6) Remove and discard the lockwire (17). Refer to DET. C.

(7) Remove one of bolts (16) and washer (15) from the support (14) at the elevator structure to disconnect the end of the bonding strap (3). Refer to DET. C.

(8) Remove the cotter pin (28) and discard it. Refer to DET. D.

(9) Remove the nut (29), two washers (27), bushing (26), and bolt (39) to disconnect the hinge (34) of the servo tab (1) from the support (25) at the elevator structure. Refer to DET. D.

(10) Remove the cotter pin (12) and discard it. Refer to DET. E.

(11) Remove the nut (11), two washers (8), two bushings (10), and bolt (7) to disconnect the hinge (9) of the servo tab (1) from the support (13) at the elevator structure. Refer to DET. E.

WARNING: USE EYE PROTECTION WHEN YOU REMOVE OR INSTALL LOCKWIRE OR SAFETY CABLE. IF YOU DO NOT USE EYE PROTECTION, CUT PIECES OF WIRE CAN HIT YOUR EYES AND CAUSE INJURY.

CAUTION: DO NOT LET PIECES OF DISCARDED LOCK WIRE STAY IN THE AIRCRAFT OR IN THE WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

(12) Remove and discard the lockwire (6). Refer to DET. E.

(13) Remove one of bolts (5) and washer (4) from the support (13) at the elevator structure to disconnect the end of the bonding strap (2). Refer to DET. E.

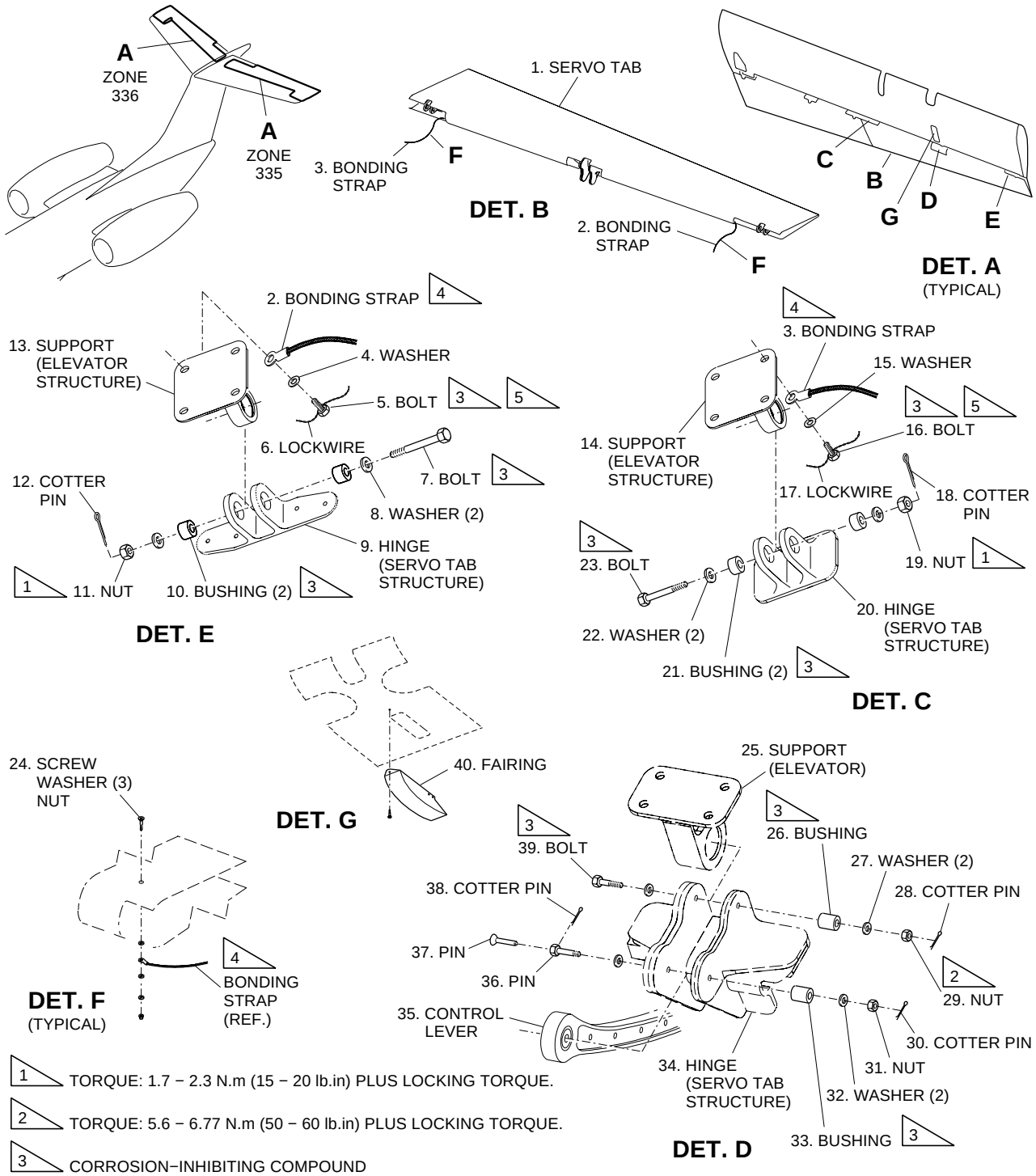
(14) Remove the servo tab (1).

(15) If necessary, remove the screw (24), three washers, and nut to disconnect the ends of the bonding straps (2) and (3) from the servo tab (1). Refer to DET. F.

EFFECTIVITY: ALL

Servo Tab - Removal/Installation

Figure 401



1 TORQUE: 1.7 − 2.3 N.m (15 − 20 lb.in) PLUS LOCKING TORQUE.

2 TORQUE: 5.6 − 6.77 N.m (50 − 60 lb.in) PLUS LOCKING TORQUE.

3 CORROSION−INHIBITING COMPOUND

4 ELECTRICAL BONDING (METHOD 7).

5 TORQUE: 1.4 − 1.7 N.m (12 − 15 lb.in)

EM145AMM270237G.DGN

TASK 27-31-04-400-801-A
EFFECTIVITY: ALL

3. SERVO TAB - INSTALLATION

A. General

(1) This procedure gives the instructions to install the servo tab.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-13-21-700-801-A/200	ELECTRICAL BONDING TEST - STANDARD PROCEDURES
AMM TASK 20-13-21-910-801-A/200	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
AMM TASK 20-13-21-910-802-A/200	ELECTRICAL BONDING PROTECTION - STANDARD PROCEDURES
AMM TASK 27-30-00-700-801-A/500	ELEVATOR CALIBRATION WITH CONTROL-COLUMN POSITION TRANSDUCERS
AMM TASK 27-31-00-700-801-A/500	ELEVATOR PRIMARY MECHANICAL CONTROL BACKLASH - FUNCTIONAL CHECK
AMM TASK 27-31-04-700-801-A/500	SPRING AND SERVO TABS - OPERATIONAL CHECK
AMM TASK 51-60-00-700-801-A/500	ELEVATOR STATIC BALANCING
AMM TASK 55-14-00-400-801-A/400	HORIZONTAL-STABILIZER ATTACHMENT FAIRING - INSTALLATION
IPC 55-22-00	TRIM TAB

C. Zones and Accesses

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

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially Available	Torque Wrench	To apply the torques	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MEP 09-060	Corrosion-Inhibiting Compound (CA-1000)	AR
MEP 09-075	Corrosion-Inhibiting Compound (COR-BAN 27L)	AR

(Continued)

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MS20995C20	Lockwire	AR

G. Expendable Parts

ITEM	*IPC REFERENCE (VENDOR REFERENCE)*	*QTY*
Cotter pin	IPC 55-22-00	5

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Elevator
1	Helps the other technician	Elevator

I. Preparation

SUBTASK 841-002-A

(1) Do the bonding procedures, method 7 (AMM TASK 20-13-21-910-801-A/200), to install the bonding jumpers (2) and (3) Figure 401.

WARNING: CA-1000 OR COR-BAN 27L CORROSION-INHIBITING COMPOUND IS TOXIC TO SKIN, EYES, AND RESPIRATORY TRACT. USE GOGGLES AND PROTECTIVE GLOVES. USE ONLY IN WELL VENTILATED AREAS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

(2) Apply CA-1000 or COR-BAN 27L compound as shown in Figure 401.

J. Installation Figure 401

SUBTASK 420-002-A

(1) Put the servo tab (1) on the elevator structure.

(2) Install bolt (5), washer (4) and the end of the bonding strap (2) to the support (13) at the elevator structure. Refer to DET. E.

WARNING: USE EYE PROTECTION WHEN YOU REMOVE OR INSTALL LOCKWIRE OR SAFETY CABLE. IF YOU DO NOT USE EYE PROTECTION, CUT PIECES OF WIRE CAN HIT YOUR EYES AND CAUSE INJURY.

(3) Torque the bolt (5) and safety it with the other bolts of the support (13) at the elevator structure with lockwire (6). Refer to DET. E.

(4) Install the bolt (7), two washers (8), two bushings (10), and nut (11) to connect the hinge (9) of the servo tab (1) to the support (13) at the elevator structure. Refer to DET. E.

(5) Install the bolt (39), two washers (27), bushing (26), and nut (29) to connect the hinge (34) of the servo tab (1) to the support (25) at the elevator structure. Refer to DET. D.

(6) Install bolt (16), washer (15) and the end of the bonding strap (3) to the support (14) at the elevator structure. Refer to DET. C.

WARNING: USE EYE PROTECTION WHEN YOU REMOVE OR INSTALL LOCKWIRE OR SAFETY CABLE. IF YOU DO NOT USE EYE PROTECTION, CUT PIECES OF WIRE CAN HIT YOUR EYES AND CAUSE INJURY.

(7) Torque the bolt (16) and safety it with the other bolts the support (14) at the elevator structure with lockwire (17). Refer to DET. C.

(8) Install the bolt (23), two washers (22), two bushings (21), and nut (19) to connect the hinge (20) of the servo tab (1) to the support (14) at the elevator structure. Refer to DET. C.

(9) Make sure that the threads of the nut (11) and bolt (7) fully engage. The base of the nut (11) must not touch the surface.

(10) Turn the nut (11) and measure the locking torque with a torque wrench.

(11) Make sure that the locking torque value is 0.23 - 2.04 N.m (2 - 18 lb.in).

NOTE: If you find a nut that is not in the correct range, you must replace it.

(12) Add the locking torque value measured to the standard torque of 1.7 - 2.3 N.m (15 - 20 lb.in) to get the final torque.

(13) Apply the final torque to the nut (11) with a torque wrench, as follows:

(a) Tighten the nut (11) to the bolt (7) to remove clearance.

(b) Torque the nut (11) with the minimum final torque value. Continue to torque as necessary to align the slot in the nut (11) with the cotter pin (12) hole in the bolt (7).

NOTE: Be careful not to apply more than the maximum final torque value.

(c) Safety the nut (11) to the bolt (7) with a new cotter pin (12).

(14) Make sure that the threads of the nut (19) and bolt (23) fully engage. The base of the nut (19) must not touch the surface.

(15) Turn the nut (19) and measure the locking torque with a torque wrench.

(16) Make sure that the locking torque value is 0.23 - 2.04 N.m (2 - 18 lb.in).

NOTE: If you find a nut that is not in the correct range, you must replace it.

(17) Add the locking torque value measured to the standard torque of 1.7 - 2.3 N.m (15 - 20 lb.in) to get the final torque.

(18) Apply the final torque to the nut (19) with a torque wrench, as follows:

(a) Tighten the nut (19) to the bolt (23) to remove clearance.

(b) Torque the nut (23) with the minimum final torque value. Continue to torque as necessary to align the slot in the nut (23) with the cotter pin (18) hole in the bolt (23).

NOTE: Be careful not to apply more than the maximum final torque value.

(c) Safety the nut (19) to the bolt (23) with a new cotter pin (18).

(19) Make sure that the threads of the nut (29) and bolt (39) fully engage. The base of the nut (29) must not touch the surface.

(20) Turn the nut (29) and measure the locking torque with a torque wrench.

(21) Make sure that the locking torque value is 0.39 - 3.39 N.m (3.5 - 30 lb.in).

NOTE: If you find a nut that is not in the correct range, you must replace it.

(22) Add the locking torque value measured to the standard torque of 5.6 - 6.77 N.m (50 - 60 lb.in) to get the final torque.

(23) Apply the final torque to the nut (29) with a torque wrench, as follows:

(a) Tighten the nut (29) to the bolt (39) to remove clearance.

(b) Torque the nut (29) with the minimum final torque value. Continue to torque as necessary to align the slot in the nut (29) with the cotter pin (28) hole in the bolt (39).

NOTE: Be careful not to apply more than the maximum final torque value.

(c) Safety the nut (29) to the bolt (39) with a new cotter pin (28).

(24) Put the end of the control lever (35) in the hinge (34) at the servo tab (1) and attach it with the pins (36) and (37), two washers (32), bushing (33), nut (31), and cotter pins (30) and (38). Refer to DET. D.

(25) If necessary, connect the bonding straps (2) and (3) to the support at the servo tab (1) with the screw (24), three washers, and nut. Refer to DET. F.

NOTE: Refer to AMM TASK 20-13-21-910-801-A/200 for the correct installation of the bonding straps (2) and (3).

(26) Do the bonding test (AMM TASK 20-13-21-700-801-A/200).

(27) Do the bonding protection (AMM TASK 20-13-21-910-802-A/200).

(28) Install the fairing (40) (AMM TASK 55-14-00-400-801-A/400). Refer to DET. G.

K. Follow-on

SUBTASK 842-002-A

(1) If you replaced the servo tab by a different one do the Elevator Balancing Check (AMM TASK 51-60-00-700-801-A/500).

NOTE: It is not necessary to do the Elevator Balancing Check when you install the same servo tab in the same elevator assembly.

(2) Measure the backlash of the servo tab (AMM TASK 27-31-00-700-801-A/500).

NOTE: • Do not measure the spring tab and elevator backlashes.

- Do this step only if you replaced the servo tab with a new one or if you replaced it with a servo tab used on other aircraft.

(3) Do the operational check on the servo tabs (AMM TASK 27-31-04-700-801-A/500).

(4) Do the calibration of the Elevator with Control Column Position Transducer (AMM TASK 27-30-00-700-801-A/500).

NOTE: Do the calibration procedure (AMM TASK 27-30-00-700-801-A/500) only if you replaced the servo tab with a new one or if you replaced it with a servo tab used on other aircraft. Do not do the procedure when the same servo tab is installed again on the same aircraft.