



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

RUDDER LOAD CELL - REMOVAL/INSTALLATION

EFFECTIVITY: ONLY FOR AIRCRAFTS WITH LOAD CELLS

1. General

- A. This section gives the procedures to remove and install the rudder load cell.
- B. These procedures are applicable to the LH and RH rudder pedal assembly.
- 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
27-25-04-000-801-A	RUDDER LOAD CELL - REMOVAL	ONLY FOR AIR-CRAFTS WITH LOAD CELLS
27-25-04-400-801-A	RUDDER LOAD CELL - INSTALLATION	ONLY FOR AIR-CRAFTS WITH LOAD CELLS



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TASK 27-25-04-000-801-A

EFFECTIVITY: ONLY FOR AIRCRAFTS WITH LOAD CELLS

2. RUDDER LOAD CELL - REMOVAL

A. General

- (1) This procedure gives the instructions to remove the rudder load cell that is assembled between pedal assembly and forward torque tube.
- (2) This task is applicable only for aircraft equipped with load cell.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 25-12-06-000-801-A/400	PEDAL ASSEMBLY LINING - REMOVAL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
123	123BL	Area below the cockpit floor
223	223HZ	Rudder-control mechanism on the cockpit floor

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 058	Kit, rig pins, flight controls	To lock the rudder control system in the neutral position	

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	Below the cockpit floor

I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the aircraft is deenergized and safe for maintenance.
- (2) Remove cockpit underfloor access hatch 123BL (AMM MPP 06-41-01/100).



- (3) Remove the pedal assembly lining ([AMM TASK 25-12-06-000-801-A/400](#)).
- (4) Install the rig pins to the rudder control system to lock it in the neutral position.

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

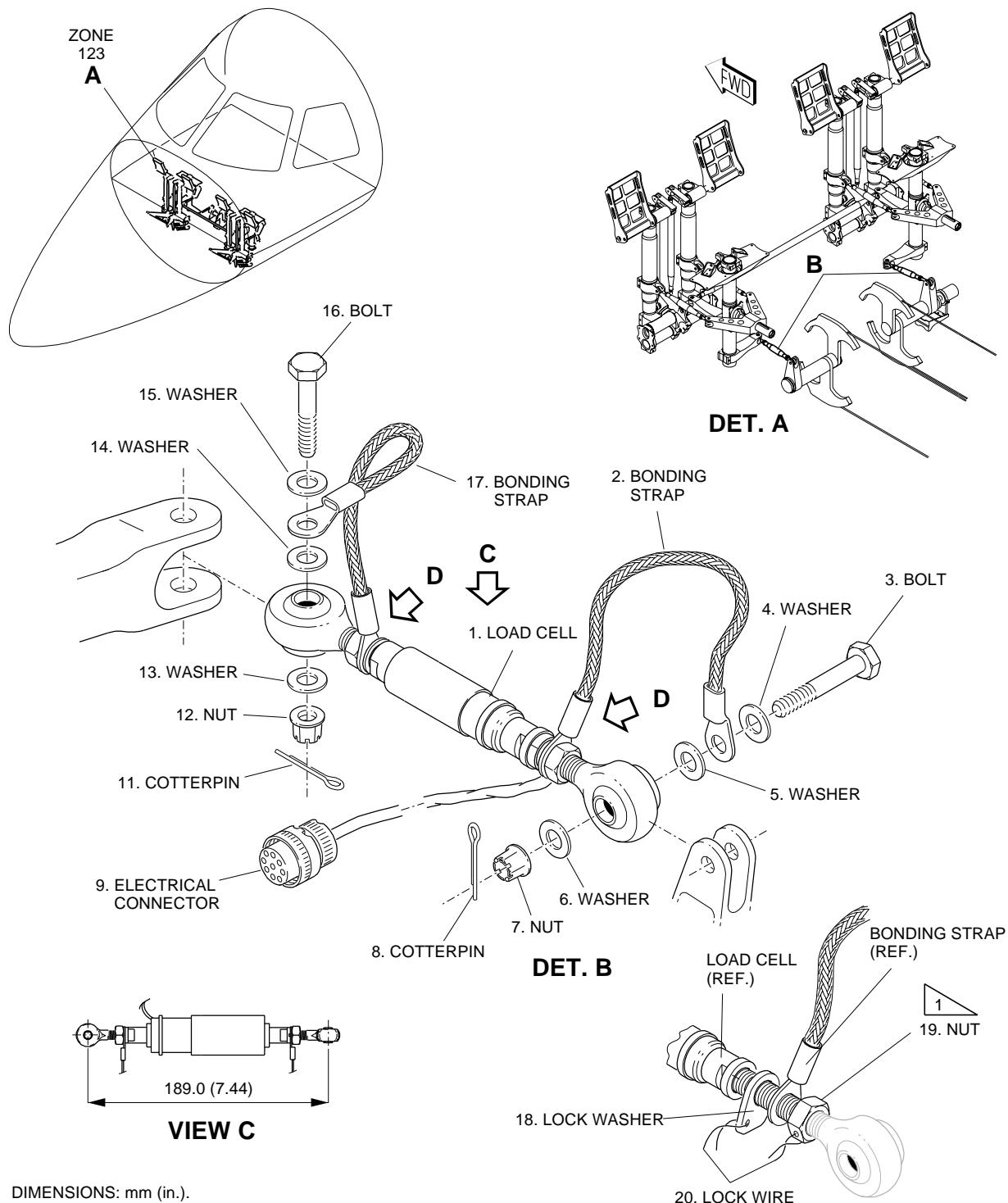
SUBTASK 020-002-A

- (1) Do the procedure given below to the LH and RH rudder pedal assembly.
- (2) Disconnect the electrical connector (9).
- (3) Disconnect the end of the load cell (1) from the bellcrank at the torque tube. For this, remove the cotter pin (8), nut (7), washers (6), (5) and (4), bonding strap (2) and bolt (3).
- (4) Disconnect the end of the load cell (1) from the pedal assembly. For this, remove the cotter pin (11), nut (12), washers (13), (14) and (15), bonding strap (17) and bolt (16).
- (5) Remove the load cell (1).

EFFECTIVITY: ONLY FOR AIRCRAFTS WITH LOAD CELLS

Rudder Load Cell - Removal/Installation

Figure 401





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TASK 27-25-04-400-801-A

EFFECTIVITY: ONLY FOR AIRCRAFTS WITH LOAD CELLS

3. RUDDER LOAD CELL - INSTALLATION

A. General

- (1) This procedure gives the instructions to install the rudder load cell that is assembled between pedal assembly and forward torque tube.
- (2) This task is applicable only for aircraft equipped with load cell.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 20-10-01/200	- MAINTENANCE PRACTICES
AMM TASK 25-12-06-400-801-A/400	PEDAL ASSEMBLY LINING - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 31-31-00-700-804-A/500	FLIGHT DATA RECORDER - FUNCTIONAL TEST
IPC 27-21-00	RUDDER PRIMARY MECHANICAL CONTROL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
123	123BL	Area below the cockpit floor
223	223HZ	Rudder-control mechanism on the cockpit floor

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 058	Kit rig pins, flight controls	To lock the rudder control system in the neutral position	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MS20995C20	Lockwire	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-21-00	2



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H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Below the cockpit floor

I. Installation (Figure 401)

SUBTASK 420-002-A

- (1) Make sure that the dimension of the load cell is as given in (Figure 401), to make the installation easier. If it is not, adjust the load cell rod ends as follows:

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 WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

- (a) Remove and discard the lockwire (20).
- (b) Loosen the nut (19) and the lock washer (18).
- (c) Adjust the load cell (1) to get the correct dimension.
- (d) Put the lock washer (18) in the correct position in the load cell (1).
- (e) Apply a maximum torque of 10.2 N.m (90 lb.in) to the nut (19).

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 WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

- (f) Safety the nut (19) and lock washer (18) with lockwire (20) [AMM MPP 20-10-01/200](#).

- (2) Put the load cell (1) in its installation position and try to install the bolt (16) and bolt (3).
- (a) If the load cell (1) is not in the correct length, adjust the load cell rod ends as follows:

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 WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

- 1 Remove and discard the lockwire (20).
- 2 Loosen the nut (19) and the lock washer (18).
- 3 Adjust the load cell (1) to get the correct dimension.
- 4 Put the lock washer (18) in the correct position in the load cell (1).
- 5 Apply a maximum torque of 10.2 N.m (90 lb.in) to the nut (19).

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 WORK AREA. IF NECESSARY, USE A VACUUM CLEANER TO REMOVE THEM.

- 6 Safety the nut (19) and lock washer (18) with lockwire (20) [AMM MPP 20-10-01/200](#).

(b) If the load cell (1) is in the correct length, go to step (3).

- (3) Install the bolt (16), washers (15), (14) and (13), bonding strap (17), nut (12) to attach the load cell at the forward torque tube.
- (4) Install a new cotter pin (11).
- (5) Install the bolt (3), washers (4), (5) and (6), bonding strap (2), nut (7) to attach the load cell at the pedal assembly.
- (6) Install a new cotter pin (8).
- (7) Install the electrical connector (9).

J. Follow-on

SUBTASK 842-002-A

- (1) Remove the rig pins from the rudder control system.
- (2) Do the load cell functional test ([AMM TASK 31-31-00-700-804-A/500](#)).
- (3) Do an inspection on the fuel quantity indication harness (AMM TASK 28-41-00-200-801-A/600).

NOTE: The inspection of fuel quantity indication harness is part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.

- (4) Install cockpit underfloor access hatch 123BL (AMM MPP 06-41-01/100).
- (5) Install the pedal assembly lining ([AMM TASK 25-12-06-400-801-A/400](#)).

