

POTENTIOMETERS - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove/install the FDR potentiometers.
- B. DAU 1 and DAU 2 receive position information from potentiometer and send to the FDR.
- C. The FDR potentiometers are as shown below:
 - Aileron: Control Wheel 1 and Control Wheel 2
 - Elevator: Control Column 1 and Control Column 2
 - Rudder: Rudder Pedal
- D. 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
31-31-04-000-801-A	FDR AILERON POTENTIOMETERS - REMOVAL	ALL
31-31-04-400-801-A	FDR AILERON POTENTIOMETERS - INSTALLATION	ALL
31-31-04-000-802-A	FDR ELEVATOR POTENTIOMETERS - REMOVAL	ALL
31-31-04-400-802-A	FDR ELEVATOR POTENTIOMETERS - INSTALLATION	ALL
31-31-04-000-803-A	FDR RUDDER POTENTIOMETER - REMOVAL	ALL
31-31-04-400-803-A	FDR RUDDER POTENTIOMETER - INSTALLATION	ALL

TASK 31-31-04-000-801-A

EFFECTIVITY: ALL

2. FDR AILERON POTENTIOMETERS - REMOVAL

A. General

- (1) This task gives the procedures to remove the FDR aileron potentiometers.
- (2) The potentiometers (Control Wheel 1 and Control Wheel 2) are installed below the cockpit floor.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-000-801-A/400	PILOT SEAT - REMOVAL
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
123	221GF	Cockpit floor

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	Below the cockpit floor

I. Preparation

SUBTASK 841-002-A

- (1) Remove floor panel 221GF (AMM MPP 06-41-02/100).
- (2) On the circuit breaker panel, open the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (3) (Applicable to aircraft PRE-MOD [SB145-32-0036](#)) Make sure that the pressure in hydraulic system 1 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
- (4) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Install the safety pin on the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (5) Remove access panel 114BZ (AMM MPP 06-41-01/100) to get access to the backup battery relay box.
- (6) On the backup battery relay box, open the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and attach a DO-NOT-CLOSE tag to it.

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

SUBTASK 020-002-A

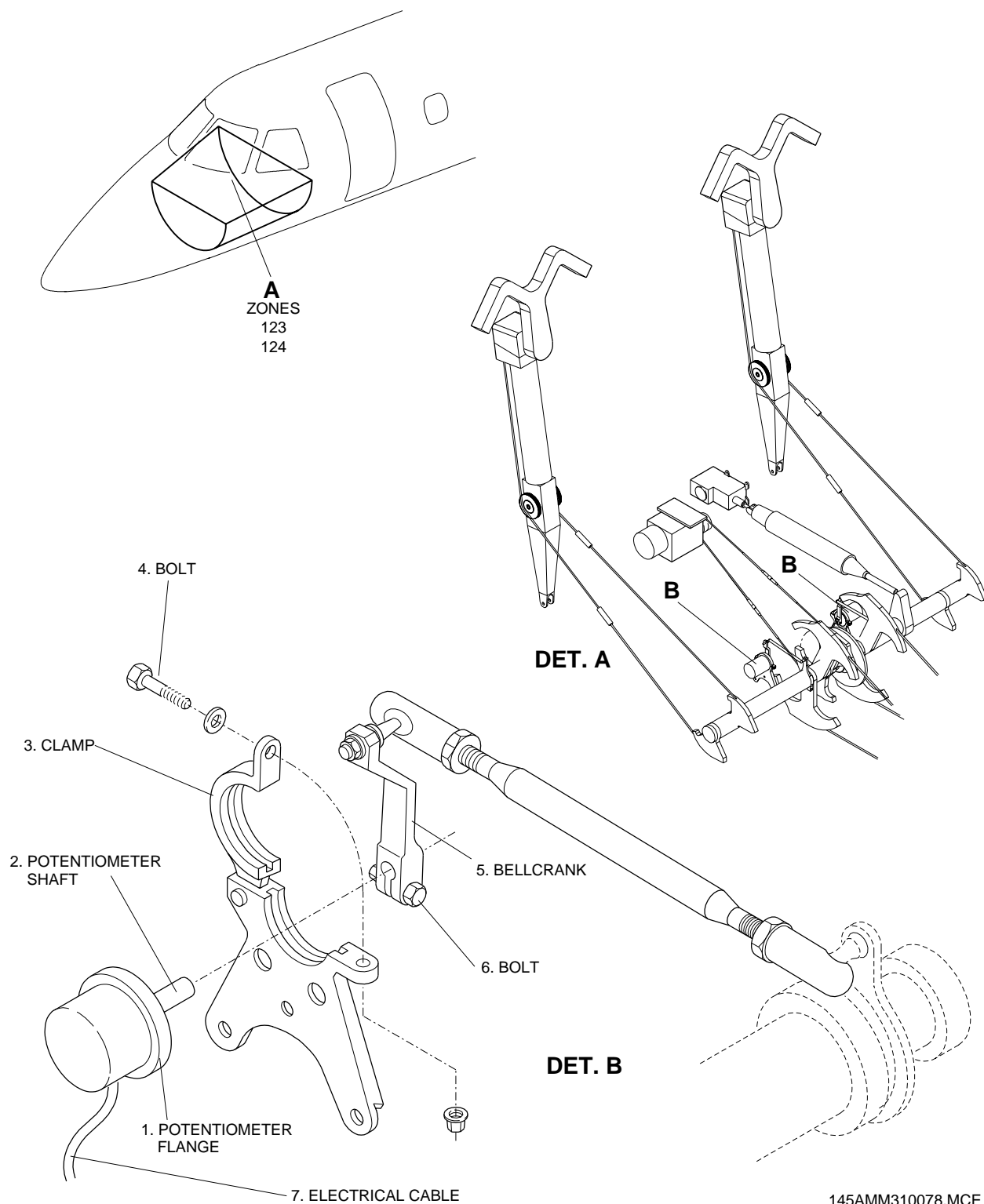
- (1) Loosen the bolt (6) which attaches the potentiometer shaft (2) to the bellcrank (5).
- (2) Remove the bolt (4) of the clamp that attaches the potentiometer flange (1) to the support.
- (3) Open the clamp (3) and remove the potentiometer.
- (4) Remove the tiedown straps that join the potentiometer electrical cable (7) to the aircraft wiring and disconnect the electrical connections.

NOTE: Remove the pilot's or copilot's seat to get access to the electrical connections ([AMM TASK 25-11-01-000-801-A/400](#)). Remove access panel 221CF or 222FF (AMM MPP 06-41-02/100), if the aileron potentiometer that you need to remove is installed on left or on the right.

EFFECTIVITY: ALL

FDR Aileron Potentiometers - Removal/Installation

Figure 401



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TASK 31-31-04-400-801-A

EFFECTIVITY: ALL

3. FDR AILERON POTENTIOMETERS - INSTALLATION

A. General

- (1) This task gives typical procedures to install the FDR aileron potentiometers.
- (2) The aileron potentiometers (Control Wheel 1 and Control Wheel 2) are installed below the cockpit floor, on the left and right sides.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-400-801-A/400	PILOT SEAT - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 31-31-04-700-801-A/500	FDR POTENTIOMETERS - ADJUSTMENT
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
123	221GF	Cockpit floor

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	Below the cockpit floor

I. Installation (Figure 401)

SUBTASK 420-002-A

- (1) Put the potentiometer in its installation position.
- (2) Close the clamp (3) and tighten the bolt (4) and nut which attach the potentiometer to the support.
- (3) Use tiedown straps to attach the potentiometer electrical cable (7) together with the aircraft wiring. Then make the electrical connections.
- (4) Do the adjustment of the aileron potentiometers ([AMM TASK 31-31-04-700-801-A/500](#)).
- (5) Install the bellcrank (5) to the potentiometer shaft (2) and tight the bolt (6) and nut which attach it.

J. Follow-on

SUBTASK 842-002-A

- (1) On the circuit breaker panel, remove the DO-NOT-CLOSE tag from the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and close them.
- (2) On the backup battery relay box, remove the DO-NOT-CLOSE tag from the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and close it.
- (3) Install access panel 114BZ (AMM MPP 06-41-01/100).
- (4) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Remove the safety pin of the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (5) 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 a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.

- (6) Install access panel 221CF or 222FF (AMM MPP 06-41-02/100).
- (7) Install the pilot's or copilot's seat ([AMM TASK 25-11-01-400-801-A/400](#)).
- (8) 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 a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.

- (9) Install floor panel 221GF (AMM MPP 06-41-02/100).

TASK 31-31-04-000-802-A

EFFECTIVITY: ALL

4. FDR ELEVATOR POTENTIOMETERS - REMOVAL

A. General

- (1) This task gives the procedures to remove the FDR elevator potentiometers.
- (2) The elevator potentiometers (Control Column 1 and Control Column 2) are installed below the cockpit floor.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-000-801-A/400	PILOT SEAT - REMOVAL
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
123	221EF	Cockpit floor - Left side
124	222FF	Cockpit floor - Right side

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	Below the cockpit floor

I. Preparation

SUBTASK 841-003-A

- (1) To remove the elevator left potentiometer (control column 1):
 - (a) Remove the pilot seat ([AMM TASK 25-11-01-000-801-A/400](#)).
 - (b) Remove access panel 221EF (AMM MPP 06-41-02/100).
 - (c) On the circuit breaker panel, open the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and attach a DO-NOT-CLOSE tag to them.
 - (d) (Applicable to aircraft PRE-MOD [SB145-32-0036](#)) Make sure that the pressure in hydraulic system 1 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
 - (e) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Install the safety pin on the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
 - (f) Remove access panel 114BZ (AMM MPP 06-41-01/100) to get access to the backup battery relay box.
 - (g) On the backup battery relay box, open the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and attach a DO-NOT-CLOSE tag to it.
- (2) To remove the elevator right potentiometer (control column 2):
 - (a) Remove the copilot seat ([AMM TASK 25-11-01-000-801-A/400](#)).
 - (b) Remove access panel 222FF (AMM MPP 06-41-02/100).
 - (c) On the circuit breaker panel, open the EICAS/DAU 2A and EICAS/DAU 2B circuit breakers and attach a DO-NOT-CLOSE tag to them.
 - (d) (Applicable to aircraft PRE-MOD [SB145-32-0036](#)) Make sure that the pressure in hydraulic system 1 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
 - (e) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Install the safety pin on the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
 - (f) Remove access panel 114BZ (AMM MPP 06-41-01/100) to get access to the backup battery relay box.
 - (g) On the backup battery relay box, open the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and attach a DO-NOT-CLOSE tag to it.

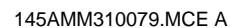
J. Removal ([Figure 402](#))

SUBTASK 020-003-A

- (1) Loosen the bolt (6) which attaches the potentiometer shaft (1) to the bellcrank (7).
- (2) Remove the bolt (4) of the clamp (5) that attaches the potentiometer flange (2) to the support.
- (3) Open the clamp (5) and remove the potentiometer.

- (4) Remove the tiedown strap that attach join the potentiometer electrical cable (3) to the aircraft wiring and disconnect the electrical connections.

Figure 402



TASK 31-31-04-400-802-A
EFFECTIVITY: ALL

5. FDR ELEVATOR POTENTIOMETERS - INSTALLATION

A. General

- (1) This task gives procedures to install the FDR elevator potentiometers.
- (2) The elevator potentiometers (Control Column 1 and Control Column 2) are installed bellow the cockpit floor.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-400-801-A/400	PILOT SEAT - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 31-31-04-700-801-A/500	FDR POTENTIOMETERS - ADJUSTMENT
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
123	221EF	Cockpit floor - Left side
124	222FF	Cockpit floor - Right side

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	Below the cockpit floor

I. Installation (Figure 402)

SUBTASK 420-003-A

- (1) Put the potentiometer in its installation position.
- (2) Close the clamp (5) and tighten the bolt (4) and nut which attach the potentiometer to the support.
- (3) Use tiedown straps to attach the potentiometer wire together with the aircraft wiring. Then make the electrical connections.
- (4) Do the adjustment of the elevator potentiometers ([AMM TASK 31-31-04-700-801-A/500](#)).
- (5) Install the bellcrank (7) to the potentiometer shaft (1) and tight the bolt (6) and nut which attach it.

J. Follow-on

SUBTASK 842-003-A

- (1) If installed the elevator left potentiometer (Control Column 1):
 - (a) 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 a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.
 - (b) Install access panel 221EF (AMM MPP 06-41-02/100).
 - (c) Install the pilot seat ([AMM TASK 25-11-01-400-801-A/400](#)).
 - (d) On the circuit breaker panel, remove the DO-NOT-CLOSE tag from the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and close them.
 - (e) On the backup battery relay box, remove the DO-NOT-CLOSE tag from the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and close it.
 - (f) Install access panel 114BZ (AMM MPP 06-41-01/100)
 - (g) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Remove the safety pin of the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (2) If installed the elevator right potentiometer (Control Column 2):
 - (a) 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 a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.
 - (b) Install access panel 222FF (AMM MPP 06-41-02/100).
 - (c) Install the copilot seat ([AMM TASK 25-11-01-400-801-A/400](#)).

- (d) On the circuit breaker panel, remove the DO-NOT-CLOSE tag from the EICAS/DAU 2A and EICAS DAU 2B circuit breakers and close them.
- (e) On the backup battery relay box, remove the DO-NOT-CLOSE tag from the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and close it.
- (f) Install access panel 114BZ (AMM MPP 06-41-01/100)
- (g) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Remove the safety pin of the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).

TASK 31-31-04-000-803-A

EFFECTIVITY: ALL

6. FDR RUDDER POTENTIOMETER - REMOVAL

A. General

- (1) This task gives the procedures to remove the FDR rudder potentiometer.
- (2) The potentiometer (rudder pedal) is installed in the cockpit under floor.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-000-801-A/400	PILOT SEAT - REMOVAL
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
124	222FF	Cockpit floor

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	Below the cockpit floor

I. Preparation

SUBTASK 841-004-A

- (1) Remove the copilot seat ([AMM TASK 25-11-01-000-801-A/400](#)).

- (2) Remove access panel 222FF (AMM MPP 06-41-02/100).
- (3) On the circuit breaker panel, open the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (4) (Applicable to aircraft PRE-MOD [SB145-32-0036](#)) Make sure that the pressure in hydraulic system 1 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
- (5) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Install the safety pin on the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (6) Remove access panel 114BZ (AMM MPP 06-41-01/100) to get access to the backup battery relay box.
- (7) On the backup battery relay box, open the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and attach a DO-NOT-CLOSE tag to it.

J. Removal ([Figure 403](#))

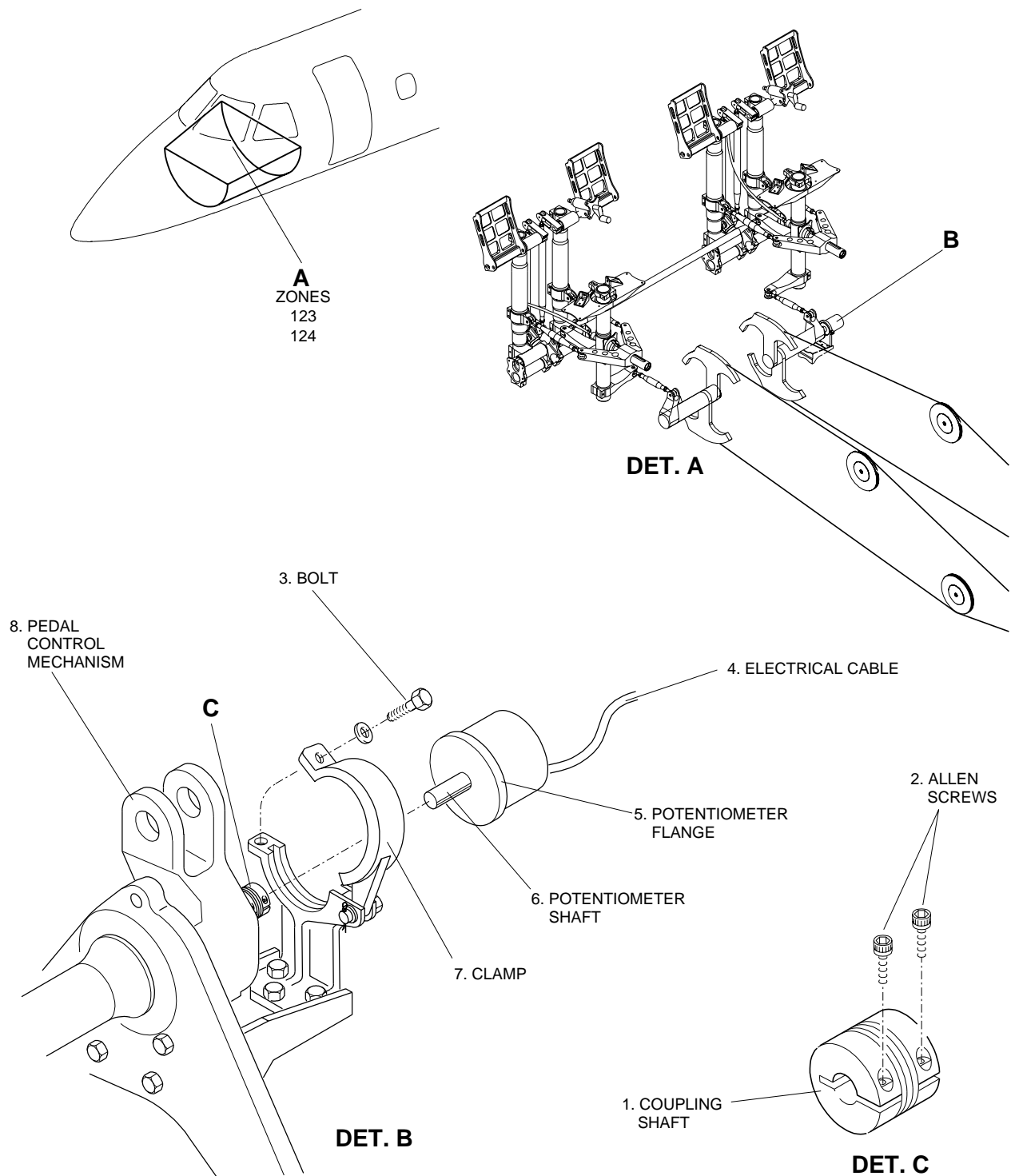
SUBTASK 020-004-A

- (1) Disconnect the electrical cable (4) from the aircraft wiring.
- (2) Loosen the screws (2) from the coupling shaft (1) that attach the potentiometer shaft (6) to the rudder pedal control mechanism (8).
- (3) Remove the bolt (3) of the clamp (7) that attaches the potentiometer flange (5) to the support.
- (4) Open the clamp (7) and remove the potentiometer.

EFFECTIVITY: ALL

FDR Rudder Potentiometer - Removal/Installation

Figure 403



145AMM310080.MCE A

TASK 31-31-04-400-803-A
EFFECTIVITY: ALL

7. FDR RUDDER POTENTIOMETER - INSTALLATION

A. General

- (1) This task gives typical procedures to install the FDR rudder potentiometer.
- (2) The rudder potentiometer is installed below the cockpit floor.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-41-02/100	-
AMM SDS 24-60-00/1	
AMM TASK 25-11-01-400-801-A/400	PILOT SEAT - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 31-31-04-700-801-A/500	FDR POTENTIOMETERS - ADJUSTMENT
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
SB145-32-0036	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
114	114BZ	Nose landing gear compartment (RH)
124	222FF	Cockpit floor

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	Below the cockpit floor

I. Installation (Figure 403)

SUBTASK 420-004-A

- (1) Put the potentiometer in its installation position.
- (2) Close the clamp (7) and tighten the bolt (3) and nut which attach the potentiometer to the support.
- (3) Use tiedown straps to attach the potentiometer wire together with the aircraft wiring. Then make the electrical connections.
- (4) Do the adjustment of the rudder potentiometer ([AMM TASK 31-31-04-700-801-A/500](#)).
- (5) Install the coupling shaft to potentiometer shaft and rudder pedal control mechanism, tight the screws which attach them.

J. Follow-on

SUBTASK 842-004-A

- (1) On the circuit breaker panel, remove the DO-NOT-CLOSE tag from the EICAS/DAU 1A and EICAS/DAU 1B circuit breakers and close them.
- (2) On the backup battery relay box, remove the DO-NOT-CLOSE tag from the DAU 1/2 circuit breaker ([AMM SDS 24-60-00/1](#)) and close it.
- (3) Install access panel 114BZ (AMM MPP 06-41-01/100).
- (4) (Applicable to aircraft POST-MOD [SB145-32-0036](#)) Remove the safety pin of the NLG door solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (5) 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 a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.

- (6) Install access panel 222FF (AMM MPP 06-41-02/100).
- (7) Install the copilot seat ([AMM TASK 25-11-01-400-801-A/400](#)).