



AIRCRAFT  
MAINTENANCE MANUAL

**FLAP POSITION TRANSDUCER UNIT - REMOVAL/INSTALLATION**

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the Flap Position Transducer Unit.
- 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
27-53-05-000-801-A	FLAP POSITION TRANSDUCER UNIT - REMOVAL	ALL
27-53-05-400-801-A	FLAP POSITION TRANSDUCER UNIT - IN- STALLATION	ALL



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AIRCRAFT  
MAINTENANCE MANUAL

TASK 27-53-05-000-801-A

EFFECTIVITY: ALL

2. FLAP POSITION TRANSDUCER UNIT - REMOVAL

A. General

- (1) This task gives the procedures to remove the Flap Position Transducer Unit.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 57-56-01-000-801-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - REMOVAL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193AL	Wing stub

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 299	Soft Jaw Pliers	To disconnect and connect electrical connectors	

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	Wing stub

I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Energize the aircraft with the External DC Power Supply ( [AMM TASK 20-40-01-860-801-A/200](#)).
- (3) Open the flap lower shroud ([AMM TASK 57-56-01-000-801-A/400](#)).



EMB145 – EMB135

AIRCRAFT  
MAINTENANCE MANUAL

- (4) Set the flaps to the 9-degree position.
- (5) On the Circuit Breaker Panel, open the FLAP 1 and FLAP 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
- (6) Remove access door 193AL (AMM MPP 06-41-01/100).

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

SUBTASK 020-002-A

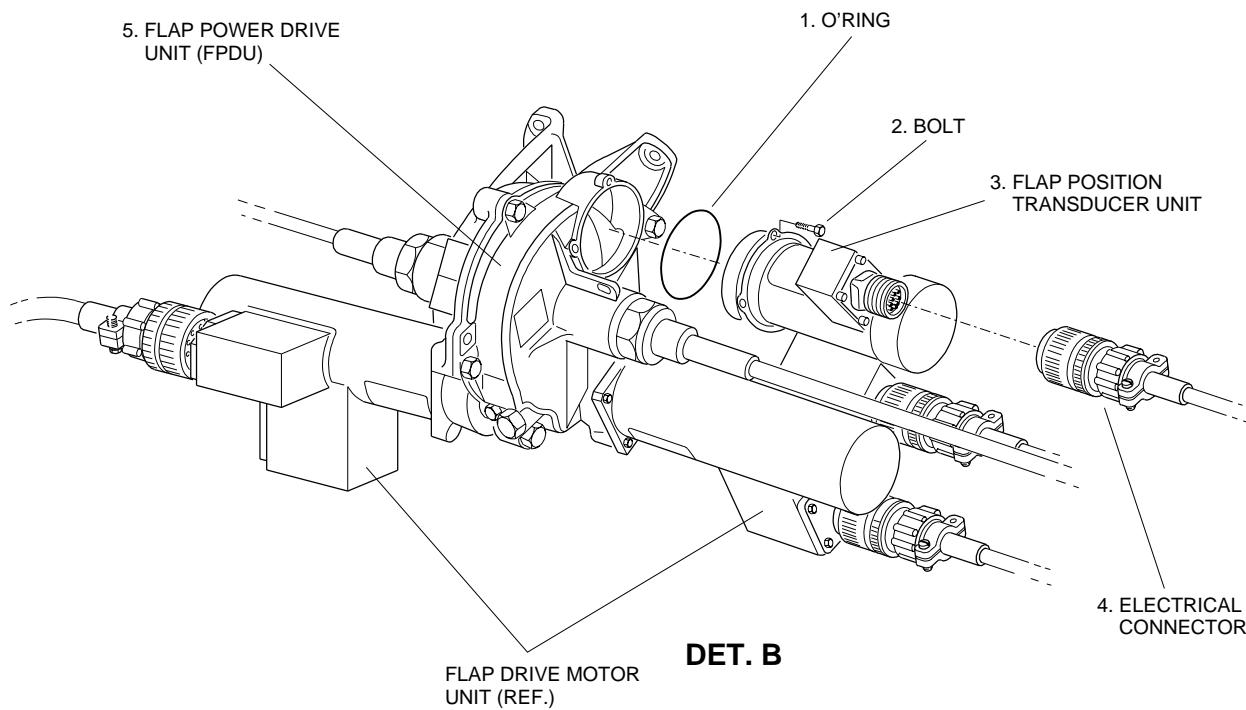
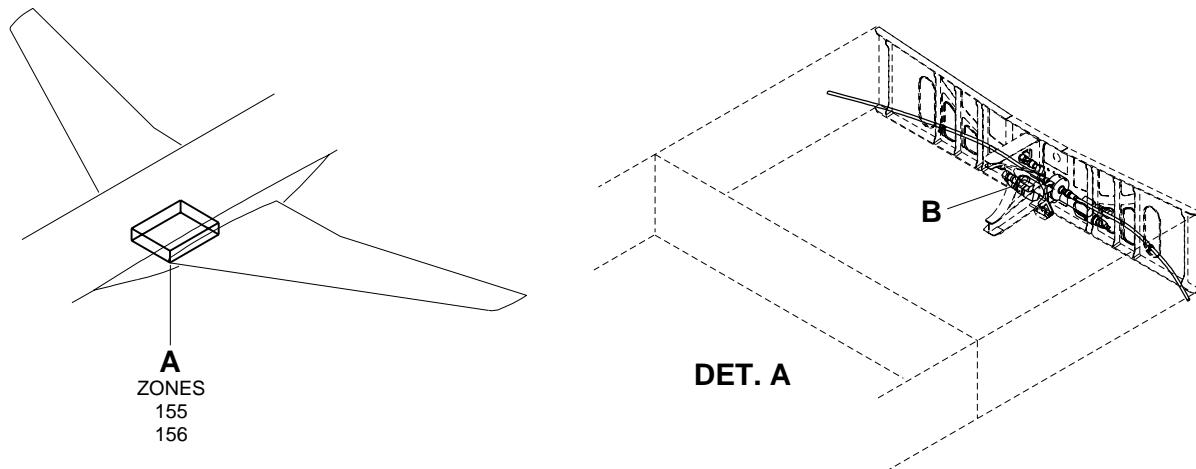
**CAUTION:** DURING THIS PROCEDURE, BE CAREFUL WHILE YOU HANDLE THE FPTU. OR DAMAGE MAY OCCUR.

- (1) Disconnect the electrical connector (4) from the Flap Position Transducer Unit (3).  
**NOTE:** If necessary, use soft jaw pliers (GSE 299) to disconnect the electrical connector.
- (2) Remove the bolts (2) to release the Flap Position Transducer Unit (3).
- (3) Remove the Flap Position Transducer Unit (3) from the FPDU (5) and discard the O-ring (1).

**EFFECTIVITY: ALL**

Flap Position Transducer Unit - Removal/Installation

Figure 401



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MAINTENANCE MANUAL

TASK 27-53-05-400-801-A

EFFECTIVITY: ALL

3. FLAP POSITION TRANSDUCER UNIT - INSTALLATION

A. General

(1) This task gives the procedures to install the Flap Position Transducer Unit.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 27-51-04-000-801-A/400	FLAP FLEXIBLE SHAFT SECTION 1 - REMOVAL
AMM TASK 27-51-04-400-801-A/400	FLAP FLEXIBLE SHAFT SECTION 1 - INSTALLATION
AMM TASK 27-53-00-700-802-A/500	-
AMM TASK 57-56-01-400-801-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - INSTALLATION
CMM 27-51-10	-
WM 20-50-00	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193AL	Wing stub

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 064	Adapter, Drive Flap	To adapt the FFS to the pneumatic or electric screwdriver	
GSE 299	Soft Jaw Pliers	To disconnect and connect electrical connectors	
GSE 350	Gauge-Flap, Zero-Degree Position	To adjust the Flap zero -degree position	
Commercially Available	Electric/Pneumatic Screwdriver	To turn the Flap Flexible Shaft	
Commercially Available	Wrench	To turn the Flap Flexible Shaft	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable



EMB145 - EMB135

AIRCRAFT  
MAINTENANCE MANUAL

## G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
O-ring	CMM 27-51-10	1

## H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Wing stub

## I. Installation (Figure 401 )

## SUBTASK 420-002-A

**CAUTION:** DURING THIS PROCEDURE, BE CAREFUL WHILE YOU HANDLE THE FPTU. OR DAMAGE MAY OCCUR.

**CAUTION:** MAKE SURE THAT THE PLUG COMPLETELY COVERS THE RED BAND ON THE RECEPTACLE BODY, AND DO NOT OVERTIGHTEN THE CONNECTOR BECAUSE YOU MAY CAUSE DAMAGE TO THE CONNECTOR AND FPTU (WM 20-50-00).

- (1) Connect the electrical connector (4) to the Flap Position Transducer Unit (FPTU) (3) and do not install the FPTU in the FPDU (5).

**NOTE:** It is recommended that soft jaw pliers (GSE 299) be used to ensure that the connector is properly connected.

- (2) On the Circuit Breaker Panel, close the FLAP 2 circuit breaker and remove the DO-NOT-CLOSE tag from it.

- (3) Read the flap position indication on the EICAS and rotate the FPTU shaft until the EICAS indicates 7 degrees, which is approximately 2 degrees below the real position of the flap (9 degrees).

**NOTE:** Because the FPTU gear ratio (810.67/1), many FPTU shaft revolution are necessary to change the EICAS Flap position indication by 1 degree.

- (4) Install the FPTU (3) in the FPDU (5). Use the O-ring (1) and bolts (2).

- (5) On the Circuit Breaker Panel, close the FLAP 1 circuit breaker and remove the DO-NOT-CLOSE tag from it.

**NOTE:** The flap position indication will change from 7 degrees to a dash.

- (6) On the Maintenance Panel, actuate the FLAP RESET switch and keep it pushed.

- (7) On the Circuit Breaker Panel, open and close the FLAP 1 and FLAP 2 circuit breakers to clear the possible fault.

- (8) Release the FLAP RESET switch on the Maintenance Panel.

- (9) Set the flaps to the 0-degree position. The FPDU will go to the 0-degree position but the flap surface position will be out of 0-degree position.

- (10) Electrically release the Flap Transmission Brake (FTB):
  - (a) On the Circuit Breaker Panel, open the FLAP 1 and FLAP 2 circuit breakers.
  - (b) Disconnect electrical connector P1104 (WM 27-53-50 and WM 27-53-51) from the FECU.
  - (c) (For the LH FTB) Connect a jumper between pins 7 and 46 of electrical connector P1104 (WM 27-53-50 and WM 27-53-51).
  - (d) (For the RH FTB) Connect a jumper between pins 115 and 128 of electrical connector P1104 (WM 27-53-50 and WM 27-53-51).
  - (e) On the Circuit Breaker Panel, close the FLAP 1 and FLAP 2 circuit breakers.
- (11) Disconnect FFS section 1 from the FPDU [AMM TASK 27-51-04-000-801-A/400](#).
- (12) To adjust the flap to the Zero-Degree position using the GSE-350, do the steps below:

**CAUTION:** THE AVAILABLE OUTPUT TORQUE OF THE PNEUMATIC OR ELECTRIC SCREWDRIVER MUST NOT BE HIGHER THAN 12 N.M (105 LBF.IN) TO PREVENT PERMANENT DAMAGE TO THE FFS.

  - (a) Use a pneumatic or electric screwdriver or use a wrench, with GSE-064, on the FFS section 1, to move the surface to a position that let the GSE-350 installation.  
**NOTE:** It is not necessary to measure the real position of the flap surfaces.
  - (b) Install the GSE-350 to the flap track 1.

**CAUTION:** MAKE SURE THAT THE TRANSLATION SPEED OF THE FLAPS IS REDUCED WHEN THE SURFACES GET CLOSE TO THE GSE-350.

  - (c) Turn FFS section 1 to move the flap surfaces until they touch the stop of GSE-350 installed on the track 1.
  - (d) Draw 3 parallel reference lines on a piece of adhesive tape and apply it on the inboard flap surface and torque box as shown in [Figure 402](#).
  - (e) Cut the tape along the gap between the flap surfaces and the torque box and fold the tape ends into the gap ([Figure 402](#)).
  - (f) Make sure that the LH and RH flap surfaces are adjusted as given in the steps above.
  - (g) Connect the FFS section 1 to the FPDU ([AMM TASK 27-51-04-400-801-A/400](#)).
  - (h) On the Circuit Breaker Panel, open the FLAP 1 and FLAP 2 circuit breakers.
  - (i) Disconnect the jumpers from the electrical connector P1104 (WM 27-53-50 and WM 27-53-51).
  - (j) Reconnect the electrical connector P1104 (WM 27-53-50 and WM 27-53-51) to the FECU.
  - (k) On the Circuit Breaker Panel, close the FLAP 1 and FLAP 2 circuit breakers.

- (l) Set the flaps to the 9-degree position.
  - (m) Remove the GSE-350 from the track of the flaps.
  - (n) Set the flaps to the 45-degree and then to the zero-degree position.
  - (o) Check the alignment of the marks and the alignment between the 3 parallel lines on the adhesive tapes on the inboard flap surface and torque box ([Figure 402](#)).
  - (p) If the lines do not align, adjust the flap to the Zero-Degree position again.
- (13) To adjust the flap to the Zero-Degree position without the GSE-350, do the steps below:
- CAUTION:** MAKE SURE THAT THE TRANSLATION SPEED OF THE FLAPS IS REDUCED WHEN THE SURFACES GET CLOSE TO THE MECHANICAL STOP.
- (a) Connect the pneumatic or electric screwdriver to FFS 1 and put the flap root roller to the upper mechanical stop.
  - (b) Use a pen to make a reference mark on the FSA 2 screw/face ([Figure 403](#)).
  - (c) Connect the pneumatic or electric screwdriver to FFS 1 and move the screwdriver in the appositive direction (to extend the flap panel) and slowly set the flap panel with a 13/16 turn of the FSA 2 screw (refer to the reference mark). See [Figure 404](#).
- NOTE:** It corresponds to approximately 6.00 mm (0.24 in) of the FSA 1 linear displacement.
- (d) Make sure that the flap surfaces from LH and RH wings are adjusted according to the steps above.
  - (e) Connect the FFS section 1 to the FPDU ([AMM TASK 27-51-04-400-801-A/400](#)).
  - (f) On the Circuit Breaker Panel, open the FLAP 1 and FLAP 2 circuit breakers.
  - (g) Disconnect the jumpers from the electrical connector P1104 (WM 27-53-50 and WM 27-53-51).
  - (h) Reconnect the electrical connector P1104 (WM 27-53-50 and WM 27-53-51) to the FECU.
  - (i) On the Circuit Breaker Panel, close the FLAP 1 and FLAP 2 circuit breakers.
- (14) Torque and lockwire the FFS 1 ([AMM TASK 27-51-04-400-801-A/400](#)).

#### J. Follow-on

##### SUBTASK 842-002-A

- (1) Install access door 193AL (AMM MPP 06-41-01/100).
- (2) Close the flap lower shroud ([AMM TASK 57-56-01-400-801-A/400](#)).



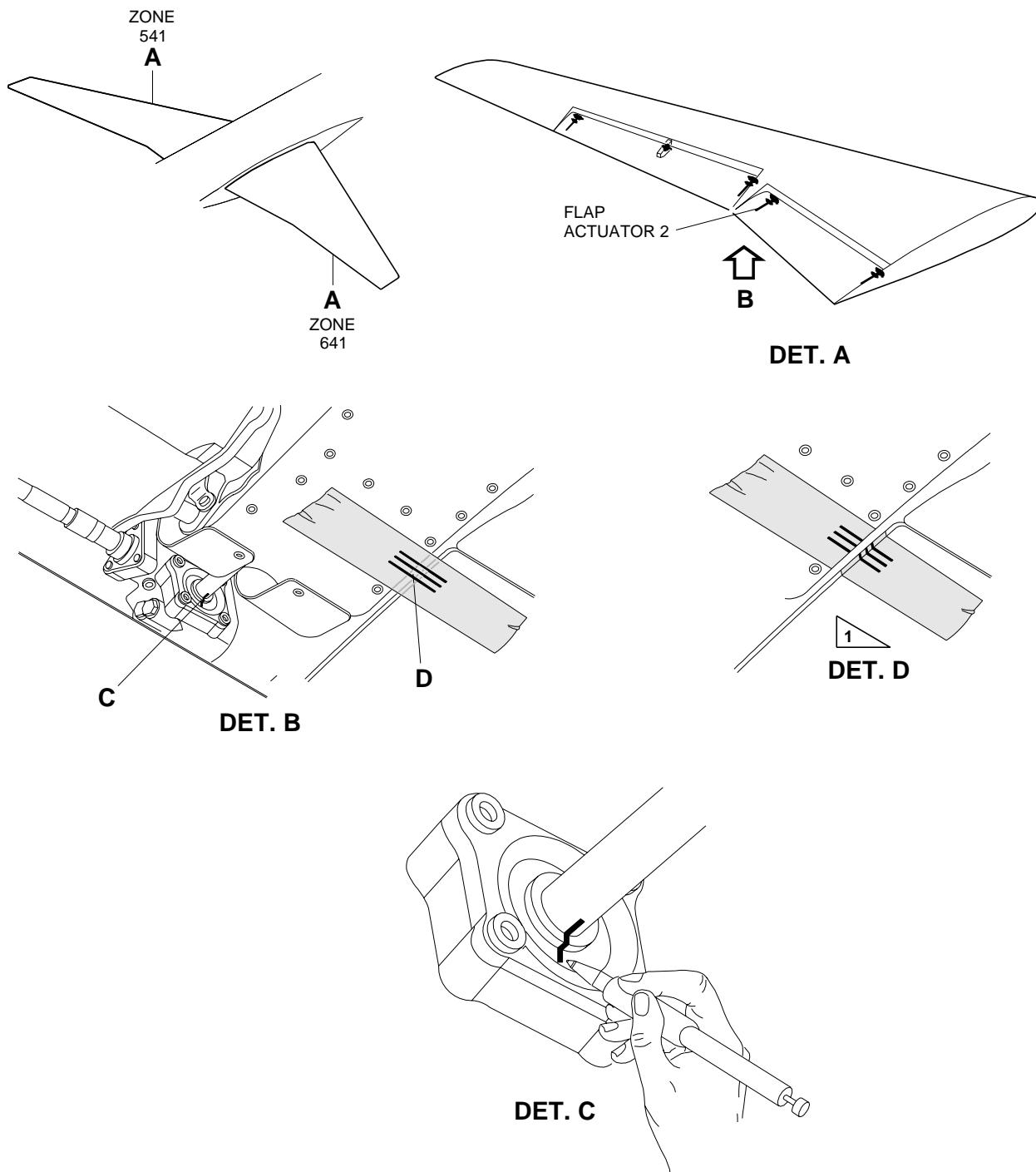
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- (3) Do the operational check of the flap control system (AMM TASK 27-53-00-700-802-A/500).

**EFFECTIVITY: ALL**

Zero-Degree Flap - Alignment marks

Figure 402



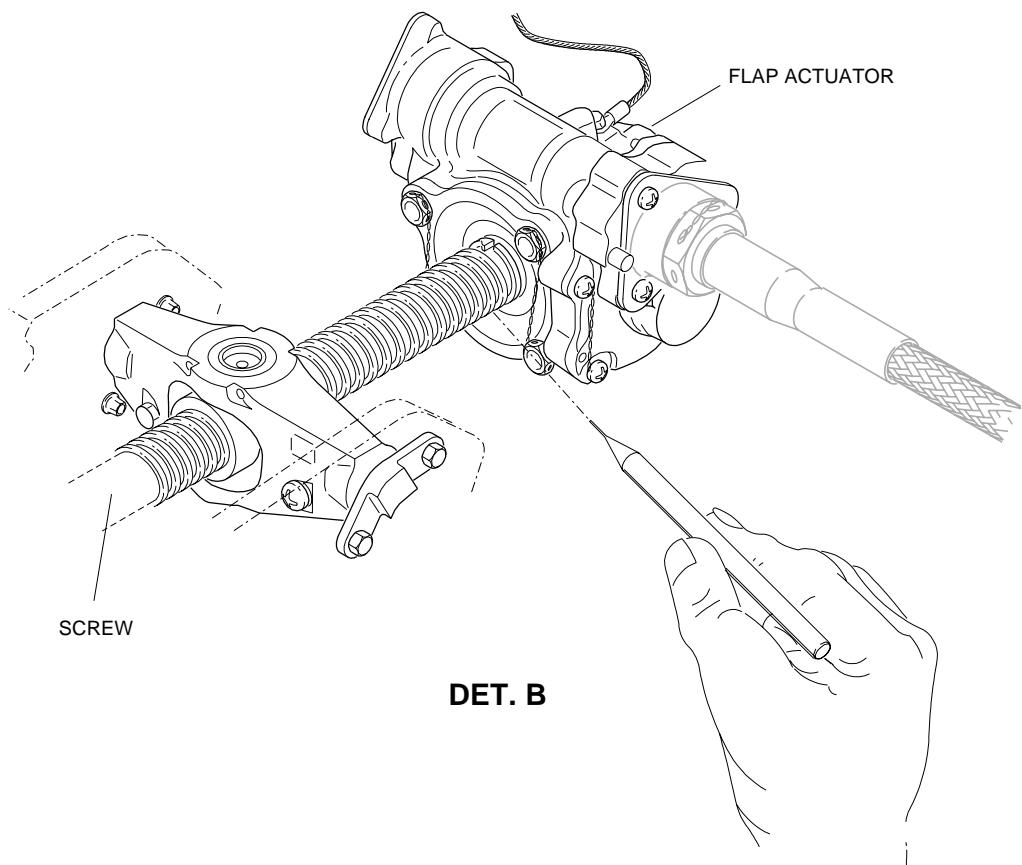
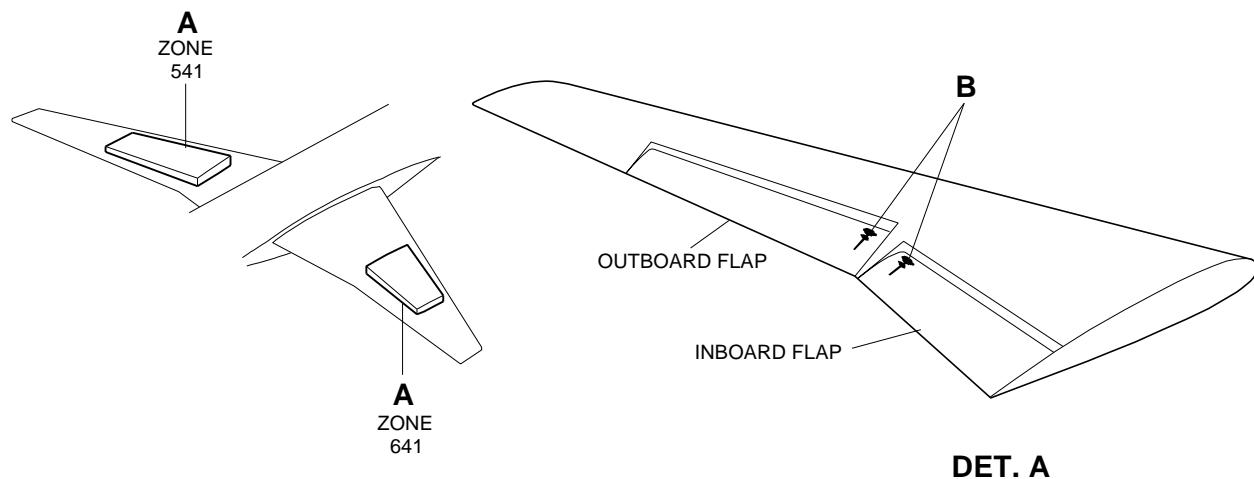
DRAW 3 REFERENCE PARALLEL LINES ON A PIECE OF ADHESIVE TAPE AND APPLY IT TO THE SURFACES AS SHOWN.  
CUT THE TAPE ALONG THE GAP BETWEEN THE SURFACES AND FOLD THE TAPE ENDS INTO THE GAP

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**EFFECTIVITY: ALL**

Zero-Degree Flap - Reference mark

Figure 403

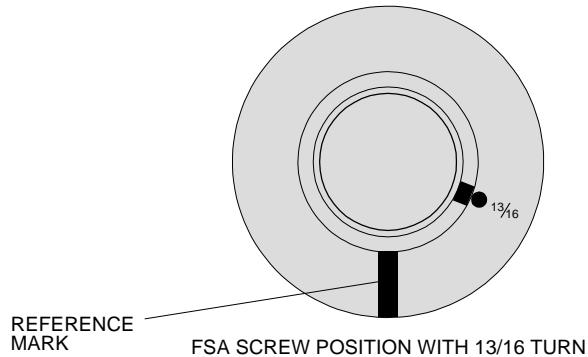
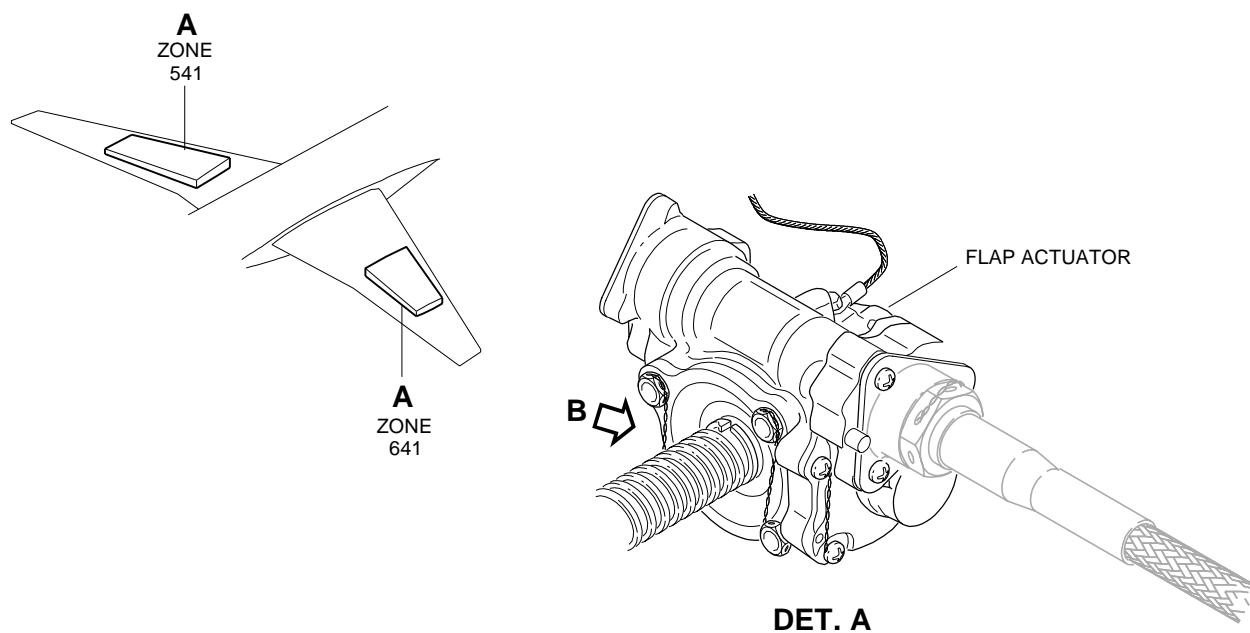


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**EFFECTIVITY: ALL**

Zero-Degree Flap - Adjustment

Figure 404



**VIEW B**

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