



AIRCRAFT MAINTENANCE MANUAL

FLAP - MECHANICAL LINE - INSPECTION/CHECK

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to do the inspection of the flap mechanical line.
- 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
27-51-00-200-801-A ♦	FLAP MECHANICAL LINE - GENERAL VISUAL INSPECTION	ALL
27-51-00-200-802-A ♦	FLAP FLEXIBLE SHAFT - INSPECTION	ALL



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TASK 27-51-00-200-801-A

EFFECTIVITY: ALL

2. FLAP MECHANICAL LINE - GENERAL VISUAL INSPECTION

A. General

- (1) The function of this inspection is to know the general condition of the equipment.
- (2) This task must be done when the aircraft was operated above the V_{FE} (Maximum Flap Extended Speed) with the flap at the 9, 18, 22 or 45-degree position, refer to [AMM TASK 05-50-07-200-801-A/600](#).

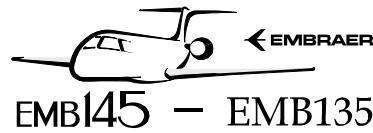
- NOTE:**
- If the speed was 160 kias or less, with the flap at 45-degrees position, the inspection is not necessary.
 - The Maximum Flap Extended Position Speed of each flap deflection position is given in the LIMITATION section of the Airplane Flight Manual.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM MPP 27-53-05/400	- REMOVAL/INSTALLATION
AMM TASK 05-50-07-200-801-A/600	MAXIMUM FLAP EXTENDED SPEED
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 27-51-18-000-801-A/400	PLUG - REMOVAL
AMM TASK 27-51-18-400-801-A/400	PLUG - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 57-56-01-000-801-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - REMOVAL
AMM TASK 57-56-01-000-802-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - OPEN
AMM TASK 57-56-01-400-801-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - INSTALLATION
AMM TASK 57-56-01-400-802-A/400	INBOARD AND OUTBOARD FLAP LOWER SHROUDS - CLOSE

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193AL	Wing fuselage fairing
541	541GB	Left wing
5711		Left wing
5721		Left wing
641	641GB	Right wing



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(Continued)

ZONE	PANEL/DOOR	LOCATION
6711		Right wing
6721		Right wing

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Flashlight	To make the lighting condition better in the area where the inspection will be done	1
Commercially available	Inspection Mirror	To permit the inspection on the flap mechanical line	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Wing trailing edge

I. Preparation

SUBTASK 841-002-A

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE FLAP TRAVEL AREA.

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Do not do other tasks on the flap system.
- (3) Energize the aircraft with External DC Power Supply ([AMM TASK 20-40-01-860-801-A/200](#)).
- (4) Set the flaps to the 45-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.

CAUTION: WHEN YOU OPEN THE INBOARD-FLAP LOWER SHROUD, IF IT IS NECESSARY TO MOVE THE FLAPS, DO AS FOLLOWS (IT WILL PREVENT DAMAGE TO THE INBOARD-FLAP LOWER SHROUD AND INBOARD-FLAP LEADING EDGE).

- RELEASE THE SPRINGS FROM THE ROOT AND TIP SUPPORTS OF THE INBOARD-FLAP LOWER SHROUD.
- REMOVE THE TIP AND ROOT SUPPORTS ONLY FROM THE INBOARD-FLAP LOWER SHROUD ([AMM TASK 57-56-01-000-801-A/400](#)).

- (6) Open the lower shroud of the inboard and outboard flaps ([AMM TASK 57-56-01-000-802-A/400](#)).
- (7) Remove access doors 541GB and 641GB to get access to the flap velocity sensors ([AMM MPP 06-44-00/100](#)).
- (8) Remove access panel 193AL to get access to the FECU and FPDU ([AMM MPP 06-41-01/100](#)).

J. Inspect (Visual Inspection) Flap Mechanical Line ([Figure 601](#)) ([Figure 602](#)) ([Figure 603](#)) ([Figure 604](#))

SUBTASK 212-002-A

- (1) Do an inspection in the Flap Mechanical Line, which must include:
 - Integrity of the FFS casings.
 - FFSs to flap actuators and FPDU and FTB connection and lock wiring.
 - Flap actuators to wing rear spar and flap panel attachments.
 - FAGB and FVS attachment and lock wiring.
 - FPDU, FECU, and FTB attachment.
 - FPDU, FTB, FVS, and FECU electrical connector for condition.
 - Flap rollers for attachment, condition, and integrity.
 - Flap rollers (but not the outboard center track rollers) for maximum permitted lateral stop wear. See [Figure 604](#).
 - Inboard and outboard flap lower shroud ball bearings for condition.
- (2) If the wear is at the maximum wear limit line of the roller lateral stop, you must replace the plug. Refer to [AMM TASK 27-51-18-000-801-A/400](#) to remove it and to [AMM TASK 27-51-18-400-801-A/400](#) to install it.
- (3) (For aircraft with FPTU without flange between there housings) Do a visual inspection on the FPTU nameplate ([Figure 603](#)). If signs of twisting (wrinkles) are found in the FPTU nameplate, replace the FPTU. Refer to [AMM MPP 27-53-05/400](#).



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K. Follow-on

SUBTASK 842-002-A

- (1) Close the lower shroud of the inboard and outboard flaps ([AMM TASK 57-56-01-400-802-A/400](#)).

NOTE: If you removed the tip and root supports from the inboard-flap lower shroud, install them now ([AMM TASK 57-56-01-400-801-A/400](#)).

- (2) 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.

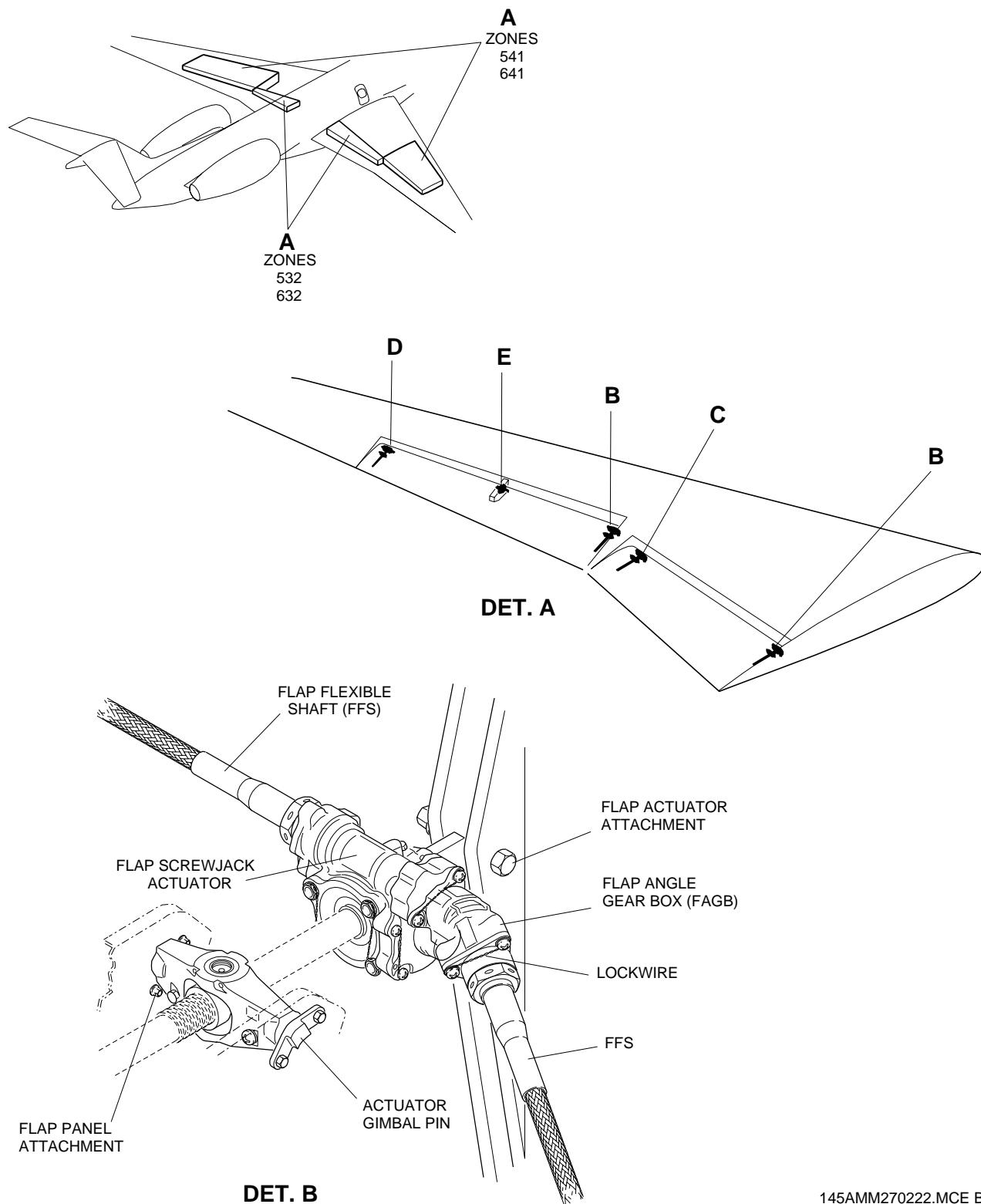
- (3) Install access doors 541GB and 641GB ([AMM MPP 06-44-00/100](#)).

- (4) Install access panel 193AL ([AMM MPP 06-41-01/100](#)).

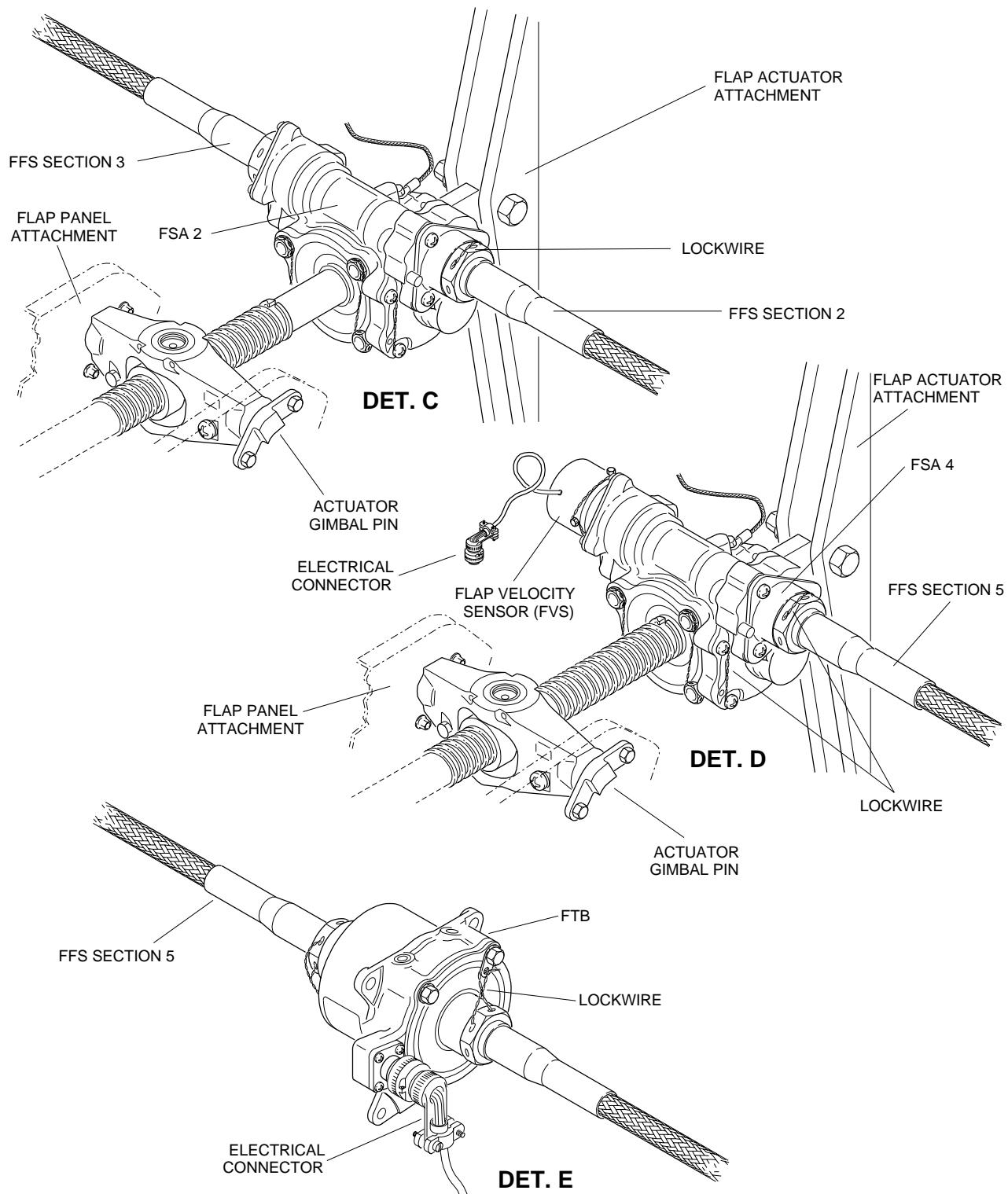
- (5) On the Circuit Breaker Panel, close the FLAP 1 and FLAP 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.

- (6) Set the flaps to the 0-degree position.

- (7) Deenergize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).

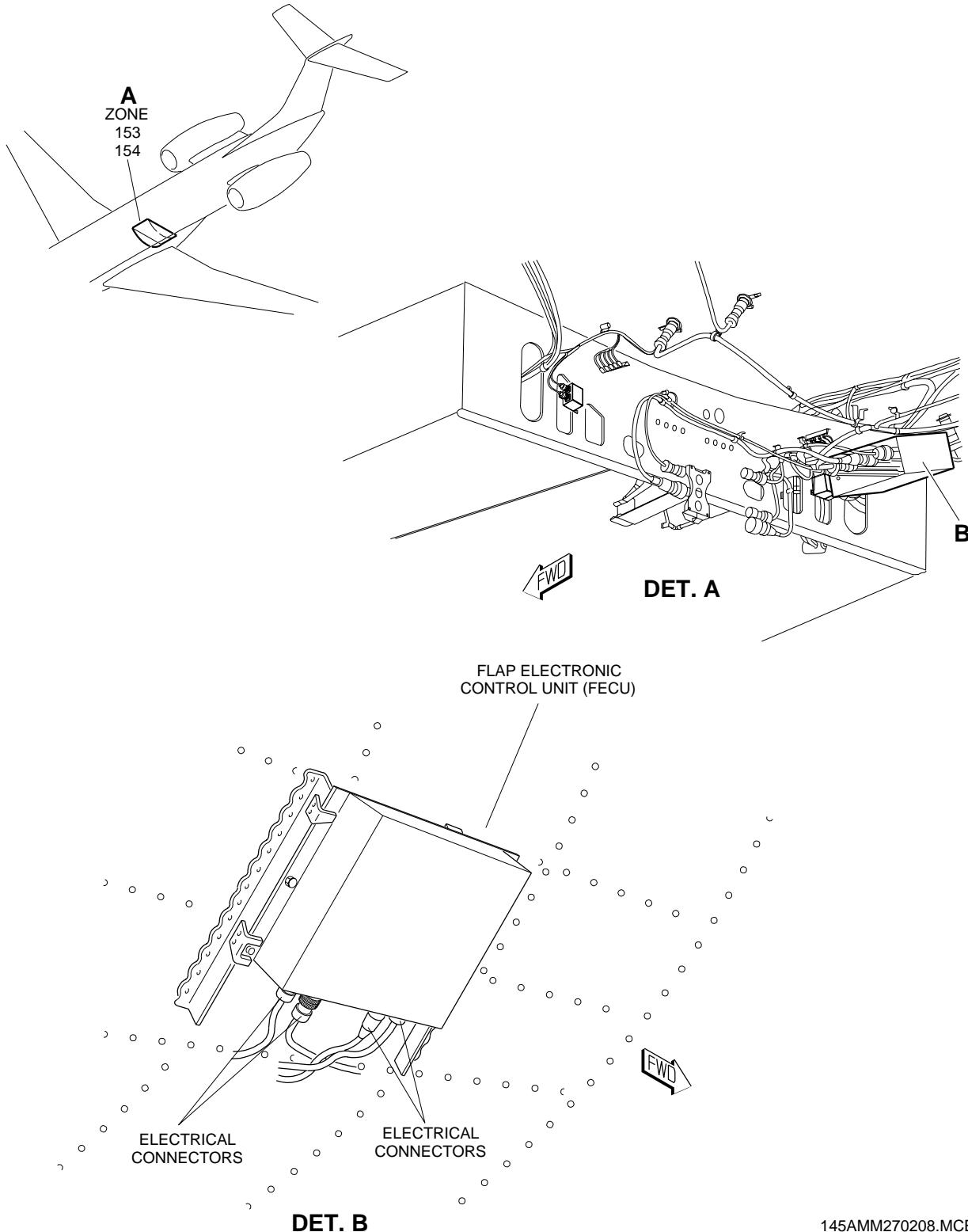
EFFECTIVITY: ALL
Flap Mechanical Line - Inspection
Figure 601 - Sheet 1


145AMM270222.MCE B

EFFECTIVITY: ALL
Flap Mechanical Line - Inspection
Figure 601 - Sheet 2


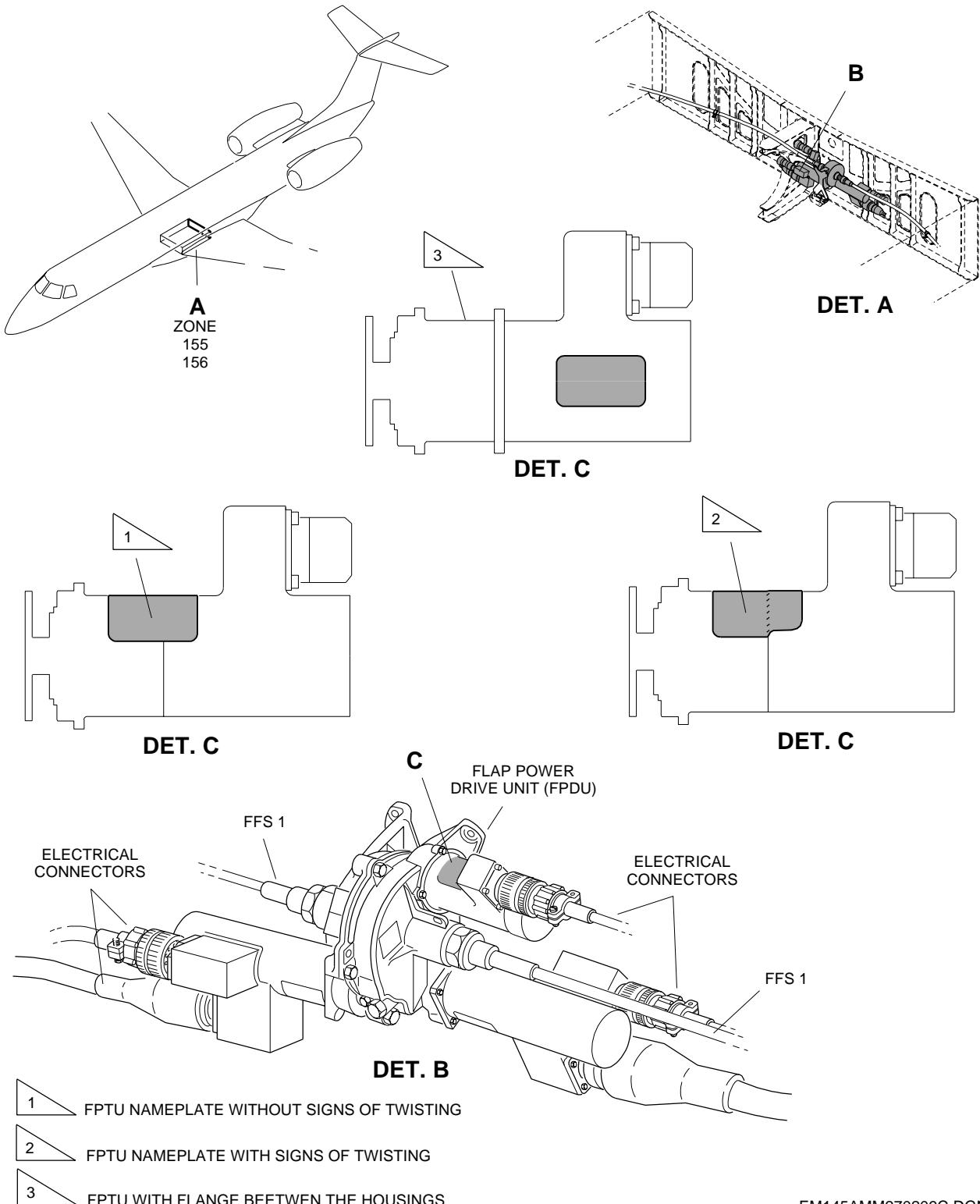
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EFFECTIVITY: ALL
FECU - Location
Figure 602



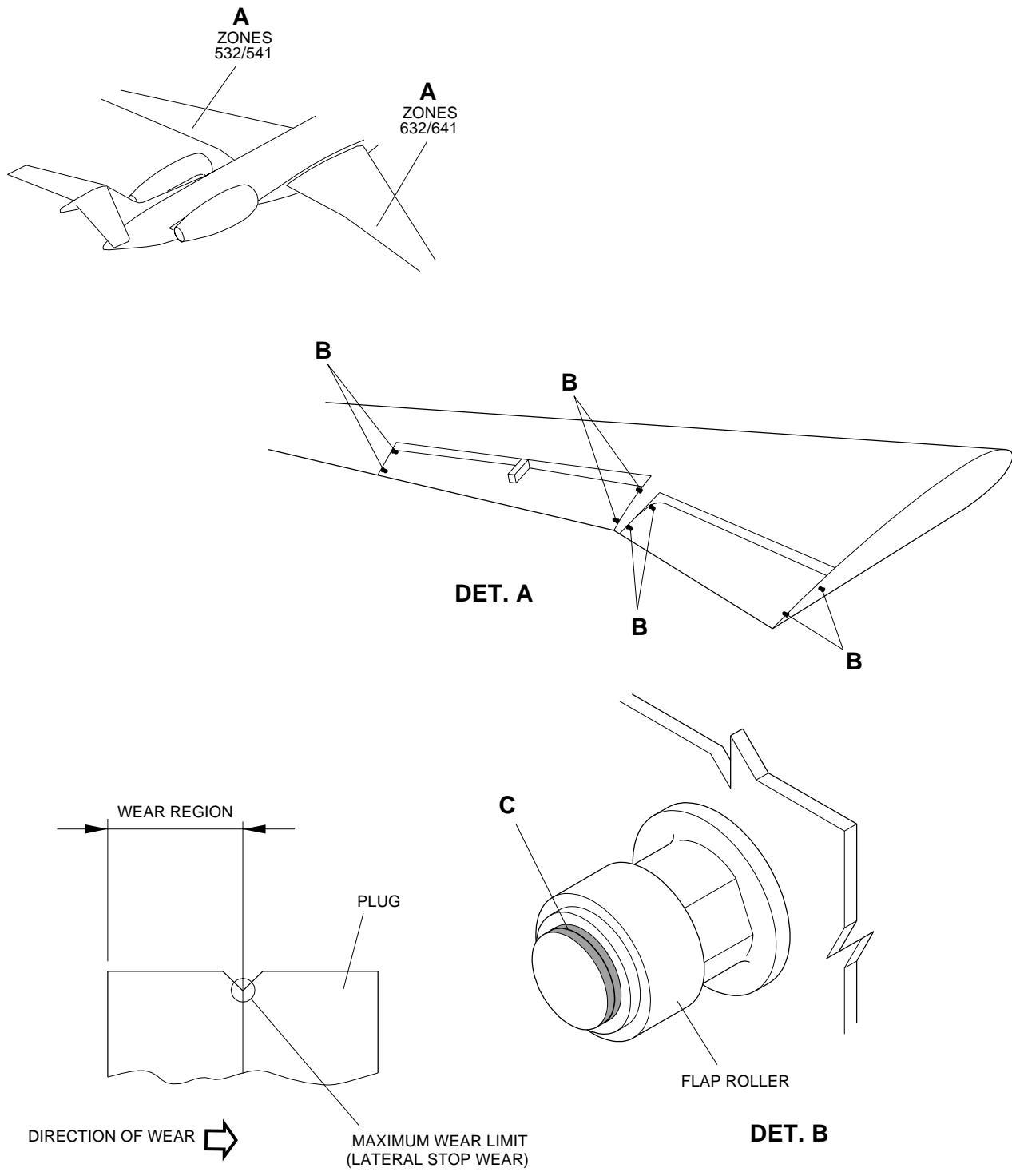
145AMM270208.MCE B

EFFECTIVITY: ALL
FPDU - Location
Figure 603



EM145AMM270209C.DGN

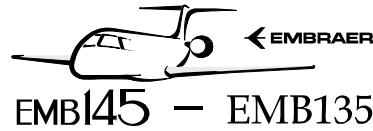
EFFECTIVITY: ALL
Lateral Stop Wear - Inspection
Figure 604



DET. C

DET. B

145AMM270212C.MCE



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TASK 27-51-00-200-802-A

EFFECTIVITY: ALL

3. FLAP FLEXIBLE SHAFT - INSPECTION

A. General

(1) The function of this inspection is to know the general condition of the equipment.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 27-51-00-600-802-A/300	FLAP FLEXIBLE SHAFT (FFSS) - LUBRICATION
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 27-51-05-000-801-A/400	FLAP FLEXIBLE SHAFT SECTION 2 - REMOVAL
AMM TASK 27-51-05-400-801-A/400	FLAP FLEXIBLE SHAFT SECTION 2 - INSTALLATION
AMM TASK 27-51-06-000-801-A/400	FLAP FLEXIBLE SHAFT SECTION 3 - REMOVAL
AMM TASK 27-51-06-400-801-A/400	FLAP FLEXIBLE SHAFT SECTION 3 - INSTALLATION
AMM TASK 27-51-07-000-801-A/400	FLAP FLEXIBLE SHAFT SECTION 4 - REMOVAL
AMM TASK 27-51-07-400-801-A/400	FLAP FLEXIBLE-SHAFT SECTION 4 - INSTALLATION
AMM TASK 27-51-08-000-801-A/400	FLAP FLEXIBLE SHAFT SECTION 5 - REMOVAL
AMM TASK 27-51-08-400-801-A/400	FLAP FLEXIBLE-SHAFT SECTION 5 - INSTALLATION
AMM TASK 28-41-00-200-801-A/600	-
CMM 27-51-30 - Parker/Liebherr	-
S.B.145-27-0057	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193AL	Wing fuselage fairing
5711		Left wing
5721		Left wing
6711		Right wing
6721		Right wing

D. Tools and Equipment

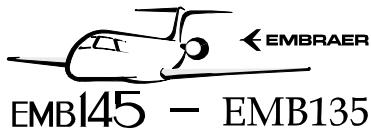
Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable



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G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Wing trailing edge

I. Preparation

SUBTASK 841-003-A

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE FLAP TRAVEL AREA.

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Do not do other tasks on the flap system.
- (3) Disconnect the Flap Flexible Shaft , as applicable:
 - To disconnect FFS section 1, do [AMM TASK 27-51-04-000-801-A/400](#).
 - To disconnect FFS section 2, do [AMM TASK 27-51-05-000-801-A/400](#).
 - To disconnect FFS section 3, do [AMM TASK 27-51-06-000-801-A/400](#).
 - To disconnect FFS section 4, do [AMM TASK 27-51-07-000-801-A/400](#).
 - To disconnect FFS section 5, do [AMM TASK 27-51-08-000-801-A/400](#).
- (4) Remove access panel 193AL to get access to the FPDU (AMM MPP 06-41-01/100).

J. Inspect (Detailed Inspection) Flap Flexible Shaft ([Figure 605](#))

SUBTASK 220-002-A

- (1) Do an external inspection in all sections of the Flap Flexible Shaft.
 - (a) Visually examine for signs of wear or breakage:
 1. On aircraft PRE-MOD. [S.B.145-27-0057](#), examine the steel braid of the casing.
 2. On aircraft POST-MOD. [S.B.145-27-0057](#), examine the blue rubber casing.
 - (b) Examine to make sure that the casing and the aluminum ferrule are connected and the shrinkable tube covers the connection.
- (2) Do an internal inspection in all sections of the Flap Flexible Shaft.
 - (a) Disconnect the type-A side of the FFS (Ref. CMM 27-51-30 - Parker/Liebherr).
NOTE: The type-A end of the FFS is identified by a red label.
 - (b) Pull out the core, clean the FFS inner core, and examine the items below:
 - 1 Check the signs of corrosion.

- a Examine for rust-colored layer on the shaft.
- 2 Examine the core for integrity.
 - a NOTE: • On one end, it must change its shape into a square.
• On the opposite side, there must be a preformed octagon which extends on the end-fitting by a maximum of 10 mm (0.4 in).

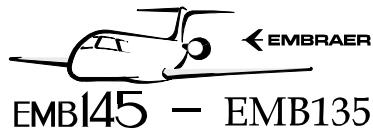
Examine for broken wires.
 - b Examine for chafed wires, specially on the square end.
- (3) If the results of checks are not satisfactory, replace the shaft and send the old shaft to Parker for inspection.
 - To remove FFS section 1, do [AMM TASK 27-51-04-000-801-A/400](#).
 - To remove FFS section 2, do [AMM TASK 27-51-05-000-801-A/400](#).
 - To remove FFS section 3, do [AMM TASK 27-51-06-000-801-A/400](#).
 - To remove FFS section 4, do [AMM TASK 27-51-07-000-801-A/400](#).
 - To remove FFS section 5, do [AMM TASK 27-51-08-000-801-A/400](#).
 - To install FFS section 1, do [AMM TASK 27-51-04-400-801-A/400](#).
 - To install FFS section 2, do [AMM TASK 27-51-05-400-801-A/400](#).
 - To install FFS section 3, do [AMM TASK 27-51-06-400-801-A/400](#).
 - To install FFS section 4, do [AMM TASK 27-51-07-400-801-A/400](#).
 - To install FFS section 5, do [AMM TASK 27-51-08-400-801-A/400](#).
- NOTE: There is no requirement for a maximum allowable gap between wire strands, if the results of checks are satisfactory.
- (4) Apply grease to the inner core ([AMM TASK 27-51-00-600-802-A/300](#)).
- (5) Install the inner core into the FFS casing.
- (6) Install the end-fitting retaining ring (Ref. CMM 27-51-30 - Parker/Liebherr).

K. Follow-on

SUBTASK 842-003-A

- (1) 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.
- (2) Install access panel 193AL (AMM MPP 06-41-01/100).



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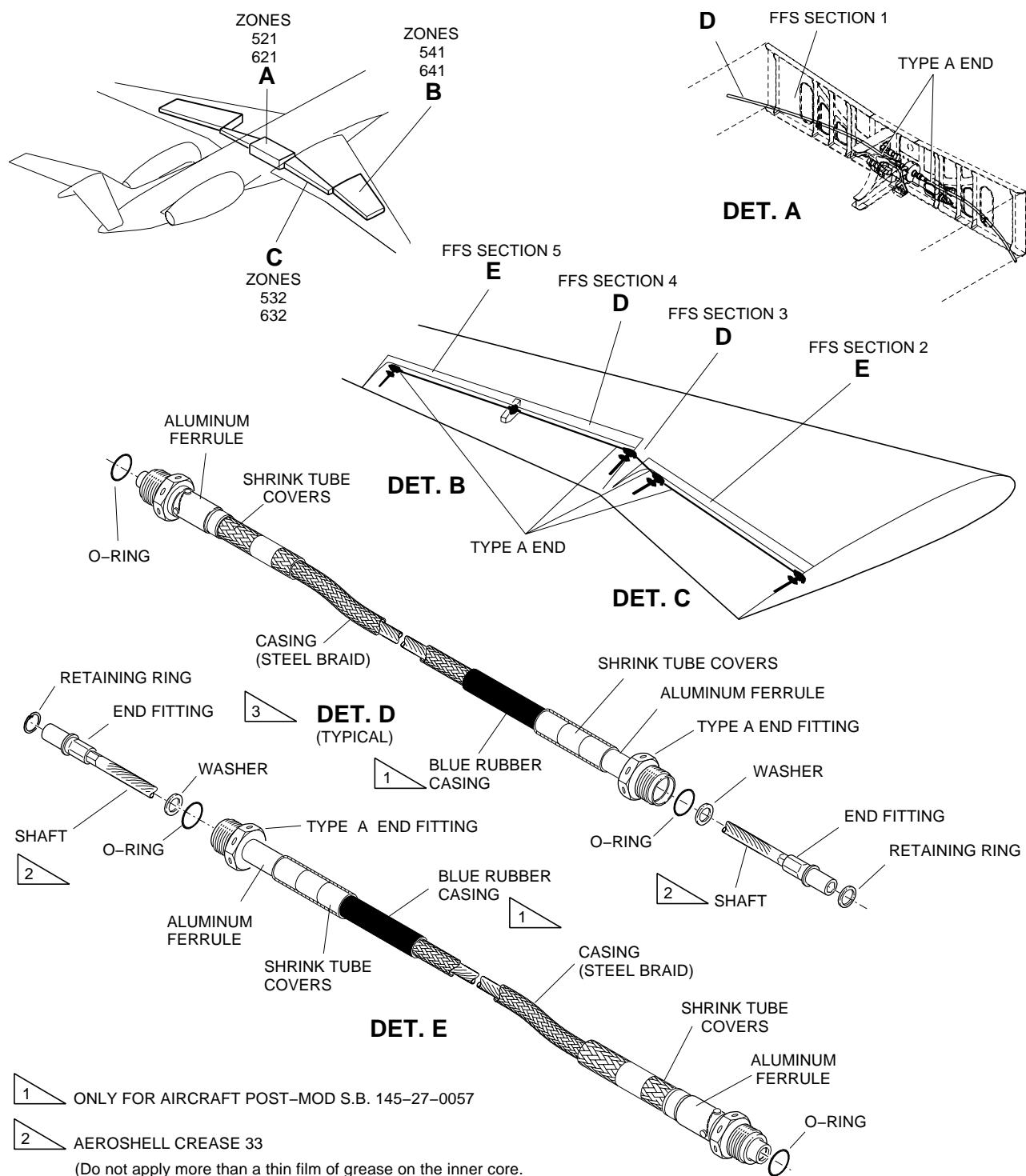
(3) Connect the Flap Flexible Shaft , as applicable:

- To connect FFS section 1, do [AMM TASK 27-51-04-400-801-A/400](#).
- To connect FFS section 2, do [AMM TASK 27-51-05-400-801-A/400](#).
- To connect FFS section 3, do [AMM TASK 27-51-06-400-801-A/400](#).
- To connect FFS section 4, do [AMM TASK 27-51-07-400-801-A/400](#).
- To connect FFS section 5, do [AMM TASK 27-51-08-400-801-A/400](#).

EFFECTIVITY: ALL

Flap Flexible Shaft - Inspection

Figure 605



EM145AMM270489E.DGN

