LOCK OF SERVICE-DOOR LOCKING MECHANISM - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to do the functional check and the adjustment of the actuating and locking mechanism of the service door.

   B. These procedures are applicable to the opening and closing simulations of the service door with the internal and external handles.

   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*
52-43-06-700-801-A ♦	SERVICE-DOOR ACTUATING AND LOCKING MECHANISM - FUNCTIONAL CHECK	ALL

TASK 52-43-06-700-801-A
EFFECTIVITY: ALL

2. SERVICE-DOOR ACTUATING AND LOCKING MECHANISM - FUNCTIONAL CHECK

A. General

(1) This task gives the procedure to do the functional check and the adjustment of the actuating and locking mechanism of the service door.

(2) The check is done with an open/closed door simulation, initially with the internal handle and then with the external handle.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 52-43-00/1	
AMM TASK 21-31-00-700-808-A/500	-
AMM TASK 25-23-05-000-801-A/400	SERVICE DOOR LINING PANELS - REMOVAL
AMM TASK 25-23-05-400-801-A/400	SERVICE DOOR LINING PANELS - INSTALLATION
AMM TASK 53-21-12-600-801-A/300	SERVICE-DOOR FRAME ROLLERS - LUBRICATION
S.B.145-52-0033	-
SRM 53-21-15/101	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
821		Service door

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Workstand	To get access to the service door	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MS20995C32	Lockwire	AR
Commercially Available	Adhesive Tape	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Outside the fuselage at the service door
1	Helps the other technician	Inside the fuselage at the service door

I. Preparation

SUBTASK 841-002-A

(1) Open the service door (AMM SDS 52-43-00/1).

(2) Remove the lining panels of the service door (AMM TASK 25-23-05-000-801-A/400).

(3) Close the service door and lock it (AMM SDS 52-43-00/1).

J. Functional Check of Service Door Actuating, Latching, and Locking Mechanism (Figure 501) (Figure 502) (Figure 503) (Figure 504) (Figure 505) (Figure 506) (Figure 507) (Figure 508) (Figure 509)

SUBTASK 720-002-A

(1) Check and adjustment of the upper/lower guides of the service door to its frame at the fuselage (Figure 501).

(a) Open and close the service door, but do not lock it, and monitor its lateral movement.

(b) On the side to which the door moves, make sure that:

1 The upper/lower guide of the door is not forced against the upper/lower guide seat of the door frame at the fuselage (Figure 501).

2 The gap between the upper/lower guide of the door and the upper/lower guide seat of the door frame at the fuselage is zero (Figure 501; DET. D).

3 If the gap is not correct, open the door, remove the screws of the upper/lower guides, and add door guide shims under the door upper/lower guide to get the adjustment conditions.

(c) Make sure that the gap between the upper/lower guide of the door and the upper/lower guide seat of the door frame at the fuselage, on the other side of the door, is 0.2 mm to 0.5 mm (Figure 501; DET. B).

(d) If the gap between the upper/lower guide of the door and the upper/lower guide seat of the door frame at the fuselage, on the other side of the door, is not 0.2 mm to 0.5 mm, remove the screws of the upper/lower guides and add door guide shims under the door upper/lower guide to get the specified adjustment conditions (Figure 501; DET. B).

(e) Identify the check points with adhesive tape on the fuselage skin. Check points 1 to 12 are aligned with the stop seats. Check points 13 and 14 are in the vertical center line of the door, as shown in Figure 502.

(f) Refer to Table 501 and to check points in Figure 502 and measure the gaps (distance between the door contour and the frame in the fuselage structure).

Table 501 - PERMITTED GAP, AIRCRAFT DEPRESSURIZED

Points	Maximum permitted gap (mm)	Minimum permitted gap (mm)
1 to 10	5.0	1.0
11 and 12	7.0	4.0
13 and 14	7.0	1.0

1 If the gaps between the door contour and the frame are not correct, open the door, remove the screws of the door upper/lower guides, and add or remove shims to get the adjustment conditions (each shim is 0.4 mm thick).

2 Close and lock the service door, and measure the gaps between the door contour and the frame again. Refer to Table 501 and Figure 502.

3 Do steps 1 and 2 until you get the permitted conditions.

NOTE: Make sure that there is a slight lateral play at the bolt that attaches the stabilizer-bar rod end to the door support (Figure 509; DET. B).

4 If the gaps between the door contour and the frame are not correct, adjust the gaps through the stabilizer bar as follows:

a Open the door, cut the lockwire and turn the jam nut of the stabilizer bar, as necessary, to adjust the length "X" of the stabilizer bar (Figure 509; DET. B).

b If all is correct, tighten the jam nuts of the stabilizer bar and safety them with lockwire.

c Do a check on the gaps of the door (Table 501 and Figure 502).

CAUTION: MAKE SURE THAT THE DOOR FRAME ROLLERS MOVE FREELY WHEN THE DOOR IS LOCKED.

(2) Check and adjustment of the lower rollers of the service door (Figure 505):

(a) Make sure that the upper/lower guides of the door to the door frame at the fuselage are adjusted. Refer to step 1.

(b) Close and lock the door.

(c) Make sure that the lower rollers of the door frame, at the fuselage, are engaged with the tracks of the door.

(d) Unlock the door and only keep it in its frame at the fuselage.

(e) Make sure that the gap between the head of the bolt of the lower roller and the bottom of the lower track is 1.5 mm to 5.0 mm (Figure 505; DET. C).

If the bolt rubs the web of the track, do as follows:

1 Open the service door.

2 Lubricate the roller (AMM TASK 53-21-12-600-801-A/300).

WARNING: BE CAREFUL WHEN YOU USE THE METHYL-ETHYL-KETONE (MEK). PUT ON SAFETY GOGGLES, PROTECTIVE GLOVES AND CLOTHING. DO NOT BREATHE THE GAS. DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR. THE METHYL-ETHYL-KETONE (MEK) IS POISONOUS AND HIGHLY FLAMMABLE.

a Clean the internal roller surface and the roller support with methyl-ethyl-ketone (MEK) (ASTM-D-740) or similar solvent.

b Lubricate the internal roller surface and the roller support with the WD-40 spray lubricant.

3 Remove the shims (3) from the bolt (2) as necessary for the bolt (2) not to touch the web of the track.

4 Install the bolt (2) and shims (3), as applicable.

(f) If necessary, adjust the position of the lower roller as follows:

1 Open the door and loosen the bolts (4 positions) that attach the lower roller to the door frame at the fuselage.

2 Move the lower roller to the position at which it must be for its correct adjustment.

3 Do a check on the adjustment of the lower rollers of the door again.

CAUTION: MAKE SURE THAT THE DOOR FRAME ROLLERS MOVE FREELY WHEN THE DOOR IS LOCKED.

(3) Check and adjustment of the upper/lower rollers of the service door (Figure 505).

(a) Make sure that the lower rollers at the door are adjusted. Refer to step 2.

(b) Close and lock the door.

(c) Make sure that the upper/lower rollers of the door frame, at the fuselage, are engaged with the tracks of the service door. For this, look to know if the upper/lower rollers are in the tracks and the cam blocks the track channel.

(d) Unlock the door and only keep it in its frame at the fuselage.

(e) Make sure that the gap between the head of the bolt of the roller and the bottom of the track is 1.5 mm to 5.0 mm (Figure 505; DET. B).

(f) If necessary, adjust the position of the upper/lower roller as follows:

1 Open the door and loosen the bolts (4 positions) that attach the upper/lower roller to the door frame at the fuselage.

2 Move the upper/lower roller to the position at which it must be for its correct adjustment.

3 Do a check on the adjustment of the upper/lower rollers of the door again.

(4) Fully open the door (Figure 508).

(a) Make sure that the gap between the door structure and its link is 0.0 mm to 2.7 mm (Figure 508).

(b) If necessary, remove or add shims at the bolt of the door link (Figure 508).

(5) Check and adjustment of the stops of the service door (Figure 503, Figure 504 and Figure 505).

(a) Measure the steps between the door contour and the fuselage loft line and compare them with the values shown in Table 502:

Table 502 - PERMITTED STEP, AIRCRAFT DEPRESSURIZED

Points	Minimum permitted step (mm)	Maximum permitted step (mm)
1 to 10	-4.0	0.0
11 and 12	-5.5	-0.5
13	-8.5	-3.5
14	-2.5	+0.5

NOTE: • The negative sign of the step value means that the door is underflush to the fuselage skin line.

1 If a discrepancy is found, displace the lower and upper rollers or inward or outward as necessary (Figure 505).

(b) Make sure that the upper/lower guides of the door to the door frame at the fuselage are adjusted. Refer to step 1.

(c) Open the door and examine the fuselage stops for wear (SRM 53-21-15/101).

CAUTION: ALL DOOR STOPS MUST HAVE THE SAME GAP VALUE TO PREVENT STRESS CONCENTRATION ON THE DOOR. THIS WILL KEEP THE STRESS DISTRIBUTION EVEN.

(d) Measure the gap between the door stops and stop seats at the fuselage with a feeler gauge (Figure 503).

NOTE: Write in a table the identification of each door stop seat and the values of the gaps measured.

(e) If necessary, open the door and adjust the stops to get a gap of 0.0 mm to 0.5 mm. For this, refer to the values written in the table. To adjust the stop, remove the screws of the stop, and add/remove stop shims under the stop to get the adjustment conditions.

(f) Do steps (d) thru (f) again to measure and adjust the gaps again if necessary.

(6) Check of the actuating and locking mechanism of the service door:

(a) Close and lock the door.

NOTE: Make sure that the red marks are aligned (Figure 510).

(b) Pull the internal handle slowly and look to see that the red marks of the lock boxes move away from their aligned condition (Figure 509; DET. C).

NOTE: The mechanism is unlocked and the door is still locked.

(c) Continue to pull the internal handle until the door is unlocked and make sure that the cam of the track assembly moves.

(d) Continue to pull the internal handle as far as the end of its course.

(e) Open the door.

(f) Pull and close the door to put it in its frame at the fuselage.

(g) Cause a blockage in the lock of one lock box with a screwdriver (Figure 509; DET. C).

(h) Slowly pull the internal handle to lock the door until it is blocked and look to see that the folding flap stops with a clearance between its rubber seal and the frame at the fuselage.

(i) Remove the screwdriver from the lock box.

(j) Move the internal handle back to unlock the mechanism.

(k) Continue to turn the internal handle to lock the door.

(l) If discrepancies are found, adjust the length of the actuating rods as given in steps 7, 8, and 9.

(7) Adjustment of Interconnecting Rod I of the service door with the folding flap (Figure 506; DET. C):

(a) Cut and discard the lockwire (1) and (5).

(b) Adjust the length of actuating rod I of the folding flap as follows:

1 Turn actuating rod I to increase or decrease its length as follows (Figure 506; DET. B):

a To increase the length of actuating rod I, turn it counterclockwise.

b To decrease the length of actuating rod I, turn it clockwise.

2 At the end of the internal handle traveling, there must be a load to close the folding flap. This load must not be too large.

3 Lock and unlock the service door.

4 If necessary, turn the actuating rod again, as applicable, to adjust its length.

NOTE: If there is too much load at the end of the internal handle travel, do step 1.

5 If all is correct, tighten the jam nut (2) or (4) and safety them with lockwire (1) and (5).

(8) Adjustment of actuating Rod II and actuating Rod III of the service door with the locking cam torque tube (Figure 506; DET. D) and (Figure 506; DET. E):

NOTE:
- The adjustment of actuating rod II interferes with the adjustment of actuating rod III, and the adjustment of actuating rod III interferes with the adjustment of actuating rod II.
- If the actuating rod II length is too short, the internal handle tends not to stay in the unlocked position.
- If there is load on the cam with the service door in the open position, do this:

(a) Adjust the length of actuating rod II and actuating rod III together with the locking came torque tube as follows:

NOTE: The load of the cam must be tested manually. You cannot move the cam manually; adjust rod II and rod III.

1 Turn the nuts (7) and (11) to increase or decrease the length of actuating rod II and actuating rod III, as follows:

a To increase the length of actuating rod II and actuating rod III, turn it counterclockwise.

b To decrease the length of actuating rod II and actuating rod III, turn it clockwise.

2 Lock and unlock the actuating and locking mechanism of the service door.

3 If all is correct, tighten the nuts (7) and (11).

(9) Adjustment of actuating rod IV of the service door with the external handle (Figure 506; DET. F).

NOTE: If the load of the locking cam is correctly adjusted and the external handle is not aligned, adjust actuating rod IV. Do the steps that follow.

NOTE: Make sure that the service-door external actuating handle is aligned with the main door loft line or the step is of 1.0 mm maximum below the door loft line. Refer to Figure 507; DET. D.

(a) If discrepancies are found, adjust the length of actuating rod IV of the external handle as follows:

1 Cut the lockwire to release the nut (16) or (20) of each actuating rod (Figure 506; DET. F).

2 Loosen the nut (16) or (20) of each actuating rod.

3 Turn the forward actuating rod to increase or decrease its length as follows:

a To increase the length of the actuating rod, turn it counterclockwise.

b To decrease the length of the actuating rod, turn it clockwise.

4 Do the functional check of the actuating and locking mechanism of the service door.

5 If necessary, turn the actuating rods again, as applicable, to adjust their length.

6 If all is correct, tighten the nut (16) or (20) and safety them with lockwire.

K. Follow-on

SUBTASK 842-002-A

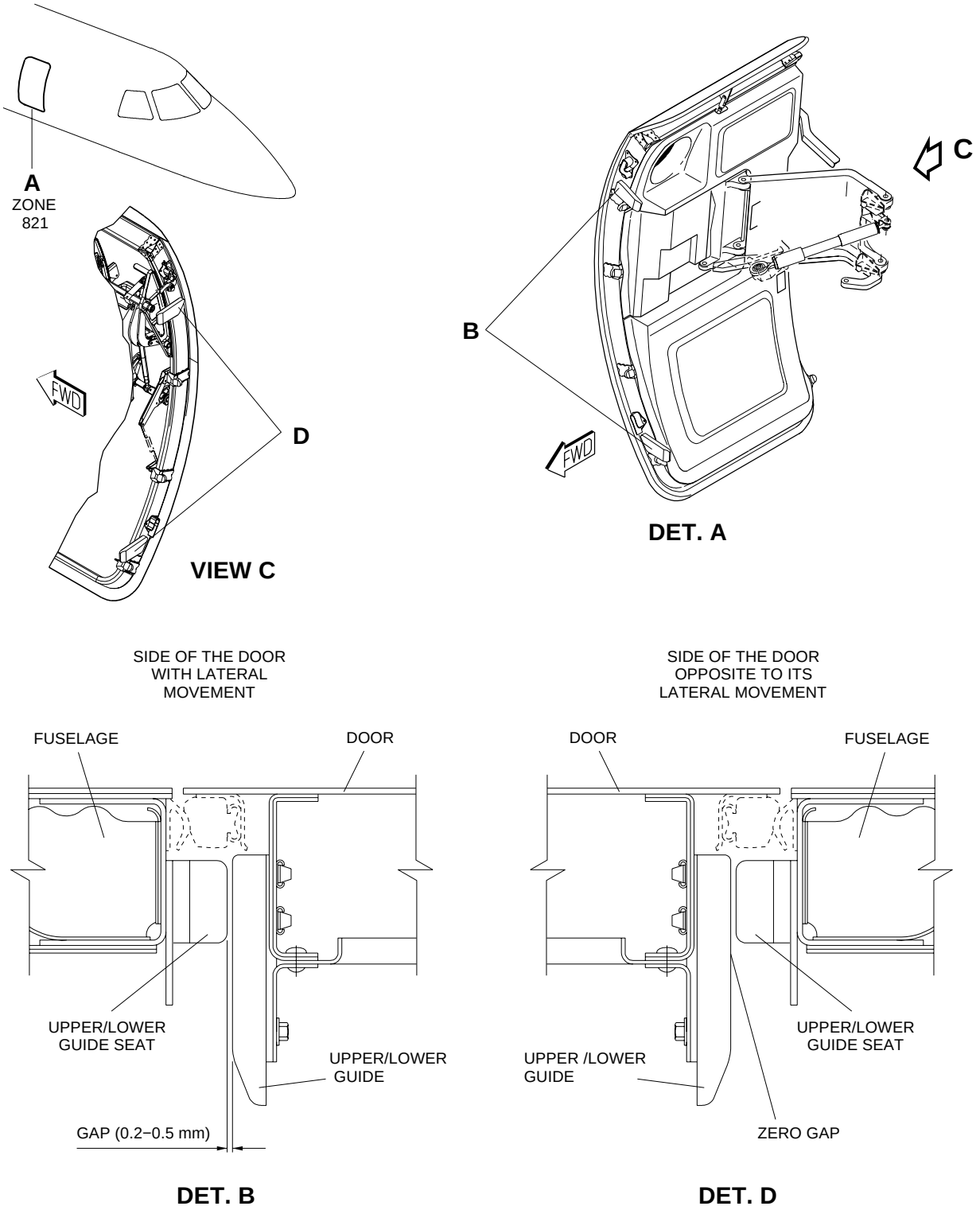
(1) Install the lining panels of the service door (AMM TASK 25-23-05-400-801-A/400).

(2) With the door closed and locked, make a red mark on stops 1 and 6 (PRE-MOD. S.B. 145-52-0033) or make a red mark on the door stop and on the fuselage door alignment indicator (POST-MOD. S.B. 145-52-0033) (Figure 510, as applicable).

(3) Do a functional test for cabin leakage (AMM TASK 21-31-00-700-808-A/500).

(4) Close the service door (AMM SDS 52-43-00/1)

EFFECTIVITY:: ALL
Check/Adjustment of Service-Door Upper/Lower Guides
Figure 501

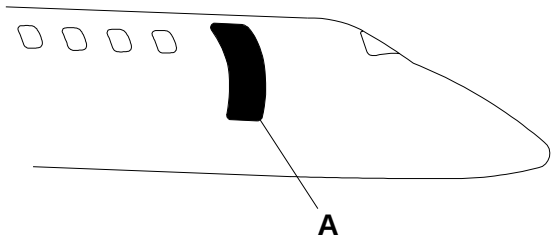


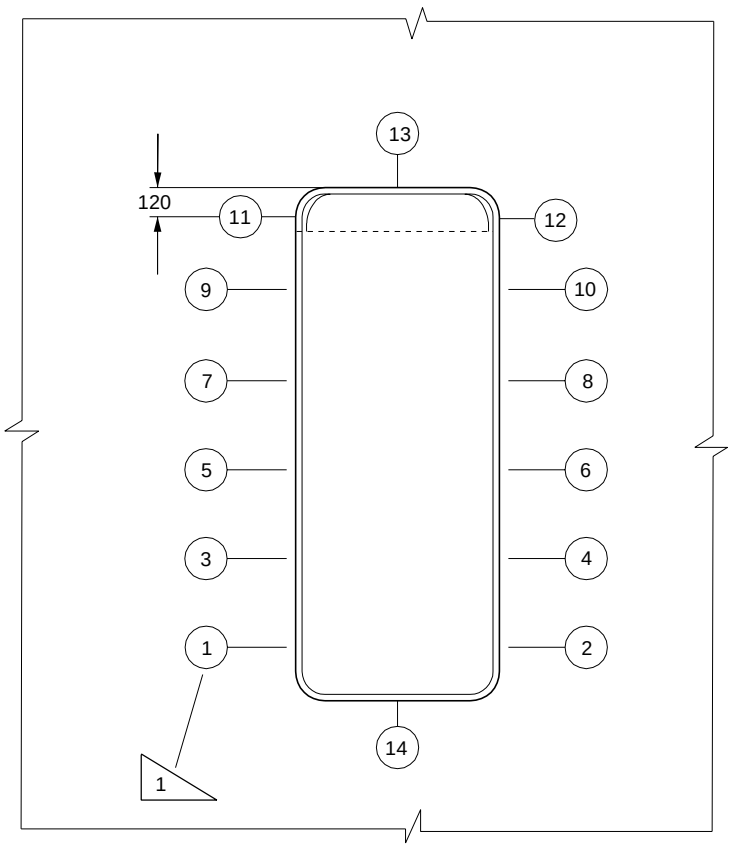
EM145AMM520565B.DGN

EFFECTIVITY:: ALL

Check for Alignment of the Service Door

Figure 502





DET. A

1 CHECK IF POINTS 1 TO 12 ARE ALIGNED WITH THE STOP SEATS.
CHECK IF POINTS 13 TO 14 ARE LOCATED IN THE VERTICAL CENTER LINE OF THE DOOR.

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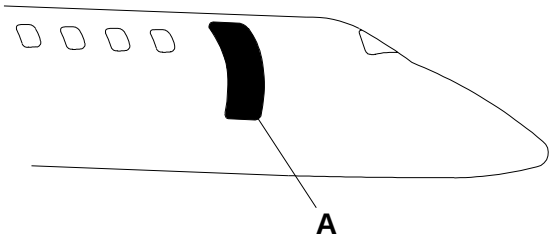
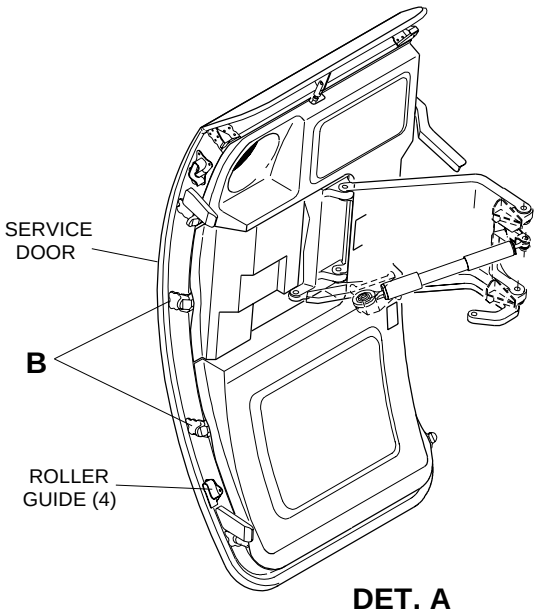
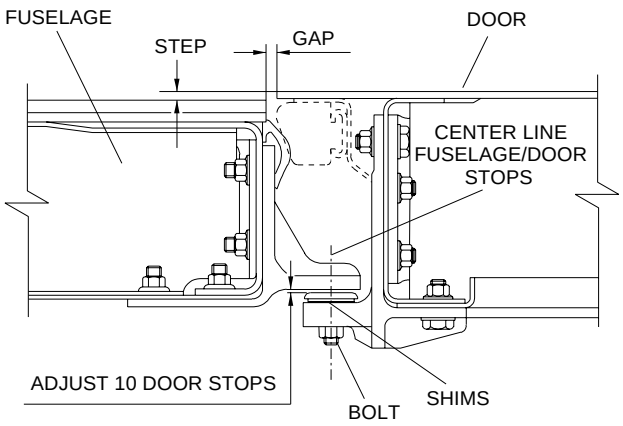
EFFECTIVITY:: ALL
Check/Adjustment of Service-Door Stops
Figure 503





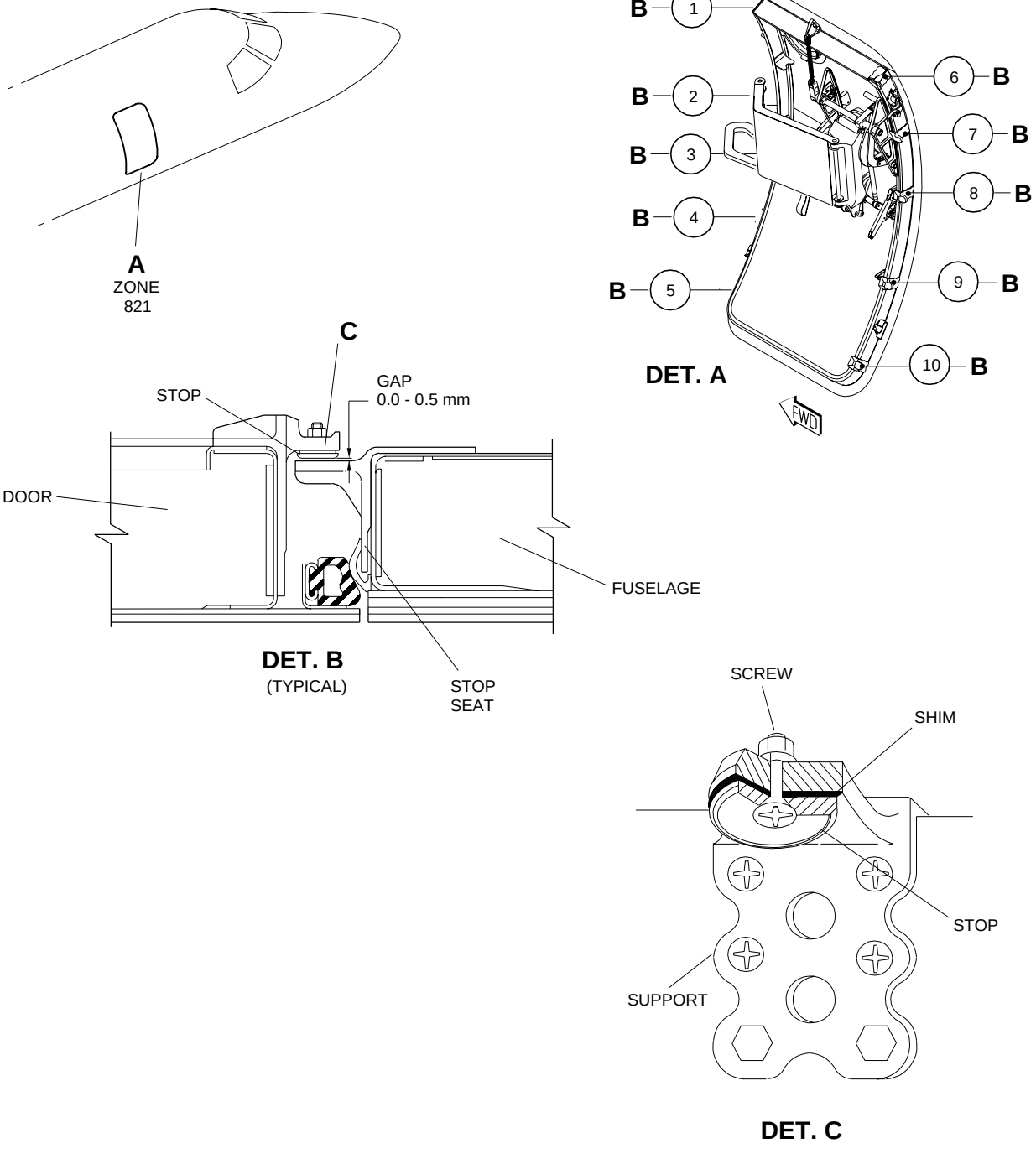
DET. A



DET. B

145AMM520566.MCE

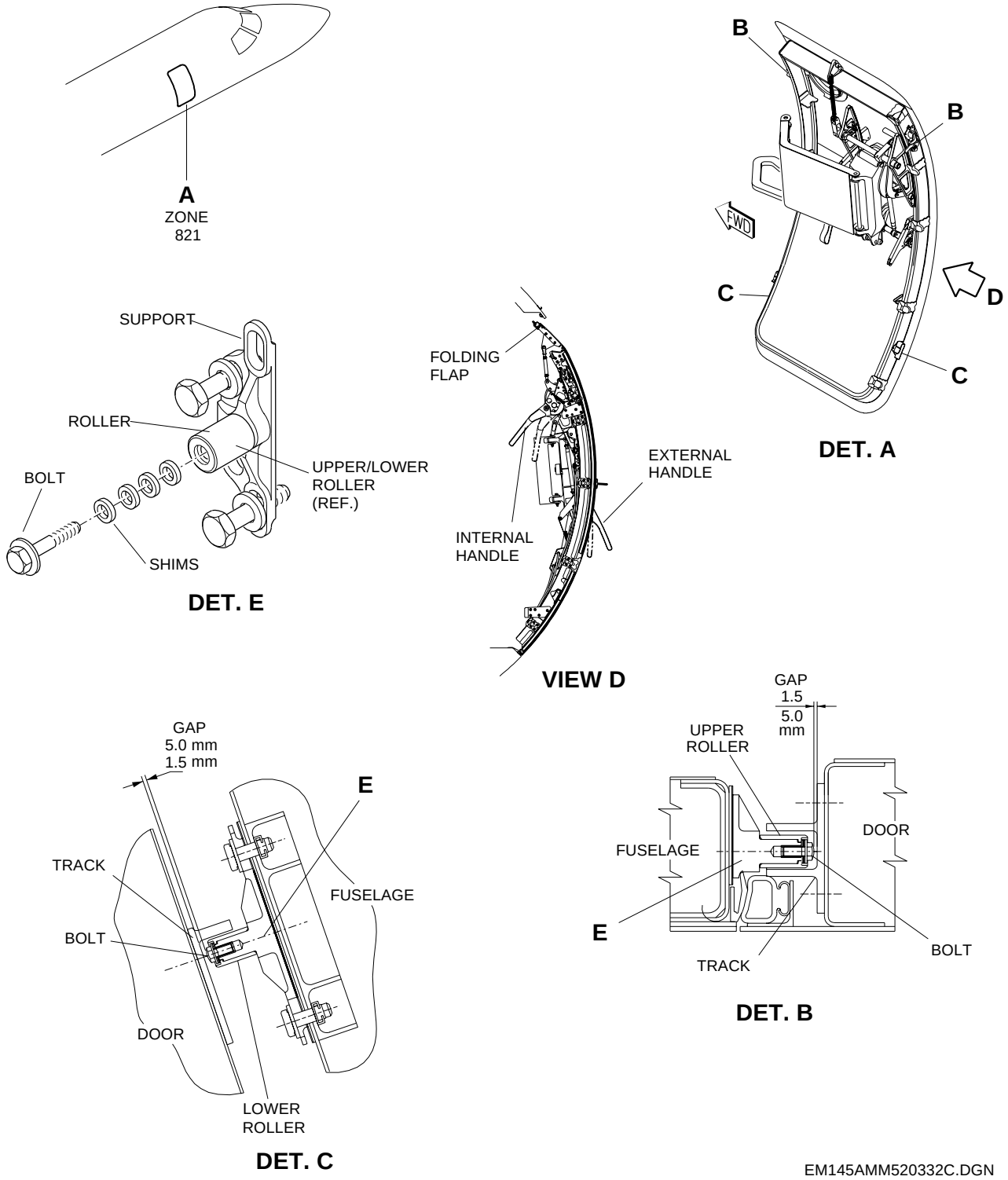
EFFECTIVITY:: ALL
Check for Wear of Service-Door Stops
Figure 504



145AMM520358.MCE B

EFFECTIVITY:: ALL

Rollers and Folding Flap Gaps of the Service Door - Functional Check/Adjustment
Figure 505



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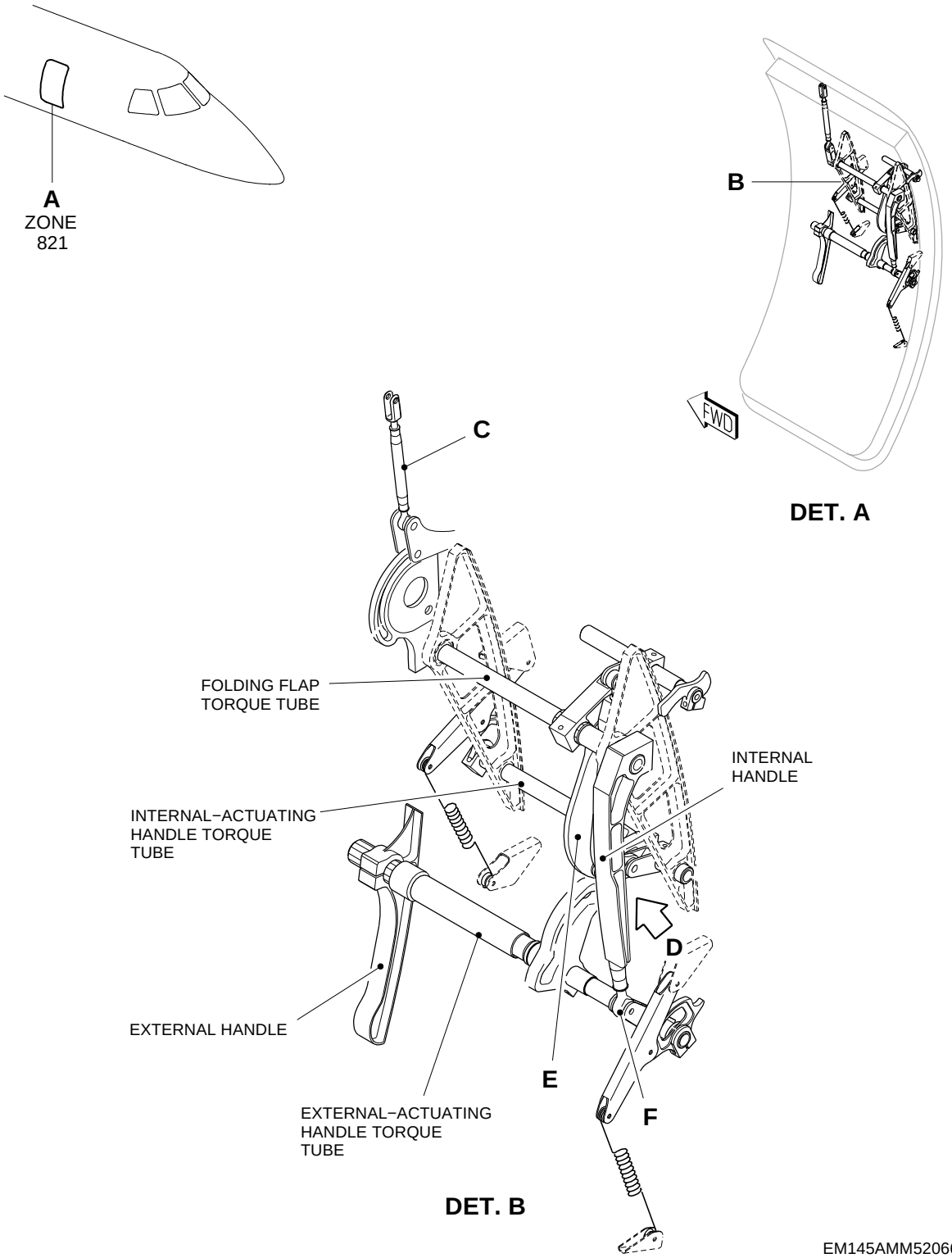
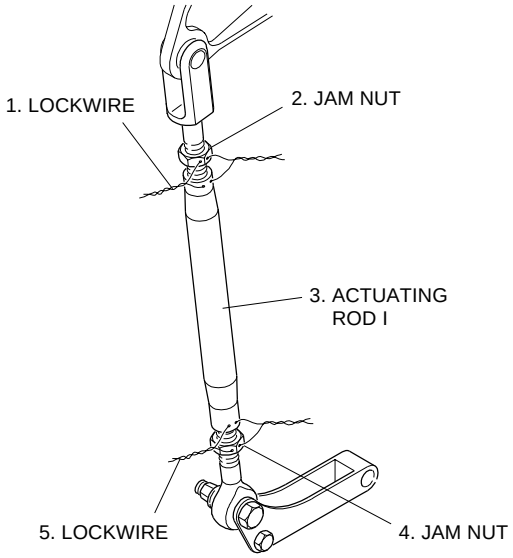
EFFECTIVITY:: ALL

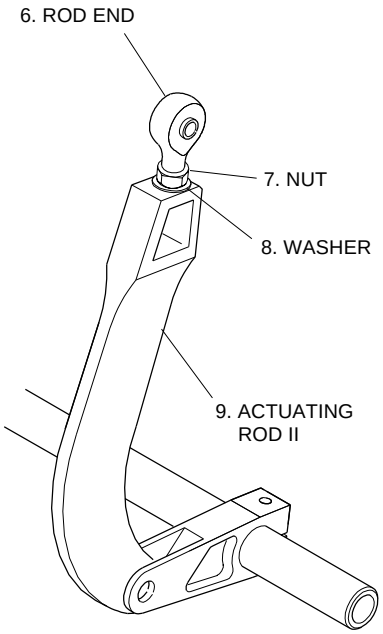
Service-Door Interconnecting Rods - Functional Check/Adjustment
Figure 506 - Sheet 1



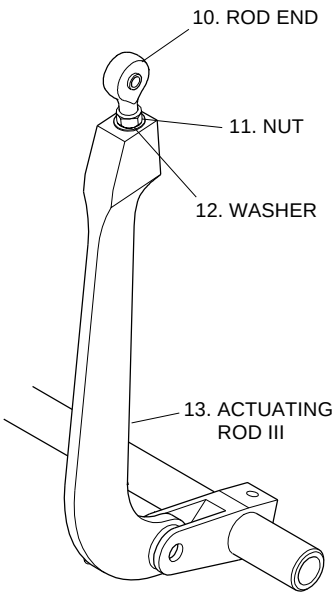
EFFECTIVITY:: ALL
Service-Door Interconnecting Rods - Functional Check/Adjustment
Figure 506 - Sheet 2



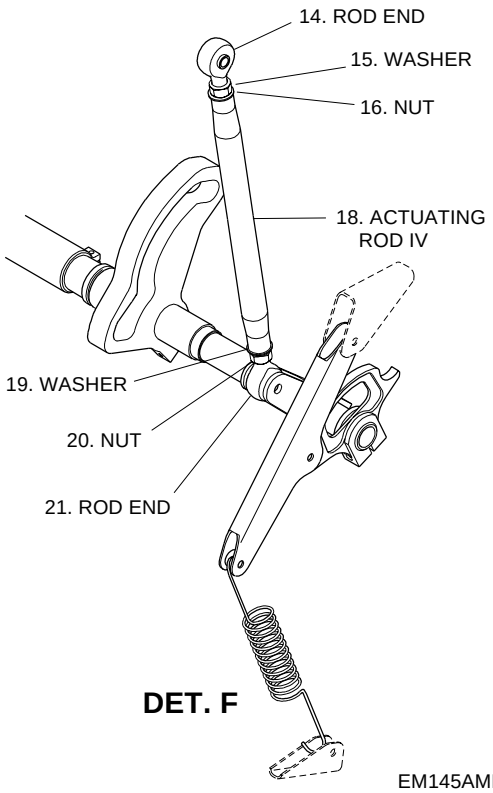
DET. C



DET. D



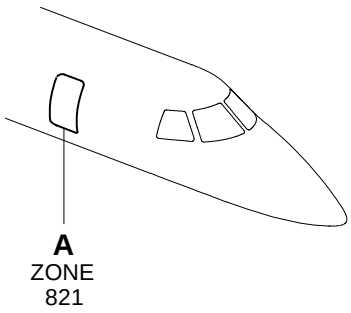
DET. E

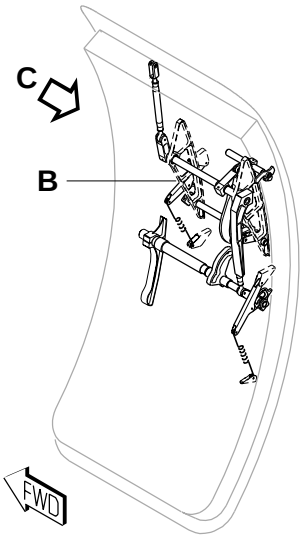


DET. F

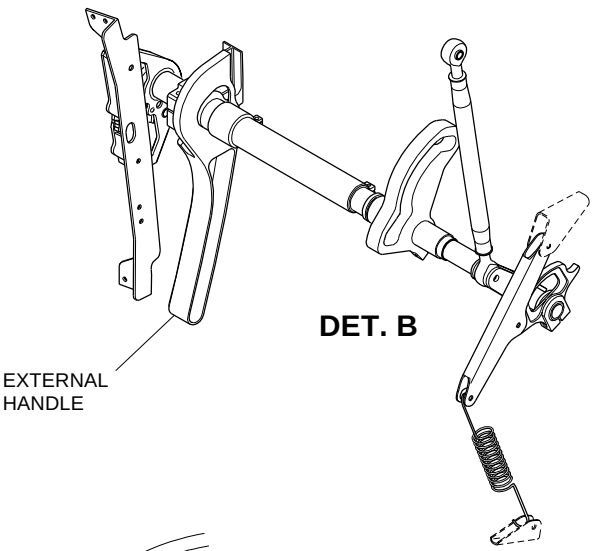
EM145AMM520670A.DGN

EFFECTIVITY:: ALL
Service-Door External Actuating Handle - Adjustment/Test
Figure 507

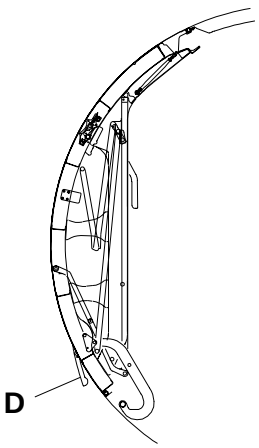




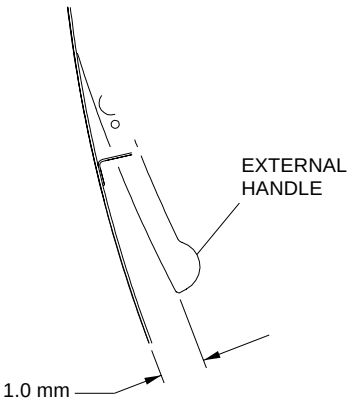
DET. A



DET. B



VIEW C

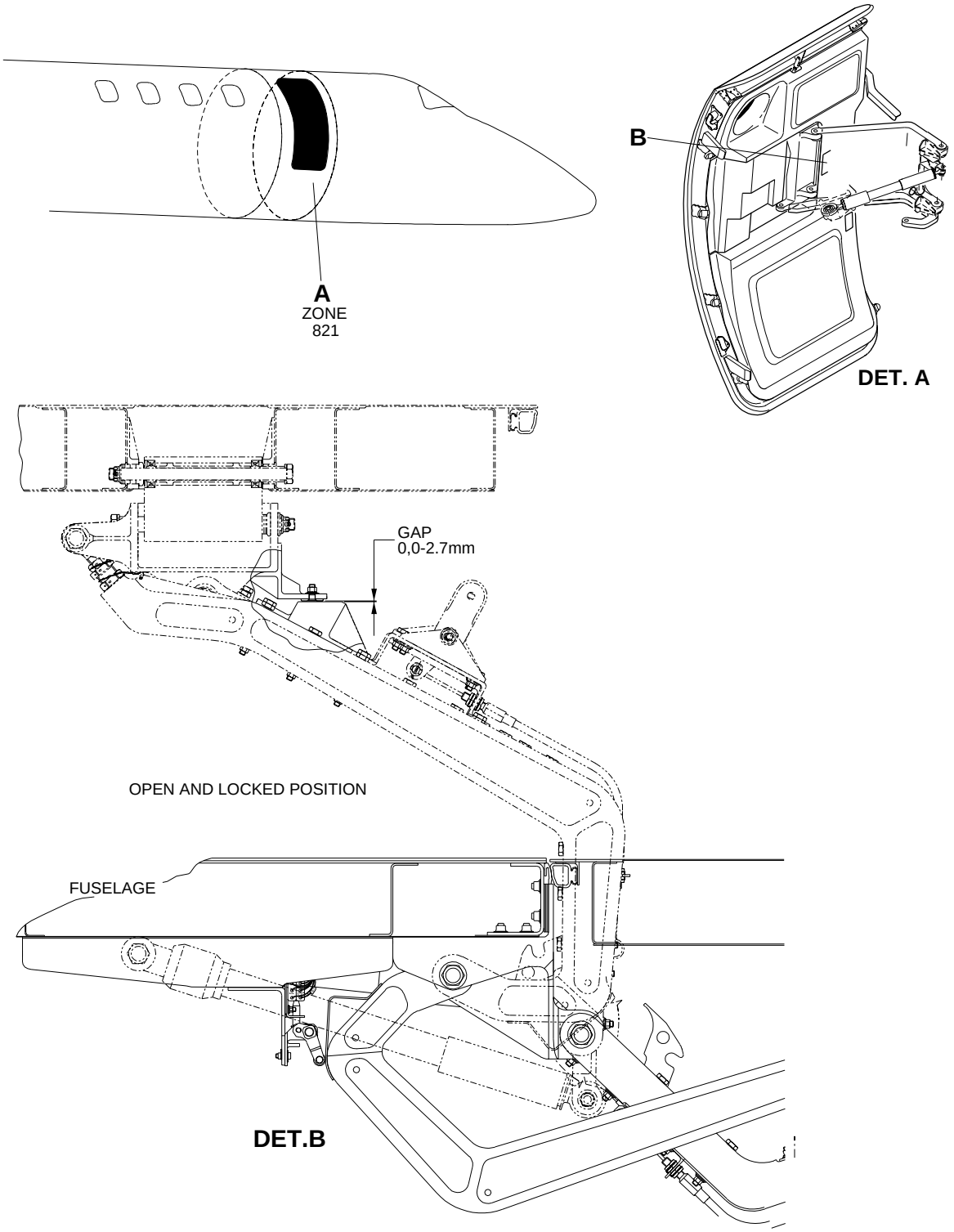


DET. D

EM145AMM520671A.DGN

EFFECTIVITY:: ALL

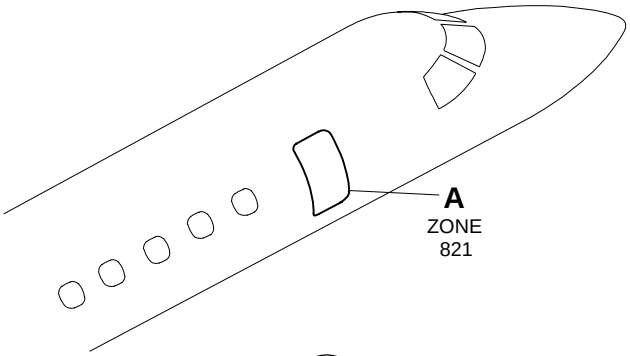
Open and Locked Position of the Service Door - Functional Check/Adjustment
Figure 508

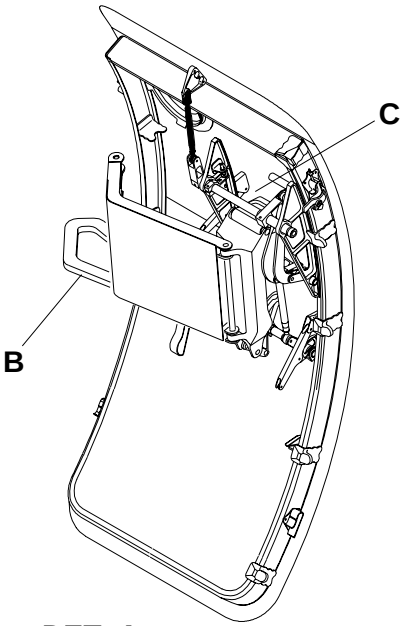


145AMM520331.MCE

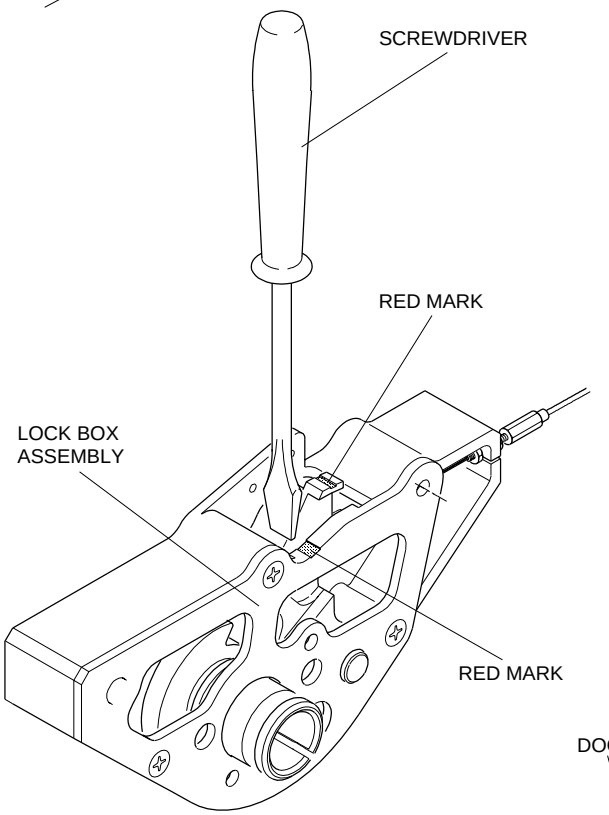
EFFECTIVITY:: ALL

Lock Box and Folding Flap Stabilizer Bar of the Service Door - Functional Check/Adjustment
Figure 509

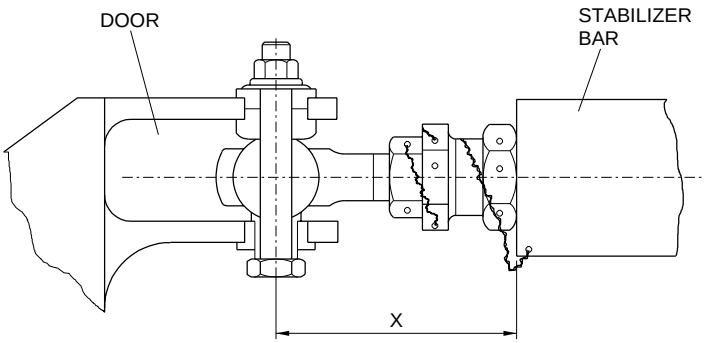




DET. A



DET. C



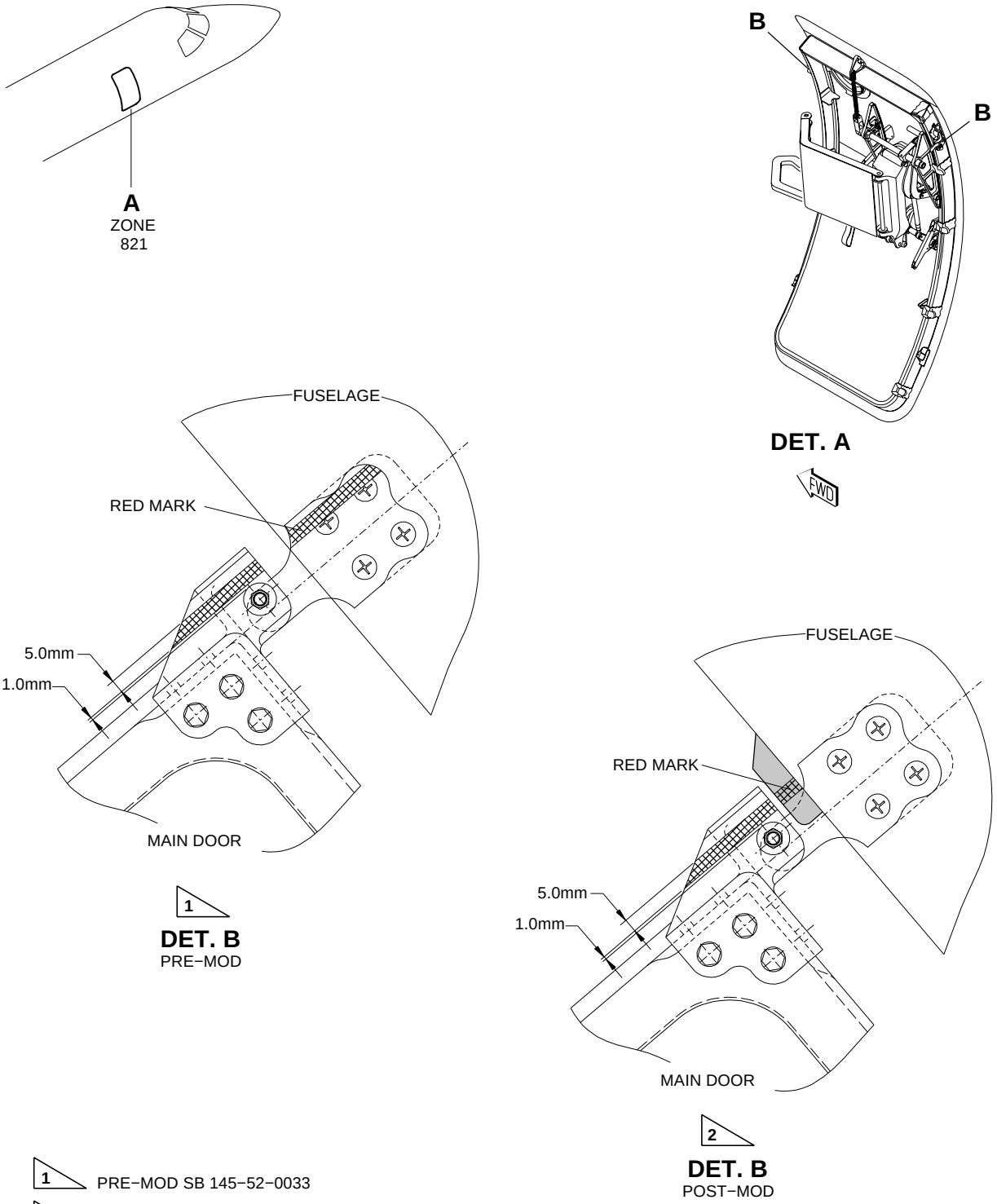
ADJUSTMENT OF THE STABILIZER BAR

DET. B

145AMM520334.MCE A

EFFECTIVITY:: ALL

Red Marks of the Service Door
Figure 510



1 PRE−MOD SB 145−52−0033

2 POST−MOD SB 145−52−0033

EM145AMM520475A.DGN