



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

TR EXHAUST - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to do the operational check and rigging of the thrust reverser.
- B. This procedure is applicable to the LH and RH Thrust Reversers (T/R). Examine the area at the end of the task and always keep it fully clean.
- 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
78-31-01-700-801-A	THRUST REVERSER - OPERATIONAL CHECK	ALL
78-31-01-820-801-A ♦	THRUST REVERSER - RIGGING PROCEDURE	ALL
78-31-01-820-802-A ♦	THRUST REVERSER - MANUAL RIGGING PROCEDURE	ALL



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TASK 78-31-01-700-801-A

EFFECTIVITY: ALL

2. THRUST REVERSER - OPERATIONAL CHECK

A. General

- (1) Obey the instructions below to do the operational check of the thrust reverser.

B. References

REFERENCE	DESIGNATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP

C. Zones and Accesses

Not Applicable

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	External observer
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-002-A

- WARNING:** • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.
- DURING THE THRUST REVERSER OPERATION PROCEDURES, MAKE SURE THERE IS A TECHNICIAN (EXTERNAL OBSERVER) NEAR THE AIRCRAFT TO MONITOR THE THRUST REVERSER OPERATION. USE THE REAR INTERPHONE SYSTEM (RAMP) FOR COMMUNICATIONS BETWEEN THE COCKPIT AND THE EXTERNAL OBSERVER.

- (1) Make sure that the aircraft is safe for maintenance.
- (2) The aircraft must be on the ground, and the landing gear down and locked.
- (3) Put the engine thrust lever to the "IDLE" position.

WARNING: BEFORE YOU OPEN THE N2 CIRCUIT BREAKERS AND TO PREVENT INJURY TO PERSONS AND DAMAGE TO THE MATERIAL, MAKE SURE THAT THE SENSORS PITOT 1 - TAT 1/AOA 1, PITOT 3, AND PITOT 2 - TAT 2/AOA 2, ON THE OVERHEAD PANEL, ARE SET TO OFF.

- (4) On the circuit breaker panel, open the circuit breakers below and attach DO-NOT-CLOSE tags to them.
 - N2 SIGNAL 1A/1B.
 - N2 SIGNAL 2A/2B.
- (5) Energize the aircraft with DC Power Supply ([AMM TASK 20-40-01-860-801-A/200](#)).

J. Operational Check ([Figure 501](#))

SUBTASK 710-002-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

- MAKE SURE THAT THERE ARE NO OBJECTS, PERSONS, AND SUPPORT EQUIPMENT IN THE AREA BEFORE YOU OPERATE THE THRUST REVERSER.
- BE CAREFUL: THE NOMINAL PRESSURE OF THE HYDRAULIC SYSTEM IS 3,000 PSI. THUS, A LEAKAGE IN THE HYDRAULIC LINES COULD CAUSE INJURY TO PERSONS AND DAMAGE TO THE MATERIAL.

- CAUTION:** • MAKE SURE THAT ALL THE HYDRAULIC LINES ARE CONNECTED NOT TO PERMIT THE HYDRAULIC OIL TO FALL OUT.
- ALWAYS CLEAN THE HYDRAULIC FLUID THAT FALLS FROM THE ENGINE. DAMAGE COULD COME FROM ITS CORROSIVE ACTION.

- (1) Pressurize the aircraft hydraulic system with HTS ([AMM TASK 29-10-00-860-801-A/200](#)) or with EMDP ([AMM TASK 29-10-00-860-802-A/200](#)).

NOTE: • During the test, turn on only the applicable hydraulic pump at a time to operate the related thrust reverser, when possible.

- If you pressurize the hydraulic system with the EMDP, the "HYD SYS 1(2) FAIL" message can show momentarily during the test. This is a normal behavior. This occurs because the momentary pressure in the hydraulic system decreases.

- (a) Release the thrust lever idle lock trigger, and move the thrust lever to the maximum reverse position.

Result:

- 1 The thrust reverser doors go to the maximum deployed position.

NOTE: When you operate only one thrust lever, the FADEC permits the N1 request indication on the EICAS. But if you operate the two thrust levers, the FADEC will inhibit the N1 request indication unless the engines are in operation.

- 2 Make sure that the EICAS screen shows the message "REV" (green color).

- (b) Move the thrust lever to the idle position.

Result:

- 1 The thrust reverser doors go to the stowed position.

- 2 Make sure that the "REV" message goes out of view on the EICAS screen.

- (2) After you complete the test, make sure that the "HYD SYS 1(2) FAIL" message is not active on the EICAS.

- (3) Examine the thrust reverser for general conditions and oil leaks.

- (4) Release the pressure from the hydraulic system ([AMM TASK 29-10-00-860-801-A/200](#)).

K. Follow-on

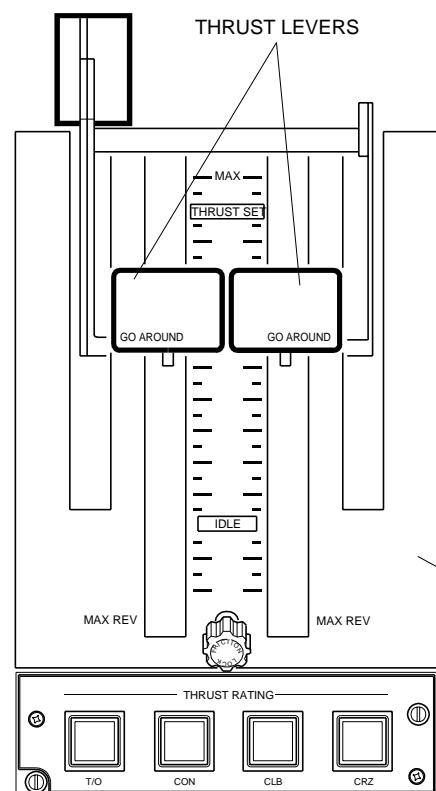
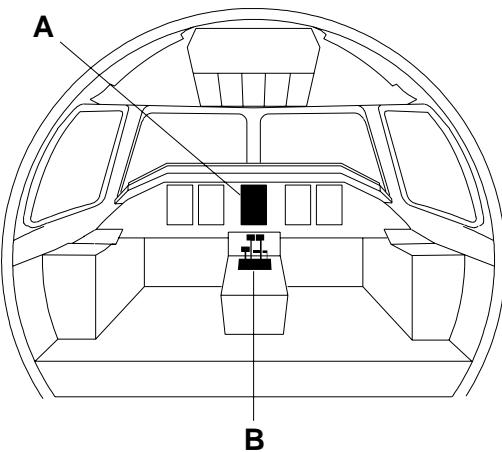
SUBTASK 842-002-A

- (1) On the circuit breaker panel, close the circuit breakers below and remove the DO-NOT-CLOSE tags from them.
- N2 SIGNAL 1A/1B
 - N2 SIGNAL 2A/2B
- (2) Remove the DC Power Supply ([AMM TASK 20-40-01-860-801-A/200](#)) from the aircraft.

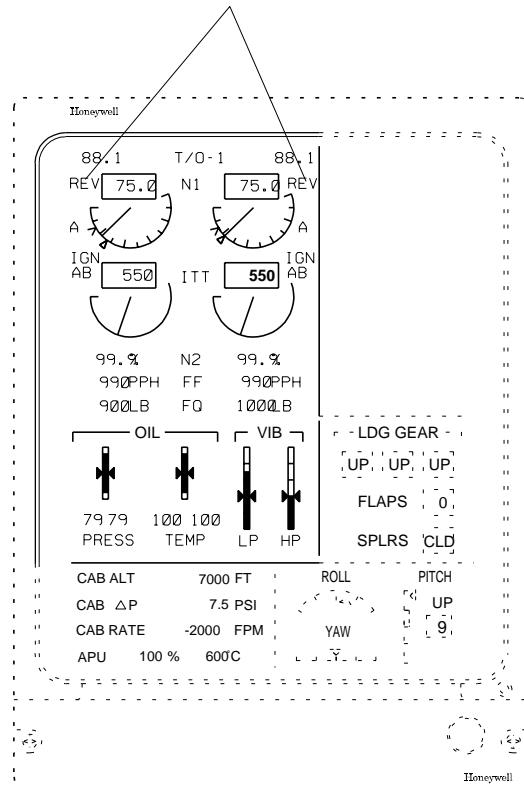
EFFECTIVITY: ALL

Thrust Reverser Operational Check - Component Location

Figure 501 - Sheet 1



**DEPLOYED POSITION
THRUST REVERSER INDICATION**



DET. A
EICAS DISPLAY

CONTROL STAND

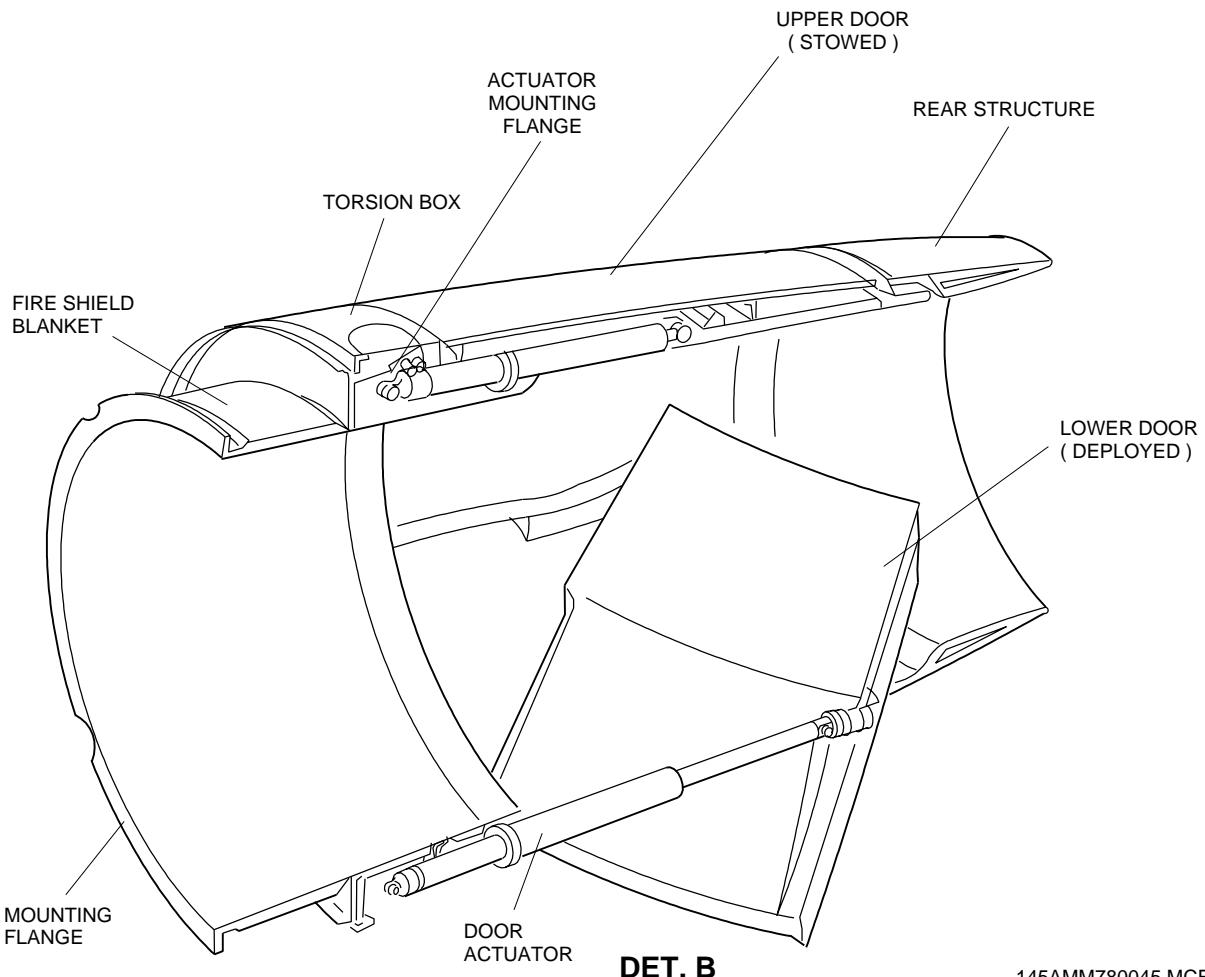
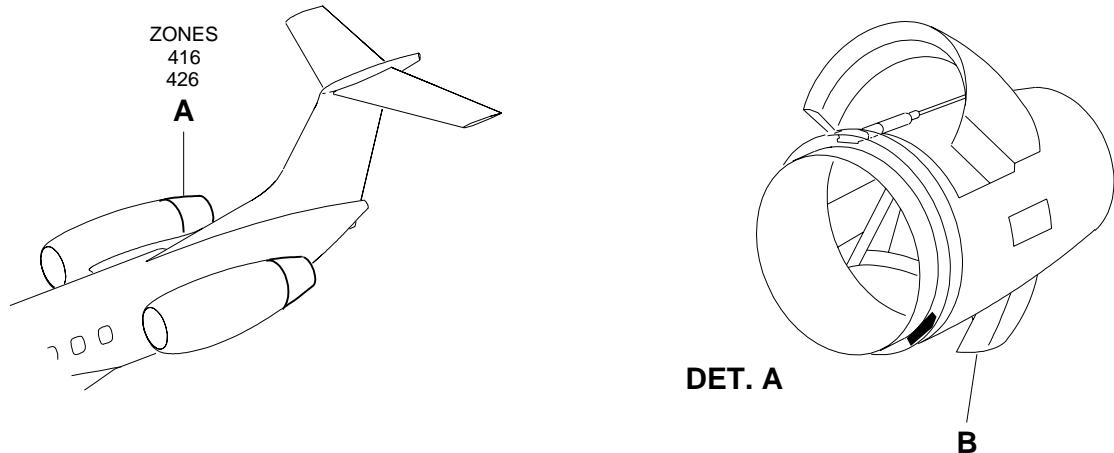
DET. B

145AMM780044.MCE A

EFFECTIVITY: ALL

Thrust Reverser Operational Check - Component Location

Figure 501 - Sheet 2



145AMM780045.MCE A

TASK 78-31-01-820-801-A
EFFECTIVITY: ALL

3. THRUST REVERSER - RIGGING PROCEDURE

A. General

- (1) Obey these instructions to do the rigging of the thrust reverser.
- (2) Use GSE 434 (Rigging Tool) to do this procedure.
- (3) This procedure is applicable to the LH and RH thrust reversers and to the upper and lower pivot doors.
- (4) Make sure that all the equipment is in good condition and at the correct calibration standard.
- (5) Do a test of the multi-meter audible function, make sure it works correctly.
- (6) In the rigging procedure there are some definitions to be considered, as follows:
 - (a) DATUM: This is the base position from where you measure all other dimensions.
 - (b) HOOK BALANCE: The allowable difference between the LH and RH door hooks in relation to the S-hooks.
 - (c) IN TO WIND or OUT OF WIND: These are the two different positions that a pivot door can be in when it is in the STOW position:
 - IN TO WIND: This is when the level of the pivot door is above the torsion box panel.
 - OUT OF WIND: This is when the level of the pivot door is below the torsion box panel.
 - (d) OVERSTOW: This is the first movement of the door in the deploy cycle when it moves below the torsion box panel in order to release the primary locks.
- (7) The table below gives the relation between the component replaced and the rigging checks to be done.

Table 501 - RIGGING CHECKS FOR THE COMPONENT REPLACED

COMPONENT REPLACED	RIGGING CHECKS TO BE DONE
Pivot door	All subtasks - Complete Rigging
Primary Lock S-Hooks	All subtasks - Complete Rigging
Primary Lock Door Hooks	All subtasks - Complete Rigging
Pivot Door Actuator	1. SUBTASK 841-003-A 2. SUBTASK 820-052-A 3. SUBTASK 820-053-A 4. SUBTASK 820-057-A 5. SUBTASK 820-062-A 6. SUBTASK 842-003-A
Stow and Transit Microswitch	1. SUBTASK 841-003-A 2. SUBTASK 820-056-A (for stow microswitch) or SUB-TASK 820-058-A (for transit microswitch), as applicable. 3. SUBTASK 842-003-A

Table 501 - RIGGING CHECKS FOR THE COMPONENT REPLACED (Continued)

COMPONENT REPLACED	RIGGING CHECKS TO BE DONE
Primary Lock Actuator	No Rigging Action
Tertiary Lock	No Rigging Action
Deploy Microswitch	No Rigging Action

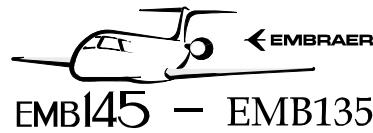
- NOTE:**
- For replacement of pivot door actuator or stow/transit microswitches, a complete rigging is not necessary if all other parameters of the thrust reverser are correct.
 - For replacement of primary lock actuator, tertiary lock and deploy microswitch, no rigging action is necessary. Only do the thrust reverser operational check ([AMM TASK 78-31-01-700-801-A/500](#)).

B. References

<i>REFERENCE</i>	<i>DESIGNATION</i>
78-31-02	-
78-31-03	-
78-32-01	-
78-32-02	-
78-34-01	-
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM MPP 78-34-01/400	- REMOVAL/INSTALLATION
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 78-31-01-700-801-A/500	THRUST REVERSER - OPERATIONAL CHECK
AMM TASK 78-32-01-980-801-A/200	ENGINE THRUST-REVERSER ACTUATOR (SECONDARY LOCK) - UNLOCK PROCEDURE
AMM TASK 78-33-01-980-801-A/200	ISOLATION CONTROL UNIT - INHIBITION PROCEDURES
S.B.145-78-0031	-
SRM 51-40-02/1	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
416	416LT	LH Thrust reverser
416	416QL	LH Thrust reverser
416	416PR	LH Thrust reverser
416	416DB	LH Thrust reverser
416	416HT	LH Thrust reverser
416	416BB	LH Thrust reverser
416	416MT	LH Thrust reverser



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ZONE	PANEL/DOOR	LOCATION
416	416NT	LH Thrust reverser
416	416FB	LH Thrust reverser
416	416GB	LH Thrust reverser
426	426LT	RH Thrust reverser
426	426QL	RH Thrust reverser
426	426PR	RH Thrust reverser
426	426DB	LH Thrust reverser
426	426HT	RH Thrust reverser
426	426BB	RH Thrust reverser
426	426MT	RH Thrust reverser
426	426NT	RH Thrust reverser
426	426FB	RH Thrust reverser
426	426GB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 434	Thrust Reverser Rigging Tool	To rig the thrust reverser	
GSE 340	Door Retaining Rod	To support the Pivot Door in the open position.	
Commercially available	Multimeter with audible continuity	To indicate the switch actuation point	
Commercially available	Vernier caliper	To indicate the overstow position	

E. Auxiliary Items

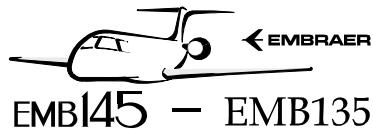
Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MS20995	Lockwire	AR
PR1791A	Sealant	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin - MS24665-153	78-32-02	1
Cotter pin - MS24665-153	78-31-03	4
Cotter pin - MS24665-151	78-31-02	4
Cotter pin - MS24665-302	78-32-01	1



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ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Rivet - NAS9309MP4-03	78-34-01	AR
Hi-Lite Pin - HST315UV5-()	78-34-01	AR
Kaynar Collar - KFN579-08	78-34-01	AR
Washer - NAS1149CN832R	78-34-01	AR
Laminated Shim - 145-78329	78-34-01	AR

H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Thrust Reverser

I. Preparation

SUBTASK 841-003-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

- MAKE SURE THE AIRCRAFT HYDRAULIC SYSTEM IS NOT PRESSURIZED AND THAT A TEST HYDRAULIC STAND IS NOT CONNECTED.

- (1) Make sure that the aircraft is safe for maintenance.
- (2) On the circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them.
 - THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.
- (3) Put the workstand in the work area.
- (4) Inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (5) Remove access panels 416QL, 416PR, 416LT, 416DB, 416HT, 416BB or 426QL, 426PR, 426LT, 426DB, 426HT, and 426BB ([AMM MPP 06-43-00/100](#)), as applicable.

NOTE: If it is difficult to remove the primary lock actuator access panels (416QL, 416 PR or 426QL, 426 PR), remove the inner S-hook panels (416IZ, 416ZZ or 426IZ, 426ZZ) and push the access panel free.
- (6) Disconnect the left and right link arms from the primary lock actuators as follows (refer to [Figure 502](#)):
 - (a) Remove and discard the cotter pin (1).

- (b) Remove the nut (2), washers (3), and bolt (4).
 - (c) Disconnect the link arm (5) from the primary lock actuator (6).
NOTE: Keep the attaching parts for reinstallation.
- (7) Loosen the screw (1) to remove the plug (2) from the Inhibition Bolt location. Refer to [Figure 503](#).
NOTE: Keep the Plugs and the attaching screws for reinstallation.
- (8) Install and secure the Upper and Lower dummy torsion box access panels. Refer to [Figure 504](#).
NOTE: • The dummy torsion box access panels provide a work surface for the Rigging Tool Digital Indicator Plunger.
• The dummy torsion box access panel and other accessories are part of GSE 434 kit.

CAUTION: RIGGING TOOL 80T2751 IS A PRECISION TOOL. TAKE CARE TO AVOID DAMAGE TO THE TOOL AND ITS ASSOCIATED COMPONENTS.

- (9) Install GSE 434 as follows (refer to [Figure 505](#)):
- (a) Checks before installation:
 - 1 Make sure all components of the Rigging Tool Kit are available.
 - 2 Check the component parts of the tool for damage and completeness.
 - 3 Check that the digital indicator is correctly calibrated.
 - (b) Attach the body plate (1) to the base (2) with the bolt (3).
NOTE: Make sure the correct base is attached to the correct Body Plate (Upper to Upper. Lower to Lower).
 - (c) Make sure the Inhibition Bolt Plug (4) and the Inhibition Bolt socket (5) are clean, undamaged and clear of loose material.
 - (d) Install the Rigging Tool base (2) in the Inhibition Bolt Socket (5) with the Locating Bush inserted at the Inhibition Bolt location.
NOTE: Make sure you use the correct body plate and base assembly for the pivot door under test (Upper or Lower).
 - (e) Put the rigging tool in position in the inhibition bolt socket (5).
 - (f) Align the front face of the rigging tool parallel with the front face of the pivot door outer skin.
 - (g) Tighten the attaching bolt (6).
 - (h) Put the slave inhibition bolt (7) in the rigging tool and hand tighten.
 - (i) Install the adjusting nut (8) to the slave inhibition bolt (7).

- (j) Engage the slave inhibition bolt lock lever.

CAUTION: DO NOT TIGHTEN THE ALLEN BOLT OF THE DIGITAL INDICATOR (9) TOO MUCH. IF YOU TIGHTEN THE BOLT TOO MUCH IT WILL DAMAGE THE INDICATOR AND STOP THE OPERATION OF THE PLUNGER.

- (k) Put the digital indicator (9) in position on the rigging tool . Tighten the Allen bolt. Refer to DET. D of [Figure 505](#).

J. Pivot Door Overstow - Test Procedure ([Figure 506](#)) ([Figure 507](#))

SUBTASK 820-052-A

CAUTION: TO MAKE SURE THAT MOVEMENT OF THE PIVOT DOOR IS LIMITED BY THE DOOR STOP, USE THE VERNIER CALIPER TO SHOW WHEN PIVOT DOOR MOVEMENT STOPS. IF YOU TRY TO CLOSE THE DOOR FURTHER YOU CAN TWIST THE DOOR STRUCTURE AND CAUSE DAMAGE.

- (1) Do the check of the Left Pivot Door Primary Lock Settings as follows:
 - (a) On the LH and RH side of the door, mark a point on the beam skin approximately 65,00 mm (2.6 in.) aft of the leading edge. Refer to DET. B of [Figure 506](#).
 - (b) Slowly tighten the adjusting nut to move the door OUT OF WIND until the RH S-hook can be disengaged. Refer to DET. C of [Figure 506](#).
 - (c) Disengage the RH S-hook.
 - (d) With the RH S-hook disengaged, loosen the adjusting nut until the LH S-hook engages (the S-hook cannot be moved easily by hand). Refer to DET. C of [Figure 506](#).
 - (e) Zero the Digital Indicator on the Rigging Tool.
 - (f) Put the Vernier caliper in the gap at the marked position on the LH side of the door.
 - (g) Zero the display. Hold the vernier caliper in position.
 - (h) Slowly tighten the adjusting nut to move the door to the OUT OF WIND position. Do not overtighten. At the same time watch the caliper display to see when the door stops.
 - (i) Check the door actuator for a gap between the overstow nut and the actuator body. If there is a gap continue from step (k).
 - (j) If there is no gap do these steps. Refer to DET. C of [Figure 507](#):
 - 1 Remove and discard the lockwire (3) from the locknut (4).
 - 2 Loosen the locknut (4) and disengage the locking collar (5).
 - 3 Loosen the overstow nut (2) to get the necessary gap.
 - 4 Tighten the adjusting nut again until the door stops.

5 Check the actuator again for a gap between the overstow nut (2) and the actuator body (1).

6 If there is no gap do Steps (3) thru (5) until you get a gap.

7 Engage the locking collar (5).

8 Tighten the locknut (4) with your hand.

NOTE: The pivot door now stops against the LH door stop.

(k) Record the movement of the door at the LH side:

1 Record the vernier caliper reading. The reading must be a minimum of 2,3 mm (0.090 in.).

2 If the reading is not in limits, adjust the door hooks ([SUBTASK 820-054-A](#)) after ([SUBTASK 820-053-A](#)) has been done.

(l) Remove the vernier caliper from the LH side of the door.

(m) Insert the vernier caliper at the marked position on the RH side.

(n) Keep the vernier caliper in position.

(o) Do steps (g) thru (i) for the RH side.

NOTE: If the door is against the RH door stop, no movement will be seen.

CAUTION: THE POSITION OF THE OVERSTOW NUT IS ESSENTIAL FOR THE CORRECT OPERATION OF THE PRIMARY LOCKS. MAKE SURE THE OVERSTOW NUT DOES NOT TURN WHEN YOU TIGHTEN THE LOCKNUT.

(2) Do a check and adjust the gap of the actuator overstow nut as follows (refer to DET. C of [Figure 507](#)):

(a) Use the Go/No Go Slip Gauge (part of GSE 434). Do a check to know if the distance from the overstow nut to the actuator body is 1.0 mm + 0.3 mm (0.039 in + 0.012 in).

NOTE: If the actuator heatshield is installed, it may be necessary to trim back the edge of the heatshield to insert the slip gauge.

(b) If the gap is not in limits do these steps:

1 Set the gap to the GO end of the GO / NO GO gauge.

2 Remove the gauge.

3 With the NO GO end of the of the gauge, make sure the gap is not out of limits.

4 Put the locking collar on the overstow nut.

NOTE: It may be necessary to loosen the overstow nut by one castellation to install the locking collar. Do not loosen the nut by more than one castellation.

- 5 Tighten the locknut with your hand. Do not safety the locknut.

NOTE: The torque setting of the locknut and the installation of lockwire is done later in this procedure. Refer to [SUBTASK 820-062-A](#).

- (3) Do the check of the Right Pivot Door Primary Lock adjustment, as follows (refer to [Figure 506](#)):
 - (a) Disengage the LH S-hook.
 - (b) Move the RH S-hook in position to engage the door hook.
 - (c) Put the Vernier caliper in the gap at the marked position on the RH side of the door.
 - (d) Zero the caliper display.
 - (e) Remove the vernier caliper.
 - (f) Slowly loosen the adjusting nut to fully engage the RH S-hook. (S-hook cannot be moved easily by hand).
 - (g) Record the movement of the door at the RH side:
 - 1 Take a measurement with the vernier caliper.
 - 2 Record the reading from the vernier caliper. The reading must be a minimum of 2,3 mm (0.090 in.).
 - 3 Record the rigging tool indicator reading. The hook balance reading should show a maximum movement of 0,9 mm (0.035 in.).
 - 4 If the readings are not in limits adjust the door hooks ([SUBTASK 820-054-A](#)) to get the correct reading after ([SUBTASK 820-053-A](#)) has been done.

K. Pivot Door Datum (Flight Position) - Test Procedure ([Figure 508](#))

[SUBTASK 820-053-A](#)

- (1) Tighten the adjusting nut to move the door sufficiently so that both S-hooks can move freely.
- (2) Engage the LH S-hook.
- (3) Make sure the RH S-hook is still in a position so that it will engage.
- (4) Slowly loosen the adjusting nut to engage both S-hooks (S-hooks cannot be moved easily by hand).
- (5) With a slip gauge (part of GSE 434), check the flight position is in tolerance: (± 1.5 mm (0.059 in.) (refer to [Figure 508](#)):
 - (a) If the pivot door is out of wind, put the slip gauge on the pivot door. Move the slip gauge slowly across both surfaces.
 - (b) If the pivot door is in to wind, put the slip gauge on the dummy panel. Move the slip gauge slowly across both surfaces.

- (c) If the edge of the other surface stops the slip gauge, the flight position is out of tolerance.
- (6) If the flight position is out of tolerance:
 - (a) Measure the step and record the dimension.
 - (b) Adjust the position of the pivot door hooks as necessary. Refer to **SUBTASK 820-054-A** to correct the measure.

L. Pivot Door Hooks - Adjustment Procedure ([Figure 509](#))

SUBTASK 820-054-A

- (1) The following procedure details the steps necessary to adjust the Pivot Door Hooks (refer to [Figure 509](#)).

For the adjustment information of the applicable door hook refer to Table 502.

Only do this procedure if any or all of these settings are out of limits:

- Hook balance
- Flight position
- Overstow position

CAUTION: IF ANY OF THE ADJUSTMENTS ON THE THRUST REVERSER DOORS ARE OUT OF THE SPECIFIED TOLERANCES, THE THRUST REVERSER MAY NOT FUNCTION CORRECTLY. WHEN YOU ADJUST THE PIVOT DOOR HOOKS, MAKE SURE THAT ALL ADJUSTMENTS LIMITS STAY WITHIN THE SPECIFIED TOLERANCES.

- (2) When you adjust the pivot door hooks, make sure that these adjustments stay in tolerance:
 - LEFT & RIGHT HOOK BALANCE = 0.9 mm (0.035 in) MAXIMUM.
 - LEFT PRIMARY LOCK OVERSTOW = 2.3 mm (0.090 in) MINIMUM.
 - RIGHT PRIMARY LOCK OVERSTOW = 2.3 mm (0.090 in) MINIMUM.
 - FLIGHT POSITION = \pm 1.5 mm (0.060 in).
- (3) Slowly tighten the adjusting nut to move the door to overstow sufficiently to release both S-hooks.
- (4) Move the S-hooks clear of the door hooks.
- (5) Remove the adjusting nut and the inhibition bolt.
- (6) Release the secondary and tertiary locks ([AMM TASK 78-32-01-980-801-A/200](#)).
- (7) Pull the pivot door open with your hand.
- (8) Get the hold-open device from the bulkhead.
- (9) Install the hold-open device on the actuator rod. Refer to DET. A of [Figure 509](#).

- (10) Mark the position of the applicable door hook with a felt tip pen.
- (11) Remove and discard the four cotter pins (1).
- (12) Hold the door hook and loosen the four nuts (2). Do not remove the nuts.
- (13) Move the door hook the necessary number of serrations to get the correct hook position.

NOTE: One serratian equals 0,9 mm (0.035 in.) of movement.
- (14) Hold the door hook and tighten the nuts. Make sure the door hook does not move when you tighten the nuts.
- (15) Torque the nuts to between 9,0 and 13,0 N.m (80.0 and 115.0 lbf.in.). Do not safety the nuts.
- (16) Remove the hold-open device.
- (17) Do steps J.(1) and J.(3) of [SUBTASK 820-052-A](#) and [SUBTASK 820-053-A](#) again to check that the primary lock, overstow and flight positions are in limits.

Table 502 - HOOK ADJUSTMENTS

OUT OF LIMITS SETTING	LH HOOK	RH HOOK	BOTH HOOK S	REASON	DIRECTION OF ADJUSTMENT
Overstow Movement					NOTE: One serratian equals 0,9 mm of movement.
LH Less than 2.3 mm	AD-JUST			Must be a minimum of 2.3 mm - To make sure the primary locks disengage or engage with the door in the OVERSTOW position	Move the door hooks inwards of the TR to increase the reading
RH Less than 2.3 mm		AD-JUST			
Hook Balance					
If LH Overstow Movement is less than RH	AD-JUST			The hook balance must be 0,9 mm or less. If it is more than this the STOW microswitch can give a false signal.	Move the door hook with the lowest Overstow Movement.
If RH Overstow Movement is less than LH		AD-JUST			Move the door hook inwards of the TR.
Flight Datum (Flight Position)					
More than \pm 1.5 mm			AD-JUST	The IN TO WIND or OUT OF WIND step must be less than 1,5 mm to get the doors in the best aerodynamic position. The Flight Position is the Datum for all other readings and settings.	Do this adjustment after the Overstow Movement and Hook Balance adjustment. Move both hooks the same number of serrations and in the same direction. If the door is IN TO WIND, move both hooks outwards of the TR. If the door is OUT OF WIND, move both hooks inwards of the TR.



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

M. Pivot Door Overstow Position - Final Check Procedure ([Figure 502](#)) ([Figure 506](#))

SUBTASK 820-055-A

- WARNING:** • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN **AMM MPP 78-30-00/200** WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.
- BE CAREFUL WHEN YOU OPERATE THE THRUST REVERSERS. MAKE SURE THAT THE THRUST REVERSERS ARE CLEAR. INJURY TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do the final check of the pivot door overstow position as follows:

- (a) Make sure that the left and right S-hooks are disconnected from the primary lock actuators. If they are connected, do these steps to disconnect them (refer to [Figure 502](#)):
- 1 Remove and discard the cotter pin (1).
 - 2 Remove the nut (2), washers (3) and bolt (4).
 - 3 Disconnect the link arm (5) from the primary lock actuator (6).
- NOTE: Keep the attaching parts for reinstallation.
- (b) Loosen the slave inhibition bolt adjusting nut manually. Let the left and right S-hooks fully engage with the pivot door hook as the pivot door moves to the flight position under seal pressure.
- (c) Try to move the left S-hook manually. If it can be moved, then it is not fully engaged. Do the same procedure as for the right S-hook.
- (d) Continue to loosen the Slave Inhibition Bolt Adjusting Nut manually until the S-hook cannot be moved. The S-hooks are now fully engaged.
- (e) On the left and right sides of the pivot door, at a point 65.0 mm (2.6 in) aft of the leading edge insert the inside measuring contacts of a digital Vernier caliper. Record the measurements. Refer to DET. B of [Figure 506](#).
- (f) Remove the attaching bolt (6) to remove GSE 434 from the inhibition bolt socket (5). Refer to DET. B of [Figure 505](#).
- (g) Connect the left and right primary lock actuators as follows (refer to [Figure 502](#)):
- 1 Connect the link arm (5) to the primary lock actuator (6).
 - 2 Install the bolt (4) and the washer (3).
 - 3 Install the washer (3) and the nut (2).
 - 4 Tighten the nut and install a new cotter pin (1).
- (h) On the circuit breaker panel, make sure that these circuit breakers are open:
- THRUST REVERSER 1.

- THRUST REVERSER 2.
- HYD. ELEC. PUMP 1.
- HYD. ELEC. PUMP 2.

(i) Disconnect the electrical connector of one of the stow switches (P1780 or P1782 or P1787 or P1788).

NOTE: Do not remove the switch to disconnect the electrical connector. Or this will change the setting position of the switch.

(j) Install a jumper between pins 1 and 3 of the stow switch electrical connector.

(k) Deinhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).

(l) On the circuit breaker panel, close these circuit breakers and remove the DO-NOT-CLOSE tags from them:

- THRUST REVERSER 1.
- THRUST REVERSER 2.
- HYD. ELEC. PUMP 1.
- HYD. ELEC. PUMP 2.

(m) Make sure that the thrust levers are in the Idle position.

WARNING: THIS OPERATION WILL CAUSE A MOVEMENT OF THE THRUST REVERSER DOORS TO THE OVERSTOW POSITION. MAKE SURE THAT THE THRUST REVERSERS ARE CLEAR. INJURY TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

(n) Pressurize the aircraft hydraulic system ([AMM TASK 29-10-00-860-802-A/200](#)).

- The doors will go to the overstowed position.

(o) On the left and right sides of the pivot door, at a point 65.0 mm (2.6 in) aft of the leading edge insert the inside measuring contacts of a digital Vernier caliper. Record the measurements. Refer to DET. B of [Figure 506](#).

(p) Subtract the measurements taken in step (o) from that taken in step (e).

- The results for LH and RH sides must be 2.3 mm (0.090 in) minimum.

(q) Release the pressure from the hydraulic system ([AMM TASK 29-10-00-860-802-A/200](#)).

(r) On the circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them:

- THRUST REVERSER 1.
- THRUST REVERSER 2.
- HYD. ELEC. PUMP 1.

- HYD. ELEC. PUMP 2.
- (s) Inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (t) Remove the jumper between pins 1 and 3 of the stow switch electrical connector.
- (u) Connect the stow electrical connector.

CAUTION: IF YOU ADJUST THE POSITION OF THE HOOKS, MAKE SURE YOU MOVE THE TWO HOOKS THE SAME AMOUNT TO KEEP THE HOOK BALANCE OF \pm 0.9 MM (0.035 IN) AND TO KEEP THE FLIGHT POSITION OF THE DOOR WITHIN \pm 1.5 MM (0.06 IN).

- (v) if you do not get a minimum movement of 2.3 mm (0.090 in) when you do step (p), do [SUBTASK 820-054-A](#) again.

N. Stow Microswitches - Test Procedure ([Figure 510](#))

SUBTASK 820-056-A

- (1) Install the slave inhibition bolt and adjusting nut to the rigging tool.
- (2) Put the door in the flight position:
 - (a) Tighten the adjusting nut to move the door sufficiently so that both S-hooks can move freely.
 - (b) Make sure the LH and RH S-hooks are in a position so that they will engage.
 - (c) Loosen the adjusting nut to engage both S-hooks (S-hooks cannot be moved easily by hand).

NOTE: The height of the pivot door against the dummy torsion box must be \pm 1,5 mm (\pm 0.059 in.). If this value (flight position) is out of tolerance, adjust the position of the pivot door hooks as necessary ([SUBTASK 820-054-A](#)) and then, continue from step (3).

- (3) Zero the digital Indicator.
- (4) Tighten the adjusting nut to move the door to the overstow position until the LH and RH S-hooks disengage.
- (5) Move the S-hooks clear of the door hooks.
- (6) Loosen the adjusting nut until the door is held by the tertiary lock or the secondary lock.
- (7) Do this check to make sure the LH stow switch is correctly adjusted (refer to [Figure 510](#)):
 - (a) Disconnect electrical connector P1773.
 - (b) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to [Figure 510](#) to locate the correct pins.

- (c) On the multimeter monitor the continuity indicating beep.
 - (d) Slowly turn the adjusting nut to close the pivot door until the beep must be heard.
 - (e) On the rigging tool, make sure the digital indicator shows that the activation point of the left stow microswitch is between 3.0 mm (0.118 in) and 4.0 mm (0.157 in). Record the reading.
 - (f) Loosen the adjusting nut until the door is stopped by the tertiary lock or the secondary lock.
- (8) Do this check to make sure the RH stow switch is correctly adjusted (refer to [Figure 510](#)).
- (a) Disconnect electrical connector P1775.
 - (b) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to [Figure 510](#) to locate the correct pins.
 - (c) On the multimeter monitor the continuity indicating beep.
 - (d) Slowly turn the adjusting nut to close the pivot door until the beep must be heard.
 - (e) On the Rigging Tool, make sure the digital indicator shows that the activation point of the right stow microswitch is between 3.0 mm (0.118 in) and 4.0 mm (0.157 in). Record the reading.
 - (f) If the readings for LH and RH stow switch are within limits, obey these effectivities:
 - 1 (For partial thrust reverser rigging - LH or RH stow switch replaced) Do [SUBTASK 842-003-A](#) to complete the stow switch rigging procedure.
 - 2 (For complete thrust reverser rigging) Refer to [SUBTASK 820-057-A](#) to continue the thrust-reverser rigging procedure.
 - (g) If the readings for LH and/or RH stow switches are out of limits, obey these effectivities:
 - 1 (For partial thrust reverser rigging - LH or RH stow switch replaced) Adjust the applicable stow switch [SUBTASK 820-061-A](#) and then refer to [SUBTASK 842-003-A](#) to complete the stow rigging procedure.
 - 2 (For complete thrust reverser rigging) Adjust the applicable stow switch actuation point [SUBTASK 820-061-A](#) after you complete the deploy operation check ([SUBTASK 820-059-A](#)).

NOTE: Follow the sequence of subtasks as given here. Do the adjustment only after the pivot doors are opened in [SUBTASK 820-059-A](#).
 - 3 Do steps N.(7) and N.(8) again. Make sure the microswitch actuation point is in tolerance. Adjust again if necessary.

- (h) Loosen the adjusting nut until the door is stopped by the tertiary lock or the secondary lock.

O. Secondary Lock - Test Procedure ([Figure 511](#))

SUBTASK 820-057-A

- (1) Install the slave inhibition bolt and adjusting nut to the rigging tool.
 - (2) Put the door in the flight position:
 - (a) Tighten the adjusting nut to move the door sufficiently so that both S-hooks can move freely.
 - (b) Make sure the LH and RH S-hooks are in a position so that they will engage.
 - (c) Loosen the adjusting nut to engage both S-hooks (S-hooks cannot be moved easily by hand).
- NOTE: The height of the pivot door against the dummy torsion box must be $\pm 1,5$ mm (± 0.059 in.). If this value (flight position) is out of tolerance, adjust the position of the pivot door hooks as necessary ([SUBTASK 820-054-A](#)) and then, continue from step (3).
- (3) Zero the digital Indicator.
 - (4) Tighten the adjusting nut to move the door to the overstow position until the LH and RH S-hooks disengage.
 - (5) Move the S-hooks clear of the door hooks.
 - (6) At the rigging tool:
 - (a) Loosen the adjusting nut.
 - (b) Open the lock lever.
 - (c) Remove the adjusting nut.
 - (d) Remove the slave inhibition bolt.

WARNING: MAKE SURE THAT IT IS SAFE TO MOVE THE THRUST REVERSER DOORS MANUALLY. INJURY TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (7) Pull the pivot door open with your hand. Refer to DET. B of [Figure 511](#).
- (8) Use a screwdriver to disengage the tertiary lock.
- (9) Pull the door again with your hand until it is held by the secondary lock.
- (10) At the rigging tool:
 - (a) Check that the digital indicator shows a reading between 6,0 and 12,5 mm (0.236 in and 0.492 in.). This is the actual point when the secondary lock operates.
 - (b) If the reading is within limits, obey these effectivities:

- 1 (For partial thrust reverser rigging - thrust-reverser door actuator replaced) Safe the actuator overstow nut [SUBTASK 820-062-A](#) and do [SUBTASK 842-003-A](#) to complete the door-actuator rigging procedure.
 - 2 (For complete thrust reverser rigging) Refer to [SUBTASK 820-058-A](#) to continue the thrust-reverser rigging procedure.
- (c) If the reading is out of limits, obey these effectivities:
- 1 (For partial thrust reverser rigging - thrust-reverser door actuator replaced) Adjust the secondary lock [SUBTASK 820-060-A](#) and then refer to [SUBTASK 842-003-A](#) to complete the door actuator rigging procedure.
 - 2 (For complete thrust reverser rigging) Adjust the secondary lock [SUBTASK 820-060-A](#) after you complete the deploy operation check ([SUBTASK 820-059-A](#)).

NOTE: Follow the sequence of subtasks as given here. Do the adjustment only after the pivot doors are opened in [SUBTASK 820-059-A](#).

P. Transit Microswitch - Test Procedure (Figure 510) (Figure 512)

[SUBTASK 820-058-A](#)

- (1) Install the slave inhibition bolt and adjusting nut to the rigging tool.
- (2) Put the door in the flight position:
 - (a) Tighten the adjusting nut to move the door sufficiently so that both S-hooks can move freely.
 - (b) Make sure the LH and RH S-hooks are in a position so that they will engage.
 - (c) Loosen the adjusting nut to engage both S-hooks (S-hooks cannot be moved easily by hand).

NOTE: The height of the pivot door against the dummy torsion box must be $\pm 1,5$ mm (± 0.059 in.). If this value (flight position) is out of tolerance, adjust the position of the pivot door hooks as necessary ([SUBTASK 820-054-A](#)) and then, continue from step (3).
- (3) Zero the digital Indicator.
- (4) Tighten the adjusting nut to move the door to the overstow position until the LH and RH S-hooks disengage.
- (5) Move the S-hooks clear of the door hooks.
- (6) Disconnect electrical connector P1773 for upper transit switch and P1775 for lower transit switch. Refer to DET. B of [Figure 510](#).
- (7) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to [Figure 510](#) to locate the correct pins for the upper and lower transit switch.

NOTE: The multimeter will beep when the leads are connected.

- (8) Use a spanner to disengage the secondary lock. Manually open the pivot door to release the lock. Refer to DET. B of [Figure 512](#).
 - (9) If the Tertiary Lock has not released use a screwdriver to disengage the Tertiary Lock.
 - (10) Do these steps to install the slave inhibition bolt if necessary.
 - (a) Manually close the pivot door sufficiently to engage the larger threads of the slave inhibition bolt in the inhibition socket.
 - 1 Turn the slave inhibition bolt approximately five (5) turns in a clockwise direction.
 - (b) Install the adjusting nut on the slave Inhibition Bolt.
 - 1 Tighten the adjusting nut until you can close and lock the lock lever.
 - (11) On the multimeter monitor the continuity indicating beep.
 - (12) Loosen the adjusting nut and open the pivot door until the beeping stops.
 - (13) Slowly turn the adjusting nut to close the pivot door until the beep must be heard.
 - (14) On the rigging tool, make sure the digital Indicator shows that the activation point of the Transit microswitch is between 17.0 mm (0.669 in) and 19.0 mm (0.748 in).
 - (15) If the reading for transit switch is within limits, obey these effectivities:
 - (a) (For partial thrust reverser rigging - transit switch replaced) Do [SUBTASK 842-003-A](#) to complete the transit switch rigging procedure.
 - (b) (For complete thrust reverser rigging) Refer to [SUBTASK 820-059-A](#) to continue the thrust-reverser rigging procedure.
 - (16) If the reading for transit switch is out of limits, obey these effectivities:
 - (a) (For partial thrust reverser rigging - transit switch replaced) Adjust the transit switch [SUBTASK 820-061-A](#) and then refer to [SUBTASK 842-003-A](#) to complete the transit switch rigging procedure.
 - (b) (For complete thrust reverser rigging) Adjust the transit switch actuation point [SUBTASK 820-061-A](#) after you complete the deploy operation check ([SUBTASK 820-059-A](#)).
- NOTE:** Follow the sequence of subtasks as given here. Do the adjustment only after the pivot doors are opened in [SUBTASK 820-059-A](#).
- (17) Do again the check of the transit microswitch activation point. Make sure the microswitch actuation point is between 17.0 mm (0.669 in) and 19.0 mm (0.748 in). Adjust again if necessary.
- Q. Deploy Microswitch - Test Procedure ([Figure 510](#))
SUBTASK 820-059-A
- (1) At the rigging tool:

- (a) Loosen the adjusting nut.
 - (b) Open the lock lever.
 - (c) Remove the adjusting nut and the slave inhibition bolt
- (2) Disconnect electrical connector P1773. Refer to DET. B of [Figure 510](#).
 - (3) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to [Figure 510](#) to locate the correct pins for the upper and lower deploy switch.
 - (4) On the multimeter monitor the continuity indicating beep.
 - (5) Manually open the pivot door until the beep must be heard.

R. Secondary Lock - Adjustment Procedure ([Figure 513](#))

SUBTASK 820-060-A

- (1) On the outer skin of the pivot door, remove access panels 416MT, 416NT, 416FB, 416GB or 426MT, 426NT, 426FB, 426GB to gain access to the actuator rod end connection. Refer to DET. A of [Figure 513](#).
NOTE: Keep the attaching screws for installation.
- (2) Open the pivot door with your hand.
- (3) Install GSE 340 to support the Pivot Door in the open position.
NOTE: Use the rigging tool slave inhibition bolt and adjusting nut to secure the retaining rod to the pivot door.
- (4) Disconnect the actuator rod end from the pivot door as follows:
 - (a) At the actuator rod end, remove and discard the cotter pin (1).
 - (b) Remove the nut (2), the two washers (3) and the sleeve (4).
 - (c) Remove the actuator bolt (5) and the washer (6).

CAUTION: DO NOT DISTURB THE SETTING OF THE OVERSTOW NUT. MAKE SURE IT DOES NOT MOVE IN RELATION TO THE ACTUATOR BODY.

- (5) Adjust the actuator rod end as follows:
 - (a) Remove and discard the lockwire (9). Refer to DET. D of [Figure 513](#).
 - (b) Loosen the Locknut (11) and retract the Locking Collar (10) from the Overstow Nut (8).

CAUTION: WHEN YOU ADJUST THE ACTUATOR ROD-END DO NOT MOVE THE OVERSTOW NUT OR THE ACTUATOR ROD. IF THE OVERSTOW NUT AND ACTUATOR ROD ARE MOVED IT CAN CHANGE THE RIGGING SETTINGS.

- (c) Turn the rod-end the necessary number of turns to get the secondary lock setting in limits. Refer to DET. E of [Figure 513](#).

NOTE: One half turn of the rod-end is equal to 1,4 mm (0.055 in.) movement of the secondary lock.

- (d) Install the actuator rod end to the pivot door bracket and install the bolt (5) and the washer (6). Loosely assemble the sleeve (4), the washers (3) and the nut (2).

- (e) Remove GSE 340 and close the pivot door.

- (f) Make sure the work area is clean and clear of all tools, equipment and unwanted material.

- (g) Close the pivot door with your hand.

- (h) Check the secondary lock adjustment again ([SUBTASK 820-057-A](#)). Make sure that it is within tolerance.

- (i) Manually open the pivot door and install GSE 340.

- (6) Safety the actuator locknut and the actuator rod end as follows (refer to DET. C of [Figure 513](#)):

- (a) Remove the loosely assembled nut (2), washers (3) and sleeve (4) from the actuator rod end. Remove the bolt (5) and the washer (6) to disconnect the actuator rod end from the pivot door bracket.

- (b) At the actuator rod end, make sure the overstow Nut (8) does not move and that the locking collar (10) is positioned correctly.

- (c) Hold the rod end in position and tighten the Locknut (11) to between 36.6 N.m (27.0 lbf.ft) and 44.7 N.m (33.0 lbf.ft).

- (d) Safety the locknut to the overstow nut with new lockwire.

- (e) Position the actuator rod end in the pivot door bracket and install the retaining bolt (5) and washer (6).

- (f) Install the sleeve (4), the two washers (3) and the nut (2). Tighten the retaining bolt to between 30.5 N.m (22.5 lbf.ft) and 33.9 N.m (25.0 lbf.ft). Safety the assembly with a new cotter pin (1).

- (g) Remove GSE 340 and install the Hold Open Rod (HOR).

- (h) On the outer skin of the pivot door, position the access panels removed to gain access to the actuator rod end connection. Install the attaching screws kept on removal.

S. Stow and Transit Microswitch Striker Assemblies - Adjustment Procedure ([Figure 514](#))

SUBTASK 820-061-A

- (1) Get access to the applicable Stow/Transit switch and do the actuator switch wear measure as follows:

- (a) Use a micrometer to measure the actuator switch diameter. Record this as dimension Y ([Figure 514](#)):
 - 1 If the Y dimension is less than 7.9 mm (0.31 in), replace the applicable stow/transit switch ([AMM MPP 78-34-01/400](#)) and continue with stow/transit microswitch striker assemblies - adjustment procedure.
 - 2 If the Y dimension is more than 7.9 mm (0.31 in), continue with stow/transit microswitch striker assemblies - adjustment procedure.
- (2) Remove Microswitch Striker Riveted Assemblies as follows (PRE-MOD [S.B. 145-78-0031](#)):
 - (a) Use a micrometer to measure the total thickness of the assembly (Striker Plate, Laminated Shims and Striker Bracket). Record this as dimension A. Refer to DET. C of [Figure 514](#).
 - (b) Drill out the attaching rivets (1). Remove the laminated shim(s) (3) and the striker plate (2).
 - (c) Discard the removed rivets (1) and laminated shim(s) (3).
 - (d) Use a micrometer to measure the thickness of the Striker Plate (2). Record this as Dimension X.
 - 1 (For striker plate part number 145-78328-001):
 - a If the X dimension is less than 0.45 mm (0.017 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure using a new striker plate.
 - b If the X dimension is more than 0.45 mm (0.017 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.
 - 2 (For striker plate part numbers except 145-78328-001):
 - a If the X dimension is less than 1.05 mm (0.041 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure, using a new striker plate.
 - b If the X dimension is more than 1.05 mm (0.041 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.
 - (e) Use a micrometer to measure the thickness of the Striker Bracket and the Striker Plate. Record this as Dimension B.
 - (f) Subtract the total thickness (dimension A) from the thickness of the striker assembly (dimension B). The resultant dimension is the thickness of the removed laminated shim. Record this as Dimension C.
- (3) Remove Microswitch Striker Assemblies secured with Hi-lite Fasteners as follows ([POST-MOD S.B.145-78-0031](#)):

NOTE: Refer to [Figure 514](#) to correct disassembly and assembly of the microswitch striker.

- (a) Use a Micrometer to measure the total thickness of the assembly (Striker Plate, Laminated Shims and Striker Bracket). Record this as dimension A.
- (b) Record the location and number of washers installed.
- (c) With an applicable ring spanner and allen key, remove the kaynar collars (1).
- (d) Remove the washers (2) and hilite pins (3).
- (e) Remove the striker plate (4) and the laminated shims (5) from the striker bracket (6).
- (f) Discard the collars (1), washers (2), pins (3) and shims (5).
- (g) Use a micrometer to measure the thickness of the Striker Plate (4). Record this as Dimension X.

1 (For striker plate part number 145-78328-001):

- a If the X dimension is less than 0.45 mm (0.017 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure using a new striker plate.
- b If the X dimension is more than 0.45 mm (0.017 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.

2 (For striker plate part numbers except 145-78328-001):

- a If the X dimension is less than 1.05 mm (0.041 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure, using a new striker plate.
- b If the X dimension is more than 1.05 mm (0.041 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.
- (h) Use a micrometer to measure the thickness of the striker bracket and the striker plate. Record this as Dimension B.
- (i) Subtract the total thickness (dimension A) from the thickness of the striker assembly (dimension B). The resultant dimension is the thickness of the removed laminated shim. Record this as Dimension C.

WARNING: KNIVES CAN CAUSE AN INJURY. TO PREVENT INJURY BE CAREFUL WHEN YOU USE A KNIFE TO REMOVE SHIM LAMINATIONS.

(4) Do these steps to adjust the Transit Microswitch striker assembly:

- (a) If the dimension recorded during the transit setting procedure is more than 19,0 mm (0.748 in.), adjust the shims as follows:
 - 1 Get a new laminated shim that is less than the thickness of the removed shim (Dimension C).
 - 2 With an applicable knife, remove the necessary number of layers to get the dimension for the transit microswitch in limits.

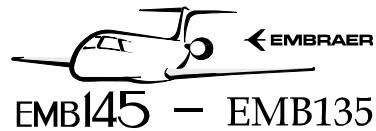
- 3 Remove an additional 1 mm of laminates to get the operation point near to the center of the tolerance range.
- (b) If the dimension recorded during the transit setting procedure is less than 17,0 mm (0.669 in.), adjust the shims as follows:
 - 1 Get a new laminated shim that is more than the thickness of the removed shim (Dimension C).
 - 2 With an applicable knife, remove the necessary number of layers to get the dimension for the transit microswitch in limits.
 - 3 Add an additional 1 mm of laminates to get the operation point near to the center of the tolerance range.
- (5) Do this step to adjust the Stow Microswitch Striker assemblies:

WARNING: KNIVES CAN CAUSE AN INJURY. TO PREVENT INJURY BE CAREFUL WHEN YOU USE A KNIFE TO REMOVE SHIM LAMINATIONS.

- (a) If the dimension recorded during the stow setting procedure is more than 4,0 mm (0.157 in.), adjust the shims as follows:
 - 1 Get a new laminated shim that is less than the thickness of the removed shim (Dimension C).
 - 2 With an applicable knife, remove the necessary number of layers to get the dimension for the stow microswitch in limits.
 - 3 Remove an additional 0,5 mm of laminates to get the operation point near to the center of the tolerance range.
- (b) If the dimension recorded during the stow setting procedure is less than 3,0 mm (0.118 in.), adjust the shims as follows:
 - 1 Get a new laminated shim that is more than the thickness of the removed shim (Dimension C).
 - 2 With an applicable knife, remove the necessary number of layers to get the dimension for the stow microswitch in limits.
 - 3 Add an additional 0,5 mm of laminates to get the operation point near to the center of the tolerance range.

WARNING: SEALANT PR1791A IS DANGEROUS. IT CAN CAUSE IRRITATION TO YOUR EYES, YOUR SKIN AND YOUR THROAT. MAKE SURE THERE IS A FLOW OF AIR IN THE WORK AREA. WEAR GOGGLES, GLOVES AND A BREATHING MASK. IF YOU GET THE SEALANT ON YOUR SKIN, WASH IT OFF IMMEDIATELY. IF YOU GET IT IN YOUR EYES OR IN YOUR MOUTH, WASH IT OUT WITH CLEAN WATER AND GET MEDICAL HELP.

- (6) Install the Microswitch Striker Assemblies as follows:



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NOTE: If you use a new undrilled striker plate and with the striker bracket as a template, mark the positions of the striker bracket holes in the striker plate and drill pilot holes.

- (a) For striker attached with Hi-lite pins:

- 1 Apply sealant PR 1791A to the bracket (6) and striker plate (4).
- 2 Apply sealant PR 1791A to the new laminate shims (5), hilite pins (3), washers (2) and kaynar collars (1).
- 3 Put the striker plate (4) and the new laminate shims (5) in position on the striker bracket (6).
- 4 Install the new Hilite pins, washers and kaynar collars.

NOTE: Install the same number of washers as recorded during removal.

- 5 Align the laminate shims with the front edge of the striker plate and bracket.
- 6 Torque the kaynar collars. Refer to [Figure 514](#) for torque values.
- 7 If required, trim the edges of the laminated shims to the contour of the striker plate. Remove all unwanted material from the striker assembly.

- (b) For strikers attached with rivets:

- 1 Use Sealant PR1791A or approved alternative to wet assemble all components and attaching parts.
- 2 Wet assemble the Striker Plate (2) and the adjusted Laminated Shims (3) to the Striker Bracket (4).
- 3 Wet assemble and install rivets (1) (SRM 51-40-02/1) to attach the adjusted laminated shims (3) and the striker plate (2) to the striker bracket (4).
- 4 If required, trim the edges of the laminated shims (3) to the contour of the striker plate (2). Remove all unwanted material from the striker assembly.

- (7) Do the final Check of the Microswitch Actuation Point as follows:

- (a) Do a check of the Stow Microswitch setting again. Make sure the operating point is within the tolerance band ([SUBTASK 820-056-A](#)).
- (b) Do a check of the transit microswitch setting again. Make sure the operating point is within the tolerance band ([SUBTASK 820-058-A](#)).

T. Safety the Actuator Overstow Nut ([Figure 513](#))

SUBTASK 820-062-A

- (1) If necessary remove the actuator rod-end from the door bracket:

NOTE: To tighten the locknut (11) it may be necessary to disconnect the actuator rod end from the pivot door structure.

- (a) Remove and discard the cotter pin (1).

- (b) Remove the nut (2), two washers (3), sleeve (4).
- (c) Remove the bolt (5) and the washer (6).
- (d) Move the actuator rod-end clear of the pivot door bracket.

CAUTION: WHEN YOU SAFETY THE LOCKNUT DO NOT MOVE THE OVERSTOW NUT OR THE CONTROL ROD. THE POSITION OF THE OVERSTOW NUT IS ESSENTIAL FOR THE CORRECT OPERATION OF THE PRIMARY LOCKS.

- (2) Make sure the locking collar (10) is in position on the overstow nut.
- (3) Hold the overstow nut (8) and rod.
- (4) Torque the locknut (11) to between 36.6 and 44.7 Nm (27.0 and 33.0 lbf.ft.).
- (5) Safety the locknut (11) to the overstow nut (8) with new lockwire (9).
- (6) If necessary install the actuator rod-end to the door bracket:
 - (a) Put the actuator rod-end in position at the pivot door bracket.
 - (b) Install the bolt (5), washer (6), sleeve (4), two washers (3) and the nut (2).
 - (c) Torque the nut (2) to between 30.5 and 33.9 Nm (25.0 and 22.5 lbf.ft.).
 - (d) Loosen the nut (2) until the first free slot aligns with the cotter pin hole of the bolt (5).
 - (e) Safety the nut (2) with a new cotter pin (1).

U. Safety the Pivot Door Primary Lock Hooks ([Figure 509](#))

SUBTASK 820-063-A

CAUTION: DAMAGE TO THE PIVOT DOOR ACTUATOR ROD CAN DAMAGE THE ACTUATOR SEALS. THIS CAN CAUSE HYDRAULIC FLUID TO LEAK FROM THE ACTUATOR. BE CAREFUL NOT TO DAMAGE THE ACTUATOR ROD WHEN YOU WORK NEAR THE PIVOT DOOR ACTUATOR.

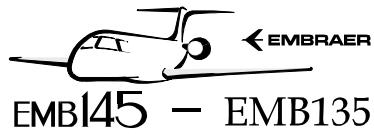
- (1) **NOTE:** Do this procedure if the pivot door hooks have been adjusted.
Install the pivot door hold-open Rod to hold the pivot door in the deploy position.
- (2) Torque the door hook bolts (2). Refer to [Figure 509](#) for torque values to between 9,0 and 13,0 Nm (80.0 and 115.0 lbf.in.).
- (3) Loosen the nut until the first free slot aligns with the cotter pin hole of the bolt.
- (4) Safety the nut with a new cotter pin (1).
- (5) Apply torque seal to the nut.

V. Follow-on

SUBTASK 842-003-A

- (1) Remove GSE 434 (refer to [Figure 505](#)):

- (a) Remove the attaching bolt (6).
 - (b) Remove the rigging tool from the inhibition bolt socket (5) in the pivot door.
 - (c) Pack the rigging tool , the attaching bolt (6), the slave inhibition bolt (7), the adjusting nut (8) and the slip gauge in the rig tool kit container provided.
- (2) Install the Inhibition Bolt Plugs (refer to [Figure 503](#)):
- (a) Install the attaching screws (1) kept on removal.
 - (b) Tighten the screws.
- (3) Install the Torsion Box access panels (refer to [Figure 504](#)):
- (a) Remove the Dummy Access Panels from the Upper and the Lower Torsion Box.
 - (b) Make sure the torsion box area is clean and clear of tools and unwanted equipment.
 - (c) Put the Torsion box access panels in position. Install the screws kept on removal.
 - (d) Put the Dummy Access Panels in the Rigging Tool Kit Container.
- (4) Make sure that the left and right S-hooks are connected to the primary lock actuators.
- (5) Install access panels 416FB, 416GB, 416LT, 416MT, 416NT, 416DB, 416HT, 416BB or 426FB, 426GB, 426LT, 426MT, 426NT, 426DB, 426HT, 426BB ([AMM MPP 06-43-00/100](#)), as applicable.
- (6) Connect electrical connectors P1773 and P1775 if applicable.
- (7) Deinhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (8) On the circuit breaker panel, close these circuit breakers and remove DO-NOT-CLOSE tags from them.
 - THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.
- (9) Reset the CMC with the CMC switch on the Maintenance Panel.
- (10) Do the thrust reverser operation check ([AMM TASK 78-31-01-700-801-A/500](#)). Cycle the pivot doors a minimum of two times and make sure that there is no EICAS and/or CMC messages.
- (11) Do a visual inspection, through access panels 416QL, 416PR or 426QL,426PR as applicable, to make sure that the primary locks are correctly engaged.
- (12) Install access panels 416QL, 416PR or 426QL,426PR ([AMM MPP 06-43-00/100](#)), as applicable.



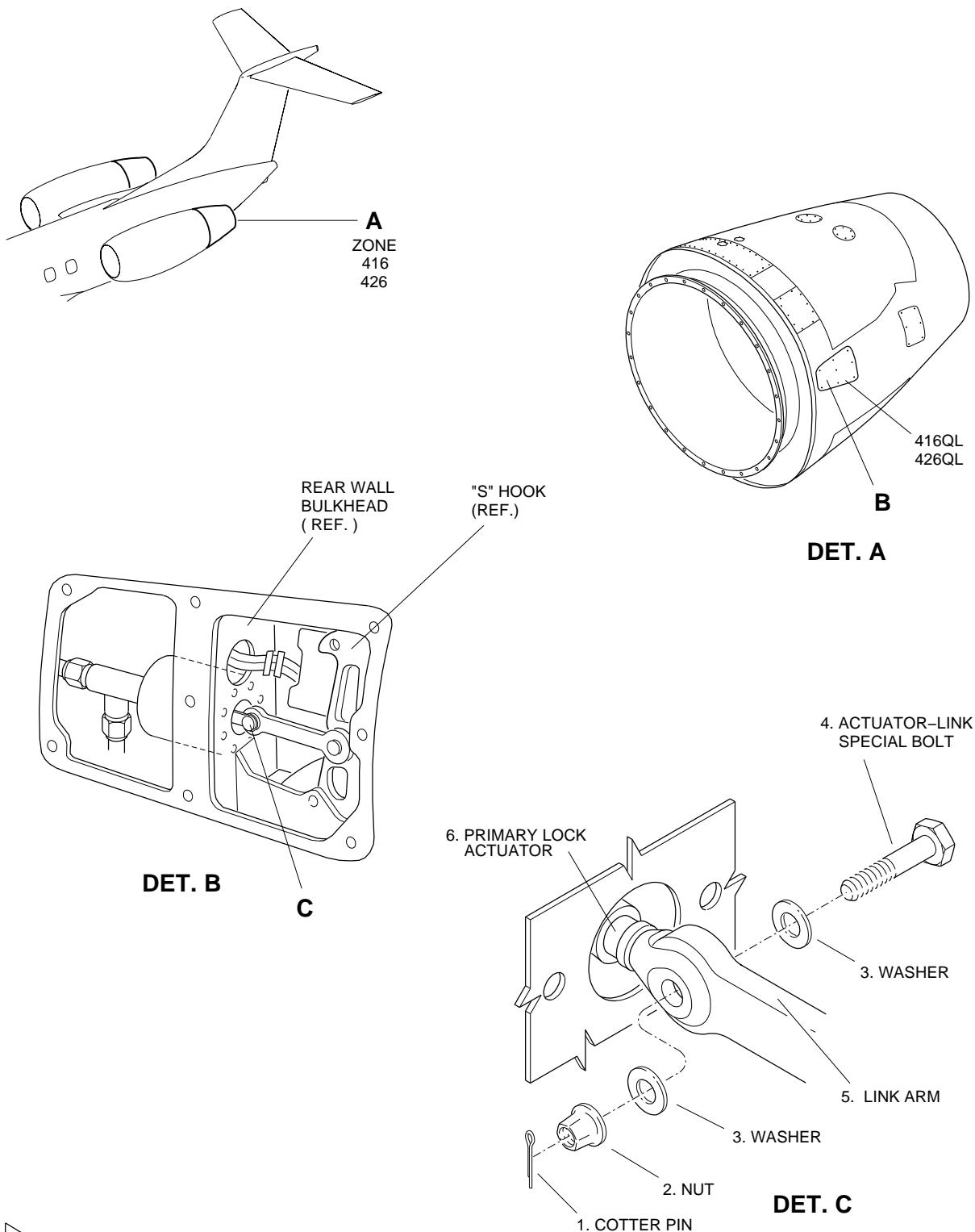
AIRCRAFT
MAINTENANCE MANUAL

-
- (13) Remove the workstand from the work area.

EFFECTIVITY: ALL

Thrust-Reverser Door Primary Lock Actuator - Link Arm Disconnection

Figure 502

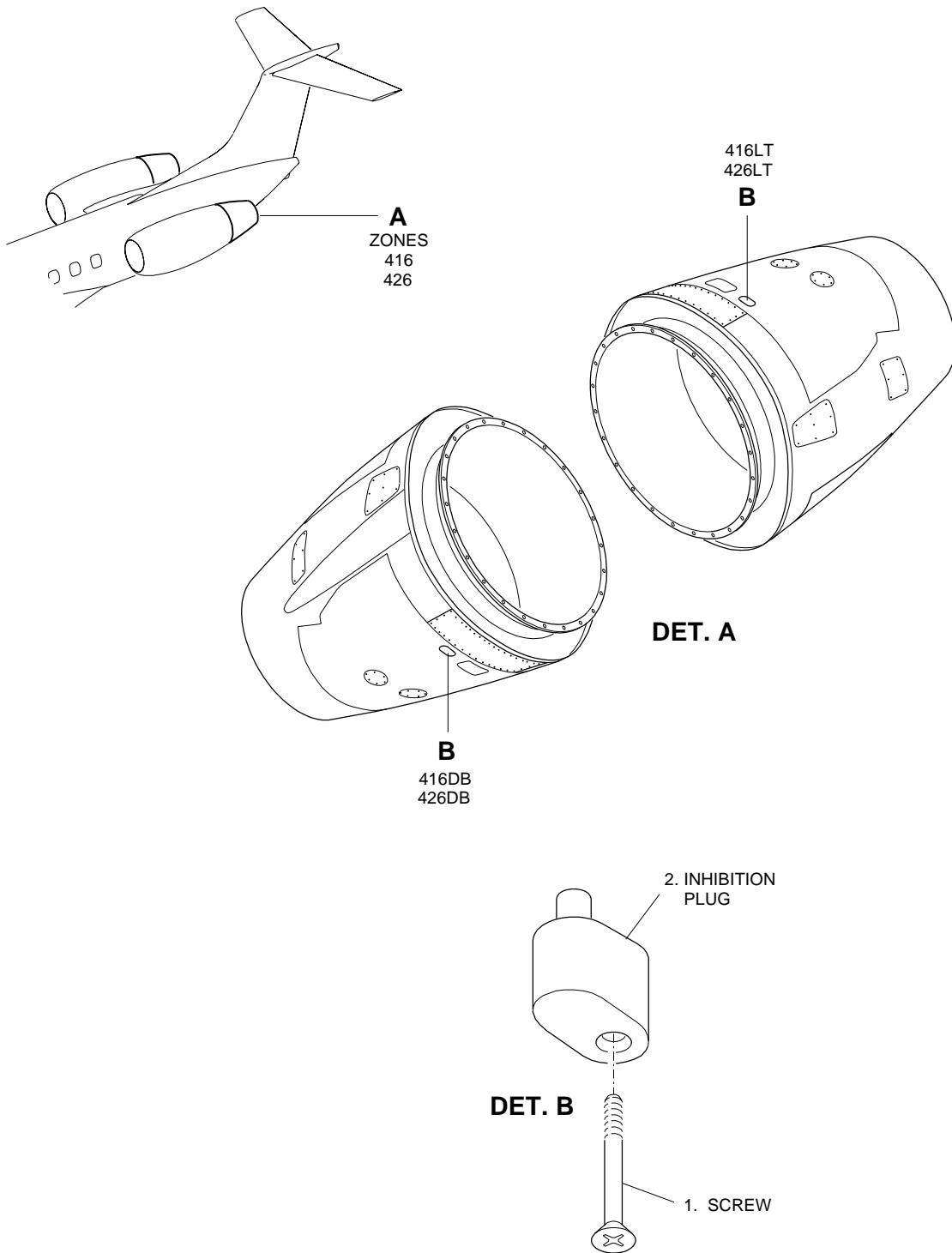


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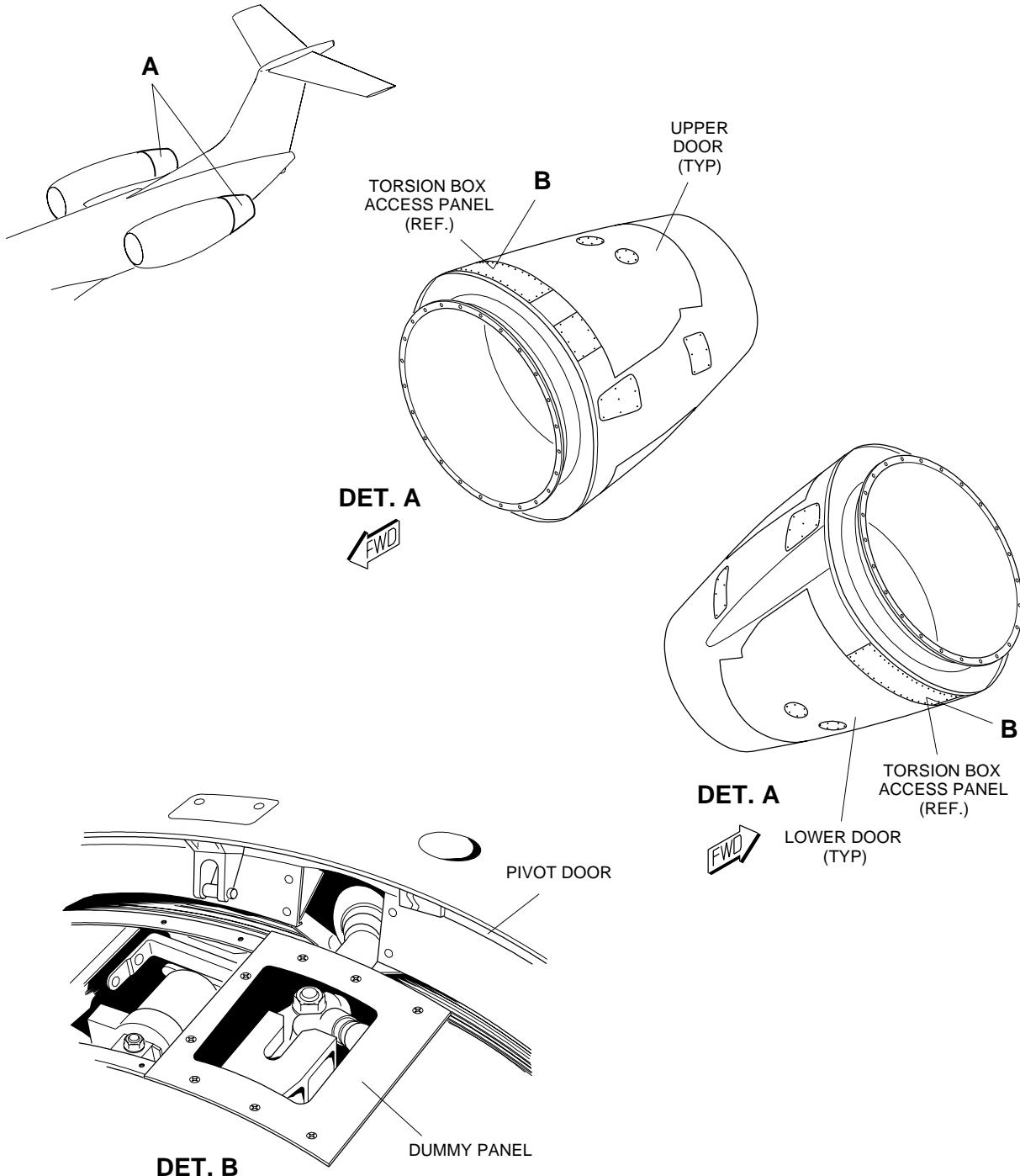
EFFECTIVITY: ALL

Thrust-Reverser Inhibition Plug - Removal/Installation

Figure 503



EM145AMM780160A.DGN

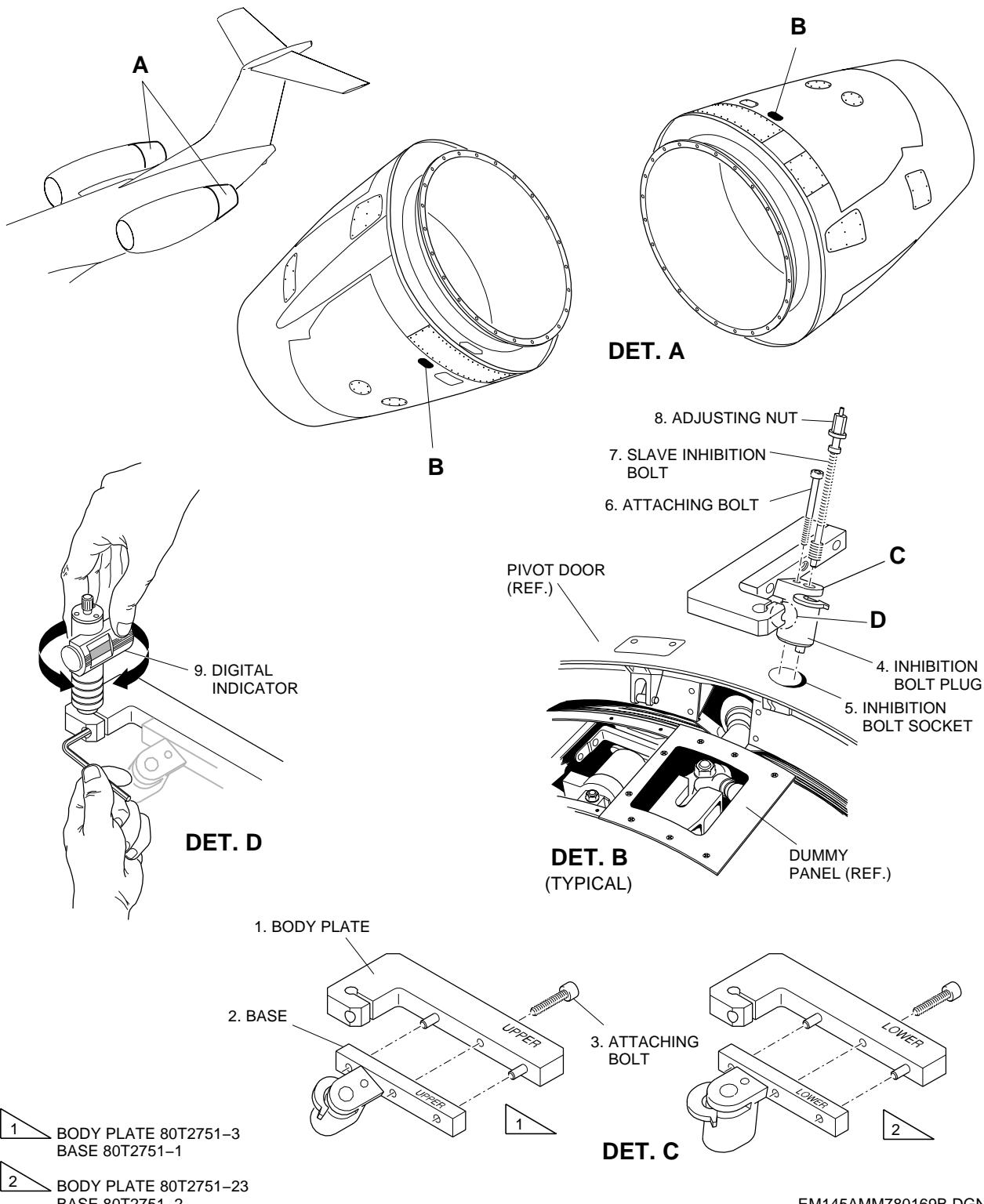
EFFECTIVITY: ALL
Dummy Torsion Box Access Panel - Removal/Installation
Figure 504


EM145AMM780163A.DGN

EFFECTIVITY: ALL

Thrust-Reverser Rigging Tool - Removal/Installation

Figure 505

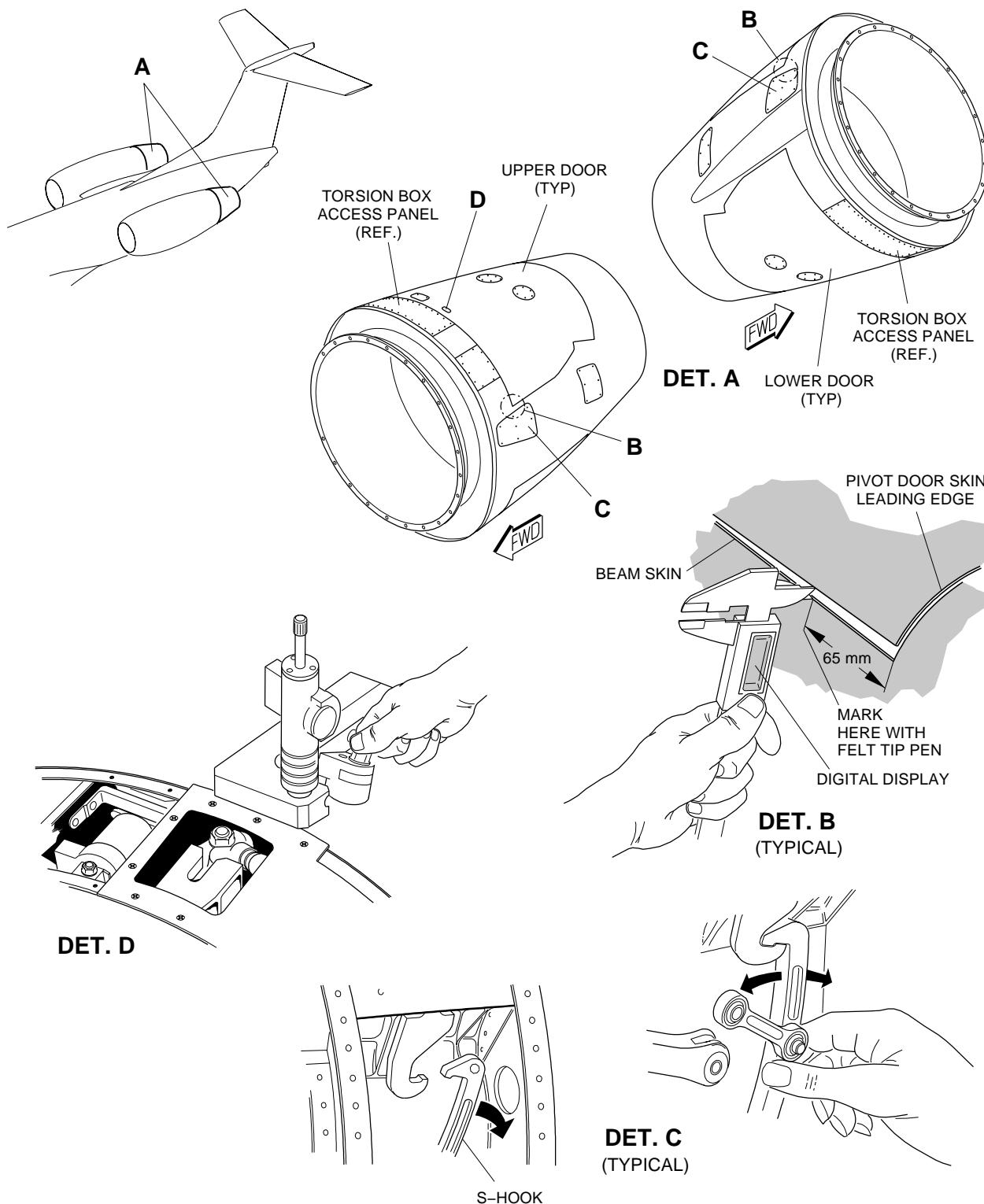


EM145AMM780169B.DGN

EFFECTIVITY: ALL

Pivot Door Overstow - Test Procedure

Figure 506

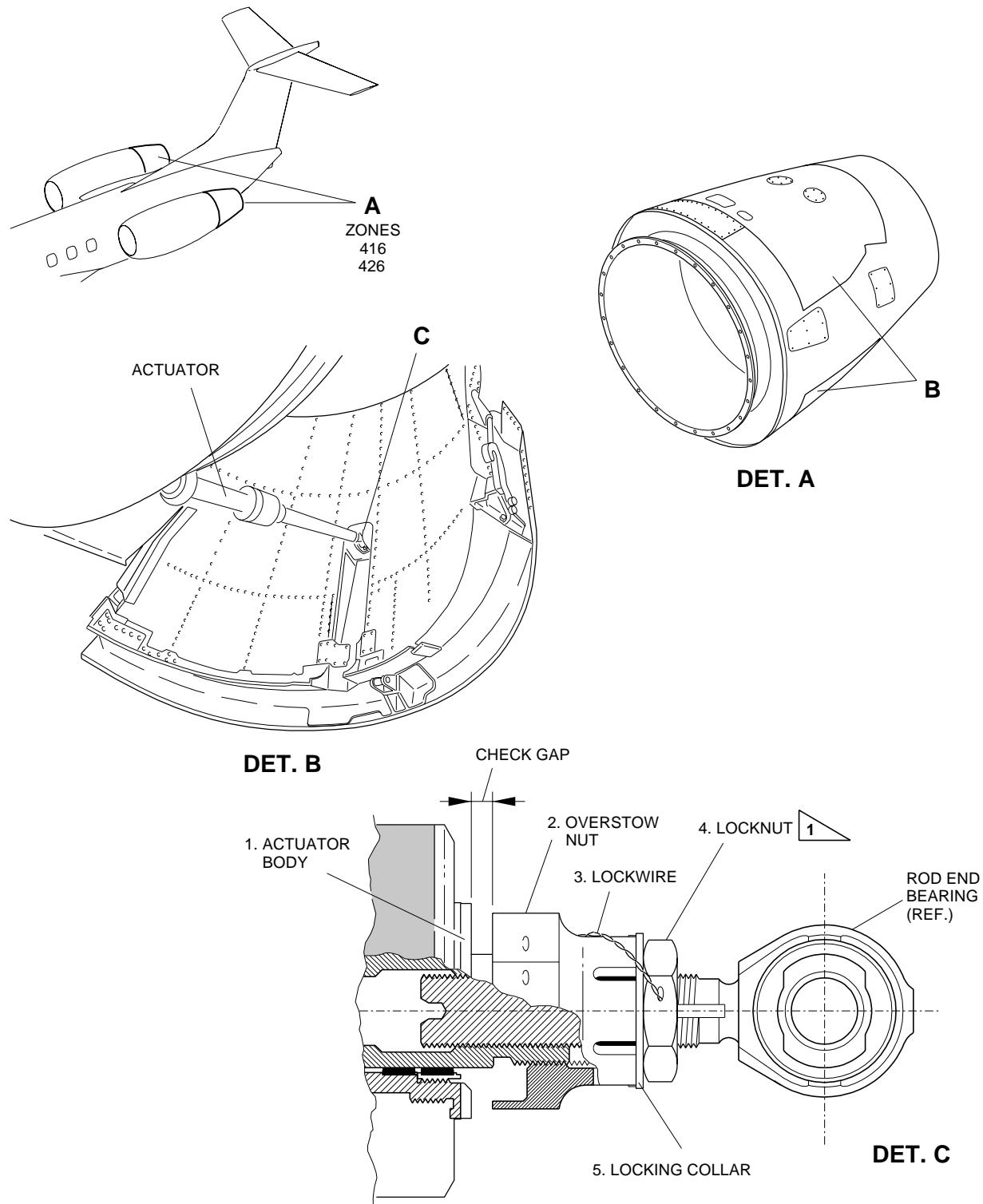


EM145AMM780173A.DGN

EFFECTIVITY: ALL

Pivot Door Actuator Gap - Test Procedure

Figure 507



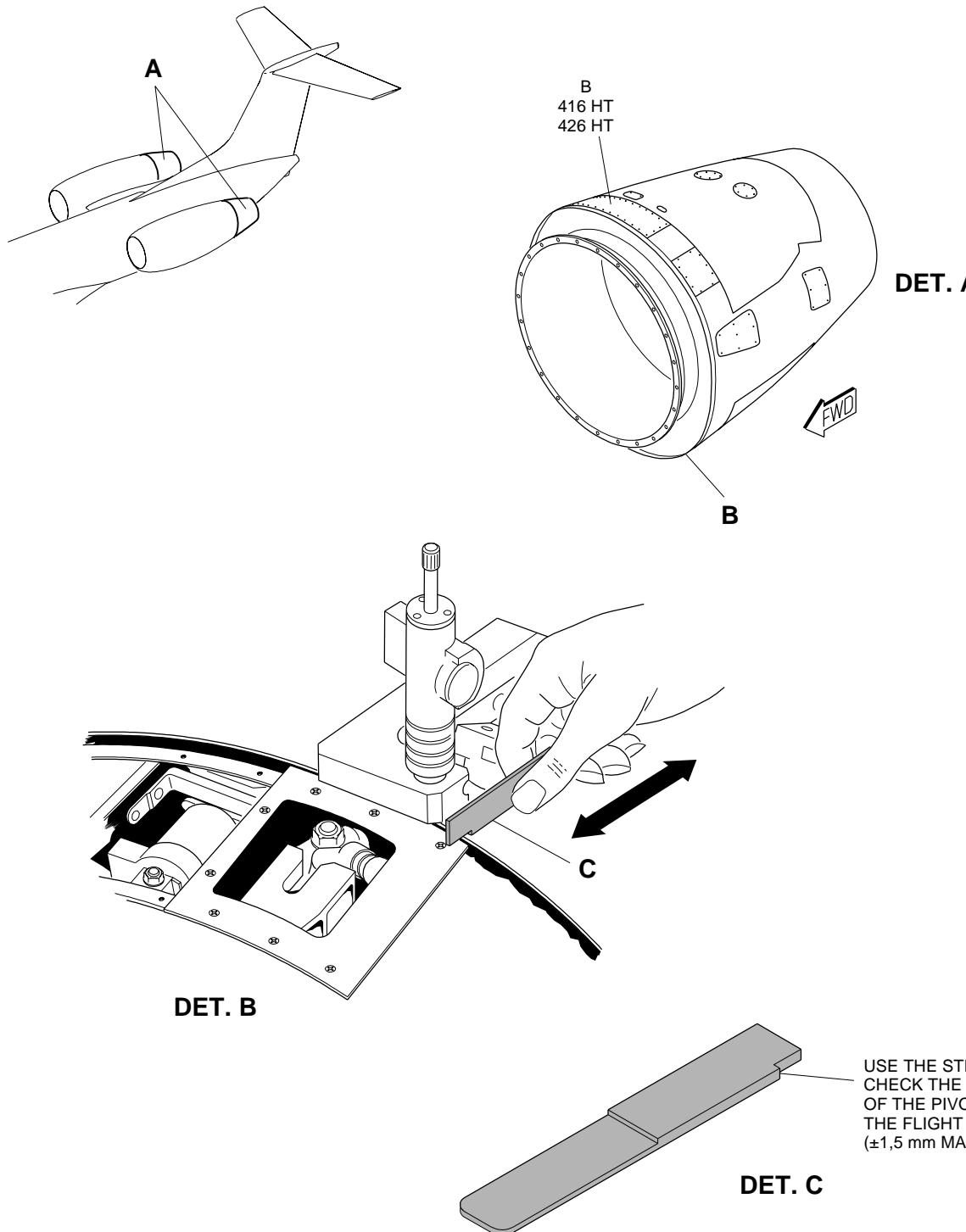
 TORQUE: 36.6 – 44.7 N.m (27.0 – 33.0 lb.ft).

EM145AMM780174B.DGN

EFFECTIVITY: ALL

Pivot Door Datum - Test Procedure

Figure 508

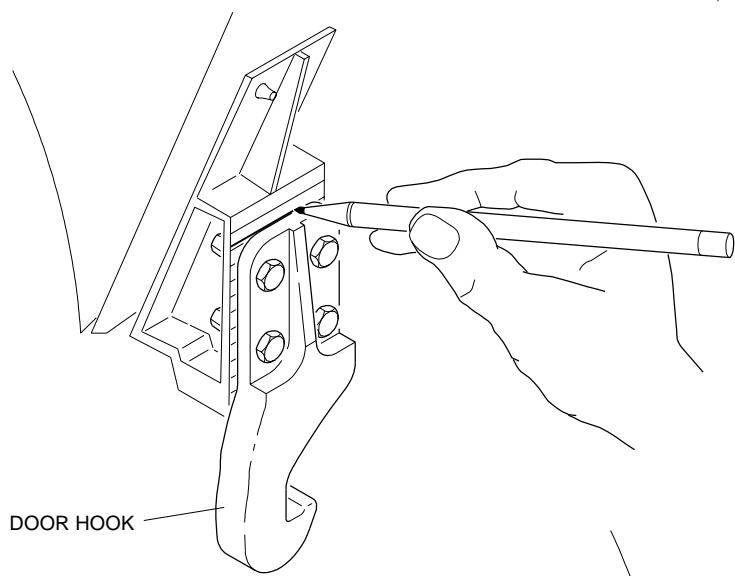
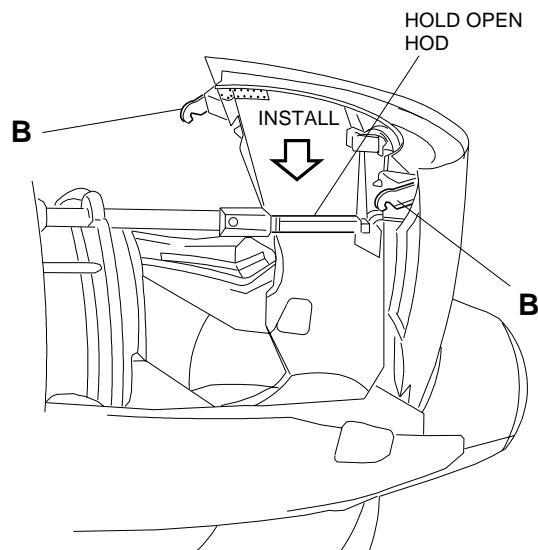
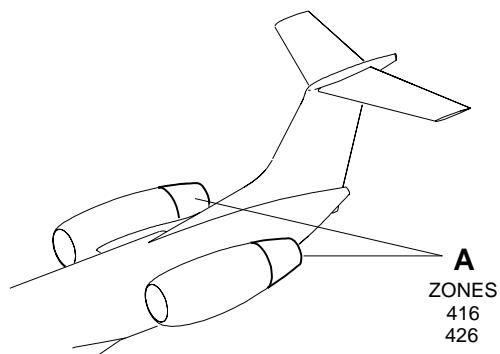


EM145AMM780175A.DGN

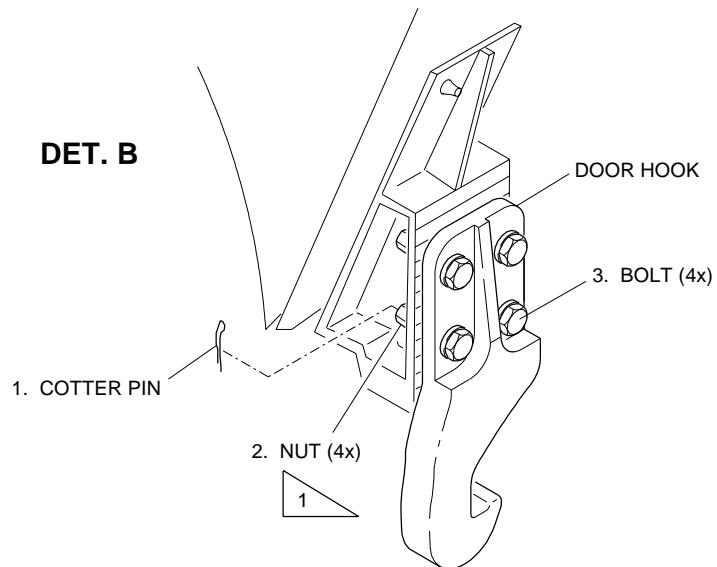
EFFECTIVITY: ALL

Pivot Door Hooks - Adjustment Procedure

Figure 509



DET. A



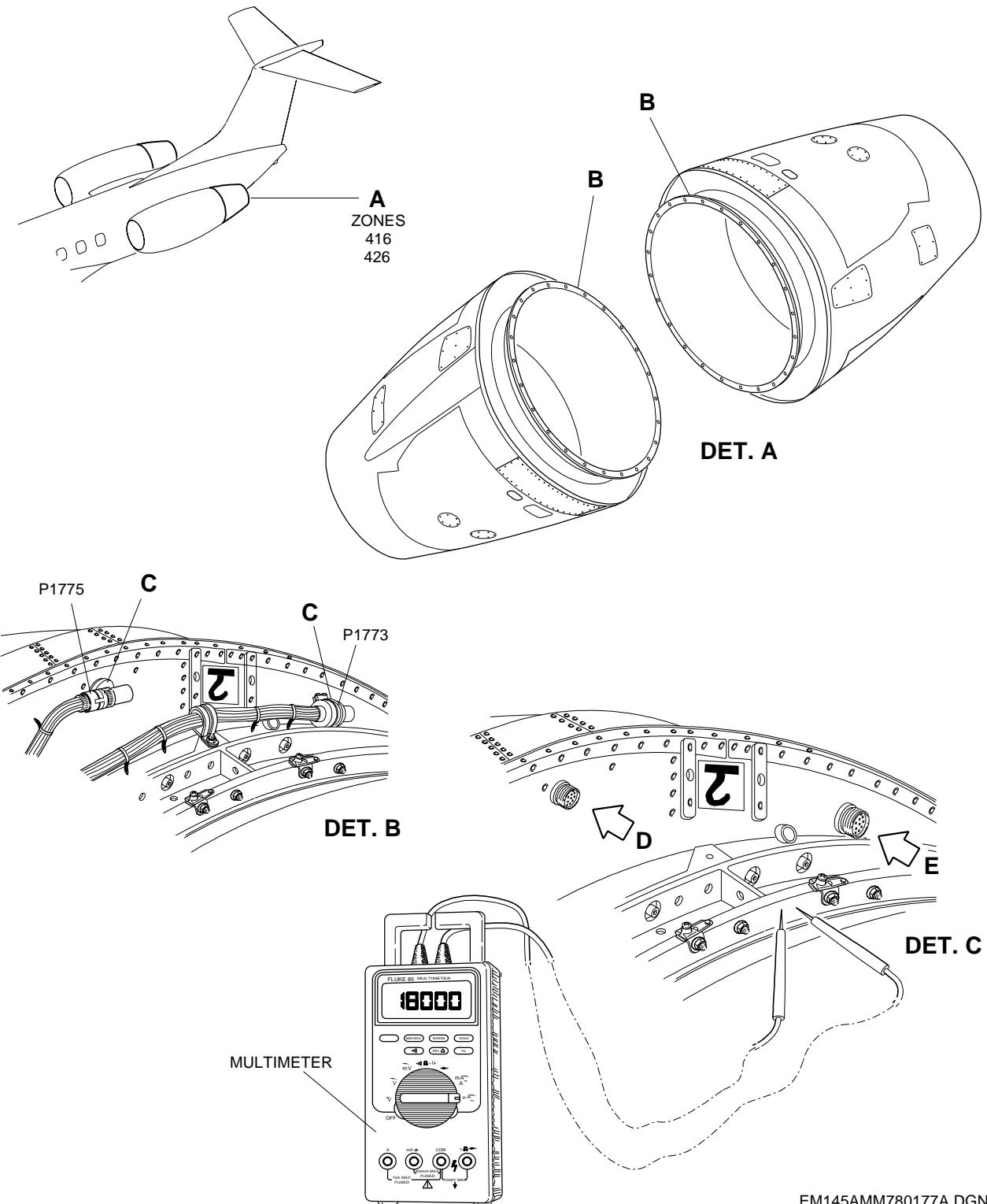
TORQUE: 9.0 TO 13.0 N.m (80 TO 115 Lb.in).

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EFFECTIVITY: ALL

Stow/Transit Switch - Test Procedure

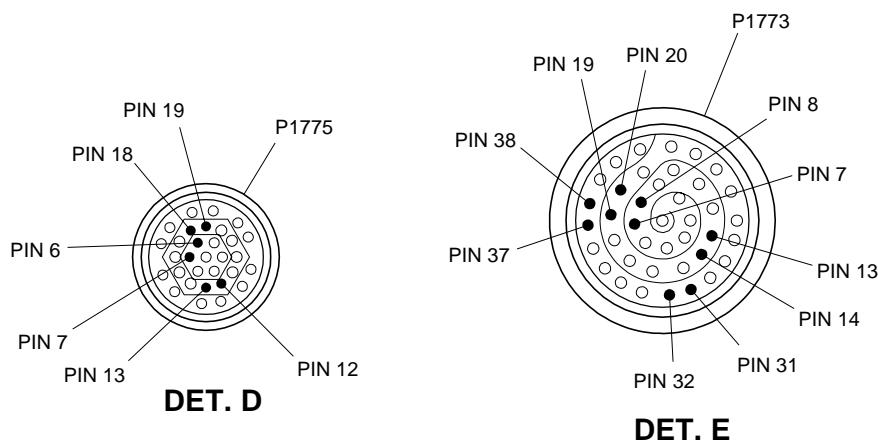
Figure 510 - Sheet 1



EFFECTIVITY: ALL

Stow/Transit Switch - Test Procedure

Figure 510 - Sheet 2



<u>UPPER PIVOT DOOR</u>		
<u>MICROSWITCH</u>	<u>HARNESS PLUG</u>	<u>PINS</u>
LEFT STOW	J1773	13 & 14
RIGHT STOW	J1775	18 & 19
TRANSIT	J1773	7 & 8
DEPLOY	J1773	31 & 32

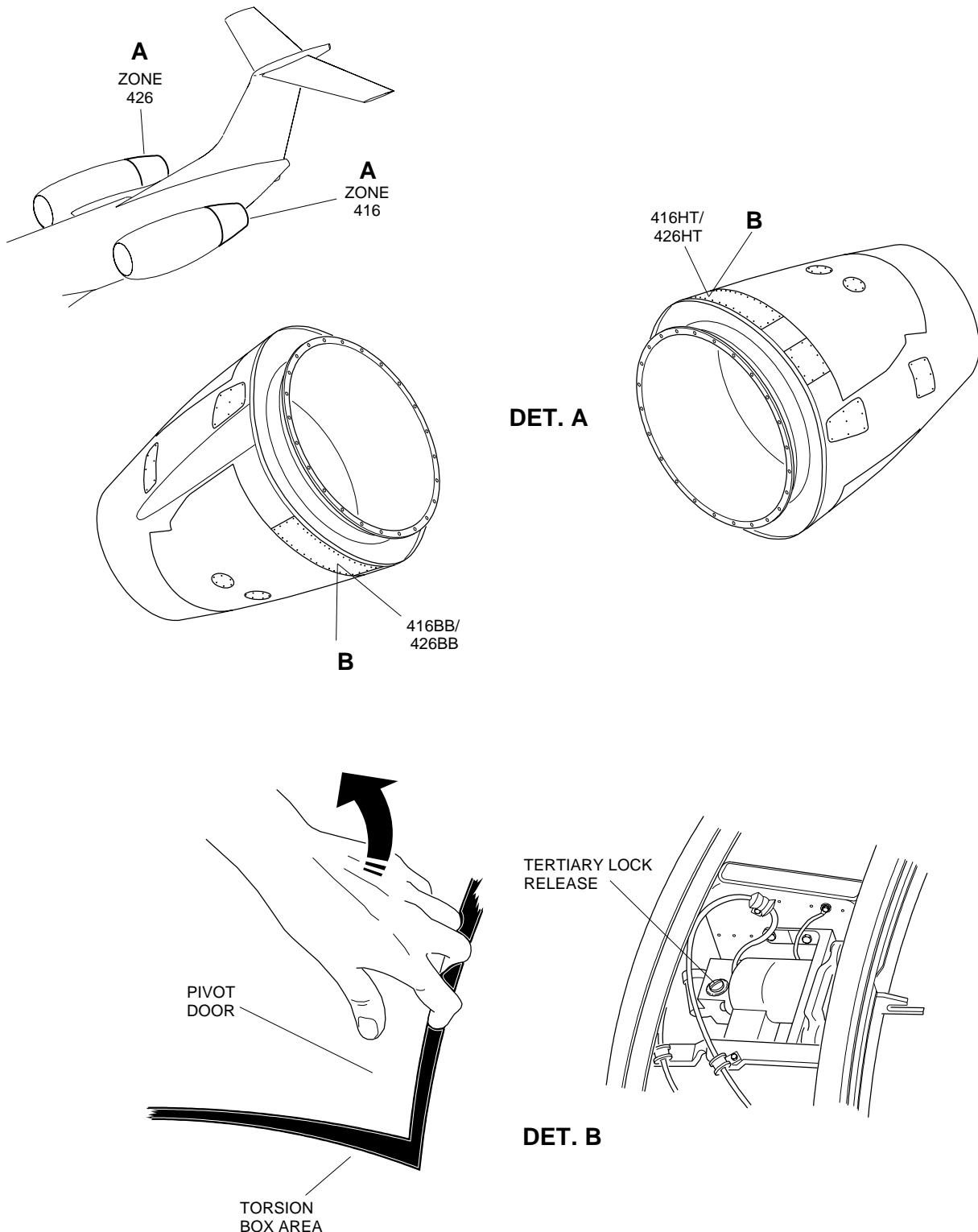
<u>LOWER PIVOT DOOR</u>		
<u>MICROSWITCH</u>	<u>HARNESS PLUG</u>	<u>PINS</u>
LEFT STOW	J1773	19 & 20
RIGHT STOW	J1775	12 & 13
TRANSIT	J1775	6 & 7
DEPLOY	J1773	37 & 38

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EFFECTIVITY: ALL

Secondary Lock Setting - Test Procedure

Figure 511

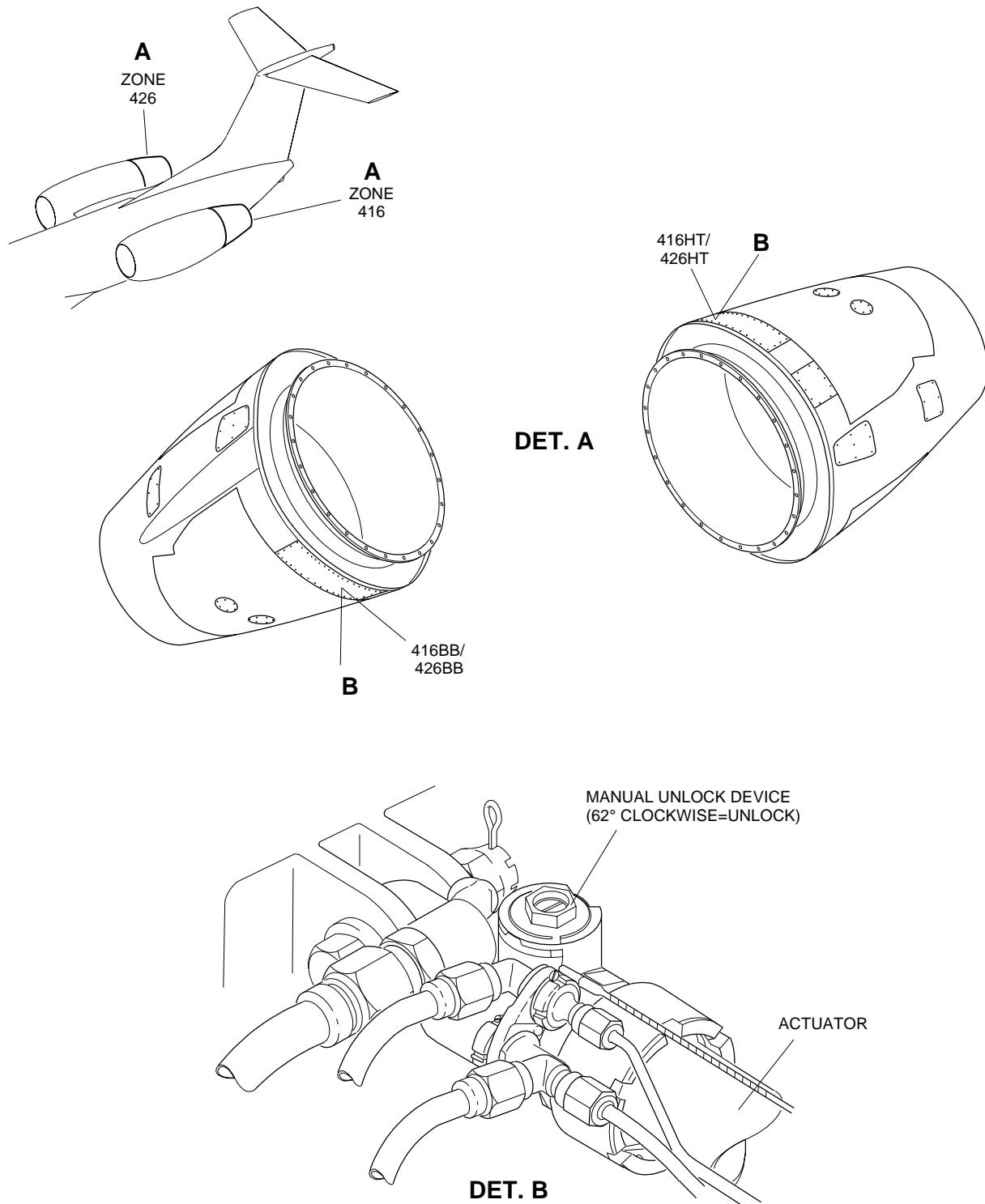


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EFFECTIVITY: ALL

Transit Switch - Test Procedure

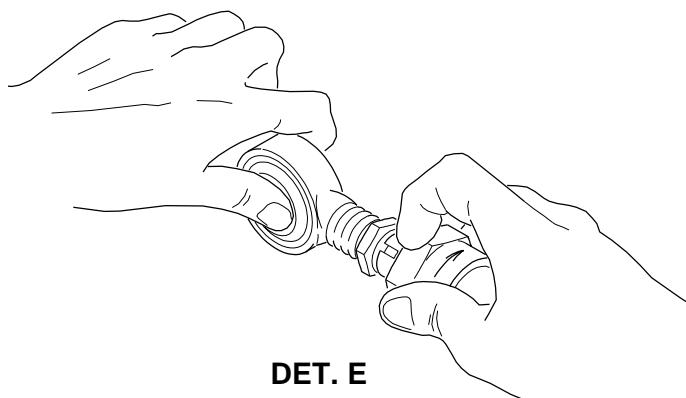
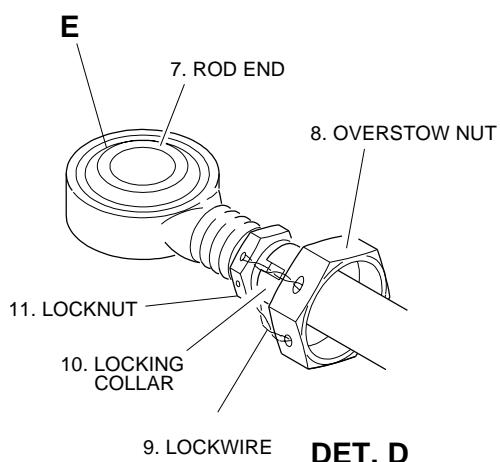
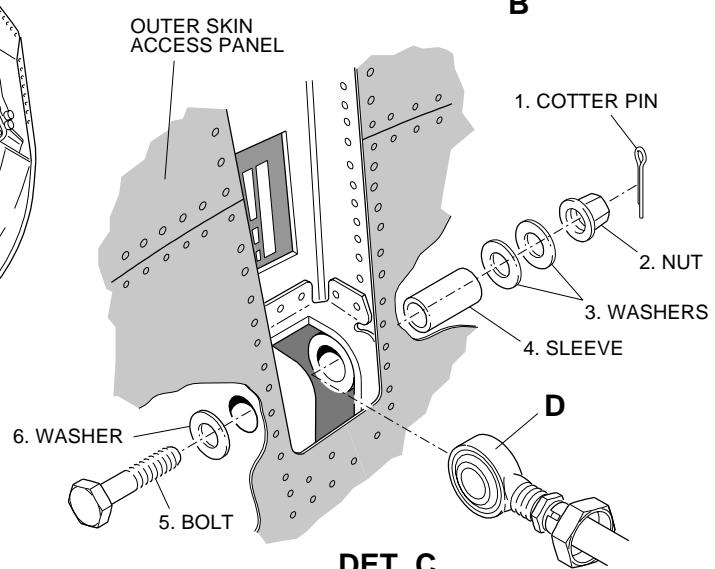
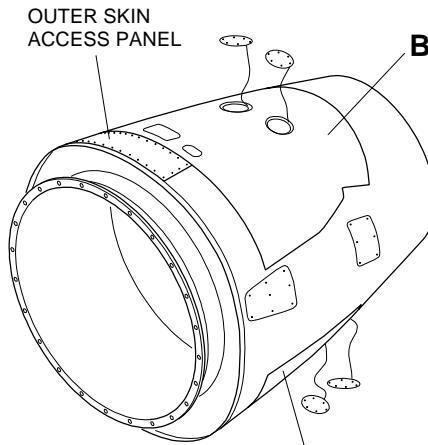
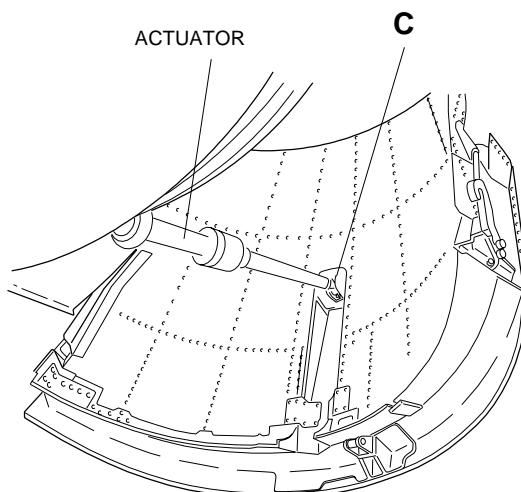
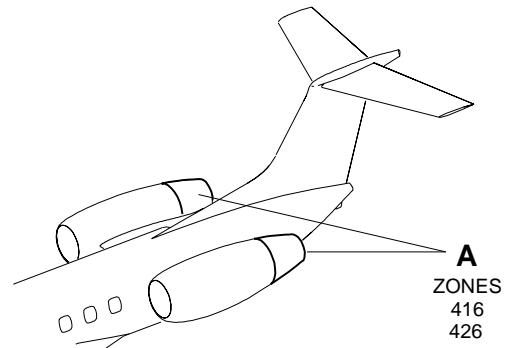
Figure 512



EM145AMM780179B.DGN

EFFECTIVITY: ALL

Secondary Lock - Adjustment Procedure
Figure 513

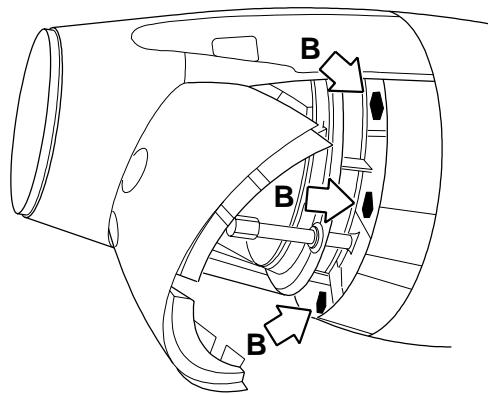
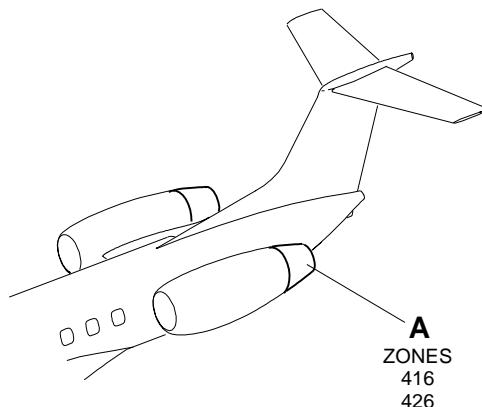


EM145AMM780180B.DGN

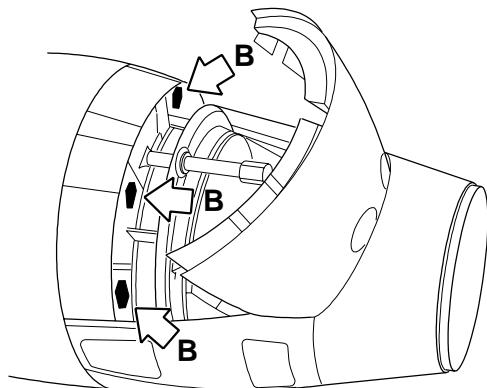
EFFECTIVITY: ALL

Stow/Transit Switches - Adjustment Procedure

Figure 514 - Sheet 1

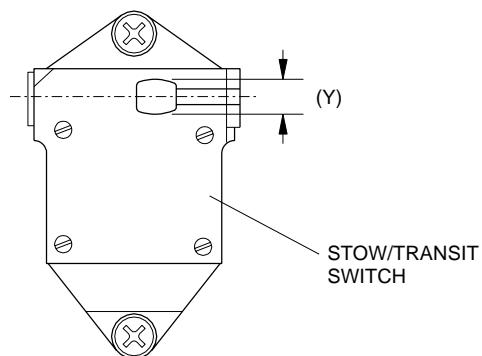


LOWER PIVOT DOOR



UPPER PIVOT DOOR

DET. A



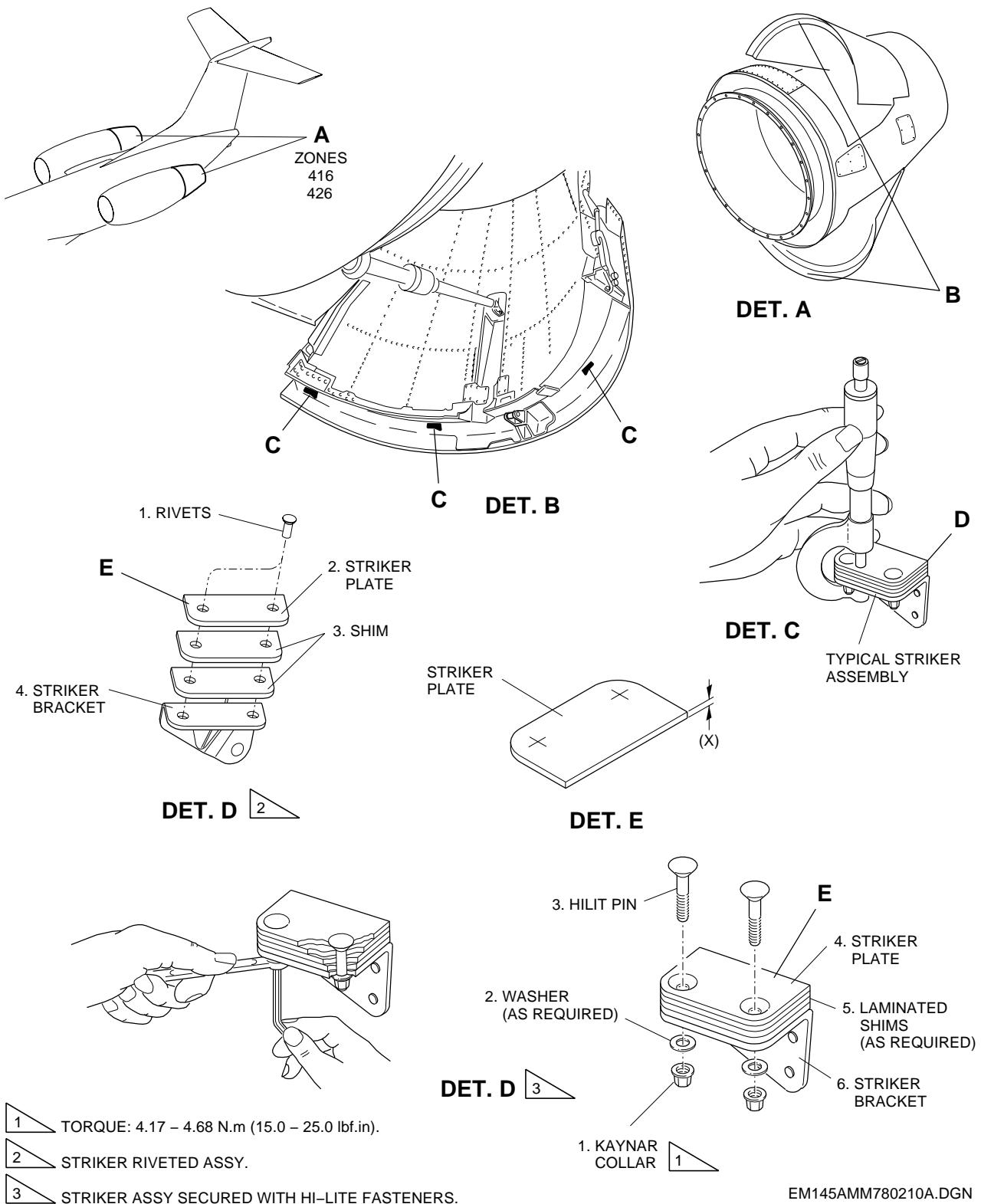
DET. B

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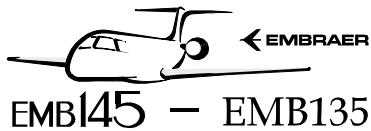
EFFECTIVITY: ALL

Stow/Transit Switches - Adjustment Procedure

Figure 514 - Sheet 2



EM145AMM780210A.DGN



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TASK 78-31-01-820-802-A

EFFECTIVITY: ALL

4. THRUST REVERSER - MANUAL RIGGING PROCEDURE

A. General

- (1) Obey these instructions to do the rigging of the thrust reverser.
- (2) Use a depth gauge to do this procedure.

NOTE: Make sure that the depth gauge is in good condition and at the correct calibration standard.

- (3) Do a test of the multi-meter audible function, make sure it works correctly.
- (4) This procedure is applicable to the LH and RH thrust reversers and to the upper and lower pivot doors.
- (5) In the rigging procedure there are some definitions to be considered, as follows:
 - (a) DATUM: This is the base position from where you measure all other dimensions.
 - (b) HOOK BALANCE: The allowable difference between the LH and RH door hooks in relation to the S-hooks.
 - (c) IN TO WIND or OUT OF WIND: These are the two different positions that a pivot door can be in when it is in the STOW position:
 - IN TO WIND: This is when the level of the pivot door is above the torsion box panel.
 - OUT OF WIND: This is when the level of the pivot door is below the torsion box panel.
 - (d) OVERSTOW: This is the first movement of the door in the deploy cycle when it moves below the torsion box panel in order to release the primary locks.
- (6) The table below gives the relation between the component replaced and the rigging checks to be done.

Table 503 - RIGGING CHECKS FOR THE COMPONENT REPLACED

COMPONENT REPLACED	RIGGING CHECKS TO BE DONE
Pivot door	All subtasks - complete rigging
Primary Lock S-Hooks	All subtasks - complete rigging
Primary Lock Door Hooks	All subtasks - complete rigging
Pivot Door Actuator	<ol style="list-style-type: none">1. SUBTASK 841-004-A2. SUBTASK 820-065-A3. SUBTASK 820-070-A4. SUBTASK 820-075-A5. SUBTASK 842-004-A
Stow and Transit Micro-switch	<ol style="list-style-type: none">1. SUBTASK 841-004-A2. SUBTASK 820-069-A (for stow microswitch) or SUB-TASK 820-071-A (for transit microswitch), as applicable.3. SUBTASK 842-004-A

Table 503 - RIGGING CHECKS FOR THE COMPONENT REPLACED (Continued)

COMPONENT REPLACED	RIGGING CHECKS TO BE DONE
Primary Lock Actuator	No Rigging Action
Tertiary Lock	No Rigging Action
Deploy Microswitch	No Rigging Action

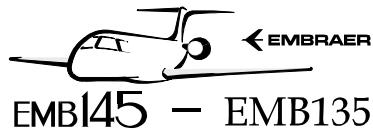
- NOTE:**
- For replacement of pivot door actuator or stow/transit microswitches, a complete rigging is not necessary if all other parameters of the thrust reverser are correct.
 - For replacement of primary lock actuator, tertiary lock and deploy microswitch, no rigging action is necessary. Only do the thrust reverser operational check ([AMM TASK 78-31-01-700-801-A/500](#)).

B. References

<i>REFERENCE</i>	<i>DESIGNATION</i>
78-31-02	-
78-31-03	-
78-32-01	-
78-32-02	-
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM MPP 78-34-01/400	- REMOVAL/INSTALLATION
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 78-31-01-700-801-A/500	THRUST REVERSER - OPERATIONAL CHECK
AMM TASK 78-32-01-980-801-A/200	ENGINE THRUST-REVERSER ACTUATOR (SECONDARY LOCK) - UNLOCK PROCEDURE
AMM TASK 78-33-01-980-801-A/200	ISOLATION CONTROL UNIT - INHIBITION PROCEDURES
S.B.145-78-0031	-
SRM 51-40-02/1	-

C. Zones and Accesses

<i>ZONE</i>	<i>PANEL/DOOR</i>	<i>LOCATION</i>
416	416LT	LH Thrust reverser
416	416QL	LH Thrust reverser
416	416PR	LH Thrust reverser
416	416DB	LH Thrust reverser
416	416HT	LH Thrust reverser
416	416BB	LH Thrust reverser
416	416MT	LH Thrust reverser
416	416NT	LH Thrust reverser



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(Continued)

ZONE	PANEL/DOOR	LOCATION
416	416FB	LH Thrust reverser
416	416GB	LH Thrust reverser
426	426LT	RH Thrust reverser
426	426QL	RH Thrust reverser
426	426PR	RH Thrust reverser
426	426DB	LH Thrust reverser
426	426HT	RH Thrust reverser
426	426BB	RH Thrust reverser
426	426MT	RH Thrust reverser
426	426NT	RH Thrust reverser
426	426FB	RH Thrust reverser
426	426GB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 340	Door Retaining Rod	To support the Pivot Door in the open position.	
Commercially available	Multimeter with audible continuity	To indicate the switch actuation point	
Commercially available	Vernier caliper	To indicate the overstop position	
Commercially available	Depth Gauge	To rig the Thrust Reverser	

E. Auxiliary Items

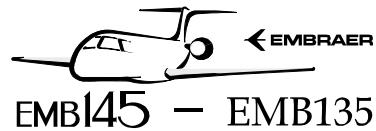
Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MS20995	Lockwire	AR
PR1791A	Sealant	AR
MS20426AD4()	Rivet	6

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin - MS24665-153	78-32-02	1
Cotter pin - MS24665-153	78-31-03	4
Cotter pin - MS24665-151	78-31-02	4



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(Continued)

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin - MS24665-302	78-32-01	1

H. Persons Recommended

QTY	FUNCTION	PLACE
2	Do the task	Thrust Reverser

I. Preparation ([Figure 515](#)) ([Figure 516](#))

SUBTASK 841-004-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

- MAKE SURE THE AIRCRAFT HYDRAULIC SYSTEM IS NOT PRESSURIZED AND THAT A TEST HYDRAULIC STAND IS NOT CONNECTED.

- (1) Make sure that the aircraft is safe for maintenance.
- (2) On the circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them.
 - THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.
- (3) Put the workstand in the work area.
- (4) Inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (5) Remove access panels 416QL, 416PR, 416LT, 416DB, 416HT, 416BB or 426QL, 426PR, 426LT, 426DB, 426HT, and 426BB ([AMM MPP 06-43-00/100](#)), as applicable.

NOTE: If it is difficult to remove the primary lock actuator access panels (416QL, 416 PR or 426QL, 426 PR), remove the inner S-hook panels (416IZ, 416ZZ or 426IZ, 426ZZ) and push the access panel free.
- (6) Disconnect the left and right link arms from the primary lock actuators as follows (refer to [Figure 515](#)):
 - (a) Remove and discard the cotter pin (1).
 - (b) Remove the nut (2), washers (3), and bolt (4).
 - (c) Disconnect the link arm (5) from the primary lock actuator (6).

- (7) Loosen the screw (1) to remove the plug (2) from the inhibition bolt location. Refer to [Figure 516](#).
- (8) Install approximately 6,0 mm (0.236 in.) of cup washers on the applicable inhibition bolt. Refer to DET. D of [Figure 516](#).
- (9) Install the inhibition bolts in the socket. Refer to DET. C of [Figure 516](#).

J. Pivot Door Hook Balance - Test Procedure ([Figure 518](#))

SUBTASK 820-064-A

- (1) Prepare the TR for Checks as follows:
 - (a) Slowly tighten the inhibition bolt to move the door OUT OF WIND until the LH S-hook can be disengaged. Refer to DET. B of [Figure 518](#).
 - (b) Disengage the LH S-hook.
 - (c) With the LH S-hook disengaged, slowly loosen the inhibition bolt until the RH S-hook engages (the S-hook cannot be moved easily by hand).
 - (d) With a depth gauge, check the STOW position of the pivot door. This is the difference in height between the surface of the pivot door and the surface of the torsion box panel. Refer to DET. B of [Figure 518](#).
 - (e) Record the STOW position with the RH S-hook engaged.
 - 1 The difference in height must be no more than ± 1.5 mm (0.065 in.).
 - (f) Slowly tighten the inhibition bolt until the pivot door moves OUT OF WIND sufficiently to disengage the S-hooks. Refer to DET. C of [Figure 518](#).
 - (g) Disengage the RH S-hook.
 - (h) Move the LH S-hook in position to engage the door hook.
 - (i) With the RH S-hook disengaged, slowly loosen the inhibition bolt until the LH S-hook engages (the S-hook cannot be moved easily by hand).
 - (j) With a depth gauge, check the STOW position of the pivot door. This is the difference in height between the surface of the pivot door and the surface of the torsion box panel.
 - (k) Record the STOW position with the LH S-hook engaged.
 - 1 The difference in height must be no more than ± 1.5 mm (0.065 in.).
 - (l) Calculate the hook balance:

NOTE: This is the difference between the dimension recorded at step (k) and the dimension recorded at step (e).

 - 1 The difference must not be more than 0,9 mm (0.035 in.).

K. Pivot Door Overstow - Test Procedure ([Figure 517](#)) ([Figure 519](#)) ([Figure 520](#))

SUBTASK 820-065-A

CAUTION: IF YOU TRY TO CLOSE THE DOOR FURTHER THAN THE DOOR STOPS YOU CAN TWIST AND DAMAGE THE DOOR STRUCTURE. TO MAKE SURE THAT YOU DO NOT TWIST AND DAMAGE THE DOOR, USE A VERNIER CALIPER TO SHOW WHEN PIVOT DOOR MOVEMENT STOPS.

- (1) Do the check of the left pivot door primary lock settings as follows:
 - (a) Make sure the pivot door is in the STOW position on the LH hook (LH S-hook cannot be moved easily by hand). If it is not, do these steps below:
 - 1 Slowly tighten the inhibition bolt to move the door OUT OF WIND until the RH S-hook can be disengaged. Refer to DET. B of [Figure 518](#).
 - 2 Disengage the RH S-hook.
 - 3 With the RH S-hook disengaged, slowly loosen the inhibition bolt until the LH S-hook engages (the S-hook cannot be moved easily by hand).
 - (b) On the LH and RH side of the door, mark a point on the beam skin approximately 65,00 mm (2.6 in.) aft of the leading edge. Refer to [Figure 517](#).
 - (c) Put the vernier caliper in the gap at the marked position on the LH side of the door. Refer to DET. B of [Figure 519](#).
 - (d) Zero the display. Hold the vernier caliper in position.
 - (e) Slowly tighten the inhibition bolt to move the door OUT of WIND. Do not tighten the bolt too much. At the same time watch the caliper display to see when the door stops
 - (f) Check the door actuator for a gap between the overstow nut and the actuator body. If there is a gap continue from step (i). Refer to DET C of [Figure 520](#).
 - (g) If there is no gap do these steps:
 - 1 Remove and discard the lockwire (3) from the locknut (4).
 - 2 Loosen the locknut (4) and disengage the locking collar (5).
 - 3 Loosen the overstow nut (2) to get the necessary gap.
 - 4 Tighten the inhibition bolt again until the door stops.
 - 5 Check the actuator again for a gap between the overstow nut (2) and the actuator body (1) .
 - 6 If there is no gap do steps (d) thru (f) until you get a gap.
 - 7 Engage the locking collar (5).
 - 8 Tighten the locknut (4) with your hand.

NOTE: The pivot door now stops against the LH door stop.

- (h) Record the movement of the door at the LH side:
 - 1 Record the vernier caliper reading. The reading must be a minimum of 2,3 mm (0.090 in.).
 - 2 If the reading is not in limits, adjust the door hooks ([SUBTASK 820-067-A](#)) after ([SUBTASK 820-066-A](#)) has been done.
- (i) Remove the vernier caliper from the LH side of the door.
- (j) Insert the vernier caliper at the marked position on the RH side.
- (k) Keep the vernier caliper in position.
- (l) Do steps (d) thru (h) for the RH side.

NOTE: If the door is against the RH door stop, no movement will be seen.

CAUTION: THE POSITION OF THE OVERSTOW NUT IS ESSENTIAL FOR THE CORRECT OPERATION OF THE PRIMARY LOCKS. MAKE SURE THE OVERSTOW NUT DOES NOT TURN WHEN YOU TIGHTEN THE LOCKNUT.

- (2) Do a check and adjust the gap of the actuator overstow nut as follows (refer to DET. C of [Figure 520](#)):

- (a) Use a suitable gauge to check the gap between the overstow nut (2) and the actuator body (1). The gap must be 1.0 mm + 0.3 mm (0.039 in + 0.012 in).

NOTE: If the actuator heatshield is installed, it may be necessary to trim back the edge of the heatshield to insert the slip gauge.

- (b) If the gap is not in limits do these steps:

- 1 Set the gap with a 1.0mm (0.039 in.) gauge
- 2 Remove the gauge.
- 3 With a 1,3mm (0.041 in.) gauge, make sure the gap is not out of limits.
- 4 Put the locking collar (5) on the overstow nut (4).

NOTE: It may be necessary to loosen the overstow nut by one castellation to install the locking collar. Do not loosen the nut by more than one castellation.

- 5 Tighten the locknut (4) with your hand. Do not safety the locknut.

NOTE: The torque setting of the locknut and the installation of lockwire is done later in this procedure. Refer to [SUBTASK 820-075-A](#).

- (3) Do the check of the Right Pivot Door Primary Lock settings, as follows (refer to DET. C of [Figure 519](#)):

- (a) Disengage the LH S-hook.
- (b) Move the RH S-hook in position to engage the door hook.

- (c) Put the vernier caliper in the gap at the marked position on the RH side of the door.
- (d) Zero the caliper display.
- (e) Remove the vernier caliper.
- (f) Slowly loosen the inhibition bolt to fully engage the RH S-hook. (S-hook cannot be moved easily by hand).
- (g) Record the movement of the door at the RH side:
 - 1 Take a measurement with the vernier caliper.
 - 2 Record the reading from the vernier caliper. The reading must be a minimum of 2,3 mm (0.090 in.).
 - 3 If the readings are not in limits adjust the door hooks ([SUBTASK 820-067-A](#)) to get the correct reading after ([SUBTASK 820-066-A](#)) has been done.

L. Pivot Door Datum (Flight Position) - Test Procedure

SUBTASK 820-066-A

- (1) Tighten the inhibition bolt to move the door sufficiently so that both S-hooks can move freely.
- (2) Engage the LH S-hook.
- (3) Make sure the RH S-hook is still in a position so that it will engage.
- (4) Slowly loosen the inhibition bolt to engage both S-hooks (S-hooks cannot be moved easily by hand).
- (5) With a depth gauge, check if the flight position is in tolerance:
 - (a) Check the height of the pivot door with the torsion box panel.
 - 1 The height of the pivot door must be $\pm 1,5$ mm (± 0.059 in.) from the top of the torsion box panel.
- (6) If the flight position is out of tolerance, do as follows:
 - (a) Measure the step and record the dimension.
 - (b) Adjust the position of the pivot door hooks as necessary. Refer to [SUBTASK 820-067-A](#) to correct the measure.

M. Pivot Door Hooks - Adjustment Procedure ([Figure 521](#))

SUBTASK 820-067-A

- (1) The following procedure details the steps necessary to adjust the pivot door hooks (refer to [Figure 521](#)):

For the adjustment information of the applicable door hook refer to Table 503.

Only do this procedure if any or all of these settings are out of limits:

- Hook balance
- Flight position
- Overstow position

CAUTION: IF ANY OF THE ADJUSTMENTS ON THE THRUST REVERSER DOORS ARE OUT OF THE SPECIFIED TOLERANCES, THE THRUST REVERSER MAY NOT FUNCTION CORRECTLY. WHEN YOU ADJUST THE PIVOT DOOR HOOKS, MAKE SURE THAT ALL ADJUSTMENTS LIMITS STAY WITHIN THE SPECIFIED TOLERANCES.

- (2) When you adjust the pivot door hooks, make sure that these adjustments stay in tolerance:
 - LEFT & RIGHT HOOK BALANCE = 0.9 mm (0.035 in) MAXIMUM.
 - LEFT PRIMARY LOCK OVERSTOW = 2.3 mm (0.090 in) MINIMUM.
 - RIGHT PRIMARY LOCK OVERSTOW = 2.3 mm (0.090 in) MINIMUM.
 - FLIGHT POSITION = \pm 1.5 mm (0.060 in).
- (3) Slowly tighten the inhibition bolt to move the door to overstow sufficiently to release both S-hooks.
- (4) Move the S-hooks clear of the door hooks.
- (5) Remove the inhibition bolt.

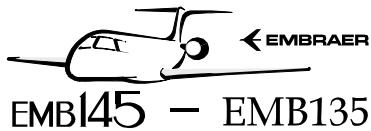
CAUTION: DAMAGE TO THE PIVOT DOOR ACTUATOR ROD CAN DAMAGE THE ACTUATOR SEALS. THIS CAN CAUSE HYDRAULIC FLUID TO LEAK FROM THE ACTUATOR. BE CAREFUL NOT TO DAMAGE THE ACTUATOR ROD WHEN YOU WORK NEAR THE PIVOT DOOR ACTUATOR.

- (6) Manually open the thrust reverser door as follows:
 - (a) Pull the pivot door open with your hand
 - (b) Use a spanner to disengage the secondary ([AMM TASK 78-32-01-980-801-A/200](#)).
 - (c) Pull the pivot door open with your hand to release the lock.
 - (d) If the tertiary lock is not released, use a screwdriver to disengage the lock.
 - (e) Put the door fully deployed.
- (7) Get the hold-open device from the bulkhead.
- (8) Install the hold-open device on the actuator rod. Refer to DET. A of [Figure 521](#).
- (9) Mark the position of the applicable door hook with a felt tip pen.
- (10) Remove and discard the four cotter pins (1).
- (11) Hold the door hook and loosen the four nuts (2). Do not remove the nuts.

- (12) Move the door hook the necessary number of serrations to get the correct hook position.
- NOTE: One serration equals 0,9 mm (0.035 in.) of movement.
- (13) Hold the door hook and tighten the nuts. Make sure the door hook does not move when you tighten the nuts.
- (14) Torque the nuts to between 9,0 and 13,0 N.m (80.0 and 115.0 lbf.in.).
- (15) Remove the hold-open device.
- (16) Manually close the thrust reverser doors.
- (17) Do steps J.(1) and J.(3) of **SUBTASK 820-065-A** and **SUBTASK 820-066-A** again to check that the primary lock, overstow and flight positions are in limits.
- (18) Safety the nut with a new cotter pin.
- (19) Apply torque seal to the nut.

Table 504 - HOOK ADJUSTMENTS

OUT OF LIMITS SETTING	LH HOOK	RH HOOK	BOTH HOOK S	REASON	DIRECTION OF ADJUSTMENT
Overstow Movement					NOTE: One serration is equal to 0,9 mm of movement.
LH Less than 2.3 mm	AD-JUST			Must be a minimum of 2.3 mm - To make sure the primary locks disengage or engage with the door in the OVERSTOW position	Move the door hooks inwards of the TR to increase the reading
RH Less than 2.3 mm		AD-JUST			
Hook Balance					
If LH Overstow Movement is less than RH	AD-JUST			The hook balance must be 0,9 mm or less. If it is more than this the STOW microswitch can give a false signal.	Move the door hook with the lowest Overstow Movement.
If RH Overstow Movement is less than LH		AD-JUST			Move the door hook inwards of the TR.
Flight Datum (Flight Position)					
More than \pm 1.5 mm			AD-JUST	The IN TO WIND or OUT OF WIND step must be less than 1,5 mm to get the doors in the best aerodynamic position. The Flight Position is the Datum for all other readings and settings.	Do this adjustment after the Overstow Movement and Hook Balance adjustment. Move both hooks the same number of serrations and in the same direction. If the door is IN TO WIND, move both hooks outwards of the TR. If the door is OUT OF WIND, move both hooks inwards of the TR.



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N. Pivot Door Overstow Position - Final Check Procedure ([Figure 515](#)) ([Figure 519](#))

SUBTASK 820-068-A

- WARNING:** • REFER TO THE GROUND SAFETY PRECAUTIONS GIVEN IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.
- BE CAREFUL WHEN YOU OPERATE THE THRUST REVERSERS. MAKE SURE THAT THE THRUST REVERSERS ARE CLEAR. INJURY TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do the final check of the pivot door overstow position as follows:

(a) Make sure that the left and right S-hooks are disconnected from the primary lock actuators. If they are connected, do these steps to disconnect them (refer to [Figure 515](#)):

- 1 Remove and discard the cotter pin (1).
- 2 Remove the nut (2), washers (3) and bolt (4).
- 3 Disconnect the link arm (5) from the primary lock actuator (6).

NOTE: Keep the attaching parts for reinstallation.

(b) Loosen the inhibition bolt manually. Let the left and right S-hooks fully engage with the pivot door hook as the pivot door moves to the flight position under seal pressure.

(c) Try to move the left S-hook manually. If it can be moved, then it is not fully engaged. Do the same procedure as for the right S-hook.

(d) Continue to loosen the inhibition bolt until the S-hook cannot be moved. The S-hooks are now fully engaged.

(e) On the left and right sides of the pivot door, at a point 65.0 mm (2.6 in) aft of the leading edge insert the inside measuring contacts of a digital vernier caliper. Record the measurements. Refer to DET. B of [Figure 519](#).

(f) Remove the inhibition bolt.

(g) Connect the left and right primary lock actuators as follows (refer to [Figure 515](#)):

- 1 Connect the link arm (5) to the primary lock actuator (6).
- 2 Install the bolt (4) and the washer (3).
- 3 Install the washer (3) and the nut (2).
- 4 Tighten the nut and install a new cotter pin (1).

(h) On the circuit breaker panel, make sure that these circuit breakers are open:

- THRUST REVERSER 1.
- THRUST REVERSER 2.

- HYD. ELEC. PUMP 1.
- HYD. ELEC. PUMP 2.

- (i) Disconnect the electrical connector of one of the stow switches (P1780 or P1782 or P1787 or P1788).

NOTE: Do not remove the switch to disconnect the electrical connector. Or this will change the setting position of the switch.

- (j) Install a jumper between pins 1 and 3 of the disconnected electrical connector.
- (k) Make sure that the thrust levers are in the Idle position.
- (l) Deinhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (m) On the circuit breaker panel, close these circuit breakers and remove the DO-NOT-CLOSE tags from them:
- THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.

WARNING: THIS OPERATION WILL CAUSE A MOVEMENT OF THE THRUST REVERSER DOORS TO THE OVERSTOW POSITION. MAKE SURE THAT THE THRUST REVERSERS ARE CLEAR. INJURY TO PERSONS AND/OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (n) Pressurize the aircraft hydraulic system ([AMM TASK 29-10-00-860-802-A/200](#)).
- The doors will go to the overstowed position.

WARNING: WHEN YOU MUST DO A TASK ON THE THRUST REVERSER, PUT UP APPLICABLE WARNING SIGNS, SUCH AS, "DO NOT OPERATE THE ENGINE CONTROLS". TO PREVENT INJURY TO PERSONS.

- (o) On the left and right sides of the pivot door, at a point 65.0 mm (2.6 in) aft of the leading edge insert the inside measuring contacts of a digital vernier caliper. Record the measurements. Refer to DET. B of [Figure 519](#).
- (p) Subtract the measurements taken in step (o) from that taken in step (e).
- The results for LH and RH sides must be 2.3 mm (0.090 in) minimum.
- (q) On the circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them:
- THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.

- (r) Inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (s) Remove the jumper between pins 1 and 3 of the stow switch electrical connector.
- (t) Connect the stow electrical connector.

CAUTION: IF YOU ADJUST THE POSITION OF THE HOOKS, MAKE SURE YOU MOVE THE TWO HOOKS THE SAME AMOUNT TO KEEP THE HOOK BALANCE OF \pm 0.9 MM (0.035 IN) AND TO KEEP THE FLIGHT POSITION OF THE DOOR WITHIN \pm 1.5 MM (0.06 IN).

- (u) if you do not get a minimum movement of 2.3 mm (0.090 in) when you do step (p), do [SUBTASK 820-067-A](#) again.

O. Stow Microswitches - Test Procedure ([Figure 522](#)) ([Figure 523](#))

SUBTASK 820-069-A

- (1) Install approximately 6,0 mm (0.236 in.) of cup washers on the applicable inhibition bolt.
- (2) Install the inhibition bolt to the sockets.
- (3) Put the door in the flight position:
 - (a) Tighten the inhibition bolt to move the door sufficiently so that both S-hooks can move freely.
 - (b) Make sure the LH and RH S-hooks are in a position so that they will engage.
 - (c) Loosen the inhibition bolt to engage both S-hooks (S-hooks cannot be moved easily by hand).
- (4) Put the torsion box access panels in position.
- (5) Install four screws adjacent to the inhibition bolt socket. Refer to DET. B of [Figure 522](#).
- (6) With a depth gauge, check the flight position:
 - (a) Check the height of the pivot door against the torsion box panel. Refer to DET. C of [Figure 522](#):
 - 1 The height of the pivot door must be \pm 1,5 mm (\pm 0.059 in.) from the top of the torsion box panel.
 - 2 If the flight position is out of tolerance, adjust the position of the pivot door hooks as necessary. Refer to [SUBTASK 820-067-A](#) to correct the measure.
 - (b) Record this as Dimension A.

NOTE: Dimension A is the datum used to calculate the point of operation of the STOW and TRANSIT microswitches and the secondary lock setting.
- (7) Tighten the inhibition bolt to move the door to the overstow position until the LH and RH S-hooks disengage.
- (8) Move the S-hooks clear of the door hooks.

- (9) Loosen the inhibition bolt until the door is held by the tertiary lock or the secondary lock.
- (10) Do this check to make sure the upper and lower left stow switches are correctly adjusted (refer to [Figure 523](#)):
 - (a) Disconnect electrical connector P1773.
 - (b) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to Sheet 2 of [Figure 523](#) to locate the correct pins.
 - (c) On the multimeter monitor the continuity indicating beep.
 - (d) Slowly turn the inhibition bolt to close the pivot door until the beep must be heard.
 - (e) Calculate the operation point of the LH stow microswitch:
 - 1 Measure the difference in height between the pivot door and the torsion box access panel.
 - 2 With a depth gauge, make the measurement adjacent to the inhibition bolt socket.
 - 3 Record the difference as Dimension B.
 - 4 Get Dimension A as recorded in Step (6) (b).
 - 5 Calculate Dimension C:
 - a If Dimension A is Out of Wind add to Dimension B.
 - b If Dimension A is In to Wind subtract from Dimension B.
 - 6 Dimension C must be between 3,0 and 4,0 mm (0.118 and 0.157 in.).
- NOTE: If the reading is out of limits, record the reading.
- (11) Loosen the inhibition bolt until the door is stopped by the tertiary lock or the secondary lock.
- (12) Do this check to make sure the upper and lower right stow switches are correctly adjusted (refer to [Figure 523](#)):
 - (a) Disconnect electrical connector P1775.
 - (b) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to Sheet 2 of [Figure 523](#) to locate the correct pins.
 - (c) On the multimeter monitor the continuity indicating beep.
 - (d) Slowly turn the inhibition bolt to close the pivot door until the beep must be heard.
 - (e) Calculate the operation point of the applicable RH stow microswitch:

- 1 Measure the difference in height between the pivot door and the torsion box panel.
- 2 With a depth gauge, make the measurement adjacent to the inhibition bolt socket.
- 3 Record the difference as Dimension B.
- 4 Get Dimension A as recorded in Step (6) (b).
- 5 Calculate Dimension C:
 - a If Dimension A is Out of Wind add to Dimension B.
 - b If Dimension A is In to Wind subtract from Dimension B.
 - c The difference in height must be between 3,0 and 4,0 mm (0.118 and 0.157 in.). This shows the actual point the RH stow microswitch operates.

- (13) If the points of operation are out of limits, record the reading.
- (14) Loosen the inhibition bolt until the door is stopped by the tertiary lock or the secondary lock.
- (15) If the LH or RH Dimension C is in limits:
 - (a) Install the remaining screws in the torsion box access panel if you do not need to check the Secondary Lock or Transit Switch positions.
- (16) If the readings for the LH or RH microswitch are out of limits, adjust the stow microswitches striker assemblies ([SUBTASK 820-074-A](#)) after you complete the deploy operation check ([SUBTASK 820-072-A](#)).

NOTE: Follow the sequence of subtasks as given here. Do the adjustment only when the pivot doors are open in [SUBTASK 820-072-A](#).
- (17) Do steps O.(7) thru O.(16) again. Make sure the stow microswitch actuation point is in tolerance. Adjust again if necessary.

P. Secondary Lock - Test Procedure ([Figure 524](#))

SUBTASK 820-070-A

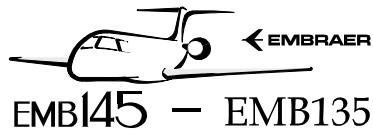
- (1) If [SUBTASK 820-069-A](#) (O.) has not been done, do steps O.(1) to (9).

NOTE: The cause to refer the subtask above is to know the flight position datum (Dimension A) used in this procedure.

- (2) Remove the torsion box access panel.
- (3) Remove the inhibition bolt and the cup washers.
- (4) Pull the pivot door open with your hand. Refer to [Figure 524](#)
- (5) Use a screwdriver to disengage the tertiary lock.

WARNING: BE VERY CAREFUL WHEN YOU MOVE THE THRUST REVERSER DOORS MANUALLY. IF YOU DO NOT OBEY THIS PRECAUTION, INJURY TO PERSONS AND/OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (6) Pull the door again with your hand until it is held by the secondary lock.
 - (7) Put the torsion box access panel in position.
 - (8) Install four screws adjacent to the inhibition bolt location.
 - (9) Calculate the secondary lock setting:
 - (a) Measure the difference in height between the edge of the pivot door and the torsion box access panel while holding the door against the secondary lock.
 - (b) With a depth gauge, make the measurement adjacent to the inhibition bolt socket.
 - (c) Record the difference as Dimension B.
 - (d) Get Dimension A as recorded in [SUBTASK 820-069-A](#) (O.) step (6) (b).
 - (e) Calculate Dimension C:
 - 1 If Dimension A is Out of Wind add to Dimension B.
 - 2 If Dimension A is In to Wind subtract from Dimension B.
 - 3 Dimension C must be between 6,0 mm and 12,5 mm (0.236 and 0.492 in.).
 - (10) If Dimension C is within limits, obey these effectivities:
 - (a) (For partial thrust reverser rigging - thrust-reverser door actuator replaced) Install the remaining screws in the torsion box access panel and refer to [SUBTASK 820-075-A](#) and [SUBTASK 842-004-A](#) to complete the door-actuator rigging procedure.
 - (b) (For complete thrust reverser rigging) Refer to [SUBTASK 820-071-A](#) to continue the thrust-reverser rigging procedure.
 - (11) If Dimension C is out of limits, obey these effectivities:
 - (a) (For partial thrust reverser rigging - thrust-reverser door actuator replaced) Adjust the secondary lock [SUBTASK 820-073-A](#) and then refer to [SUBTASK 842-004-A](#) to complete the door actuator rigging procedure.
 - (b) (For complete thrust reverser rigging) Adjust the secondary lock [SUBTASK 820-073-A](#) after you complete the deploy operation check ([SUBTASK 820-072-A](#)).
- NOTE:** Follow the sequence of subtasks as given here. Do the adjustment only after the pivot doors are opened in [SUBTASK 820-072-A](#).
- Q. Transit Microswitch - Test Procedure ([Figure 523](#)) ([Figure 525](#))
[SUBTASK 820-071-A](#)
- (1) If [SUBTASK 820-069-A](#) (O.) has not been done, do steps O.(1) to (9).



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NOTE: The cause to refer the subtask above is to know the flight position datum (Dimension A) used in this procedure.

- (2) Do this check to make sure the transit switch is correctly adjusted.
- (3) Disconnect electrical connector P1773 for upper transit switch or P1775 for lower transit switch. Refer to DET. B of [Figure 523](#).
- (4) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to Sheet 2 of [Figure 523](#) to locate the correct pins for the upper and lower transit switch.

NOTE: The multimeter will beep when the leads are connected.
- (5) If necessary remove screws and torsion box access panel.
- (6) Use a spanner to disengage the secondary lock. Manually open the pivot door to release the lock. Refer to DET. B of [Figure 525](#).
- (7) If the tertiary lock has not released use a screwdriver to disengage the tertiary lock.
- (8) Install the inhibition bolt and cup washers if necessary.
- (9) Loosen the inhibition bolt and open the pivot door until the beeping stops.
- (10) On the multimeter monitor the continuity indicating beep.
- (11) Slowly tighten the inhibition bolt to close the pivot door until the beep must be heard.
- (12) Put the torsion box access panel in position.
- (13) Install four screws adjacent to the inhibition bolt socket.
- (14) Calculate the operation point of the transit microswitch:
 - (a) Measure the difference in height between the pivot door and torsion box access panel.
 - (b) With a depth gauge, make a measurement adjacent to the inhibition bolt socket.
 - (c) Record the difference as Dimension B.
 - (d) Get Dimension A as recorded in [SUBTASK 820-069-A](#) (O.) step (6) (b).
 - (e) Calculate Dimension C:
 - 1 If Dimension A is Out of Wind add to Dimension B.
 - 2 If Dimension A is In to Wind subtract from Dimension B.
 - (f) Dimension C must be between 17,0 mm and 19,0 mm (0.669 and 0.748 in.).
- (15) If the reading for transit switch is within limits, obey these effectivities:
 - (a) (For partial thrust reverser rigging - transit switch replaced) Do [SUBTASK 842-004-A](#) to complete the transit switch rigging procedure.

- (b) (For complete thrust reverser rigging) Refer to [SUBTASK 820-072-A](#) to continue the thrust-reverser rigging procedure.

- (16) If the reading for transit switch is out of limits, obey these effectivities:
- (a) (For partial thrust reverser rigging - transit switch replaced) Adjust the transit switch actuation point [SUBTASK 820-074-A](#) and then refer to [SUBTASK 842-004-A](#) to complete the transit switch rigging procedure.
 - (b) (For complete thrust reverser rigging) Adjust the transit switch actuation point [SUBTASK 820-074-A](#) after you complete the deploy operation check ([SUBTASK 820-072-A](#)).

NOTE: Follow the sequence of subtasks as given here. Do the adjustment only after the pivot doors are opened in [SUBTASK 820-072-A](#).

- (17) Do again the check of the transit microswitch activation point. Make sure the microswitch actuation point is between 17.0 mm (0.669 in) and 19.0 mm (0.748 in). Adjust again if necessary.

R. Deploy Microswitch - Test Procedure ([Figure 523](#))

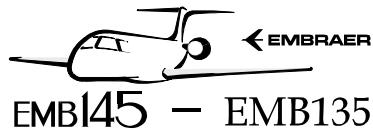
SUBTASK 820-072-A

- (1) Remove the inhibition bolt and cup washers.
- (2) Disconnect electrical connector P1773. Refer to DET. B of [Figure 523](#).
- (3) Connect the leads of the multimeter (audible continuity function) to the thrust reverser electrical receptacle pins as required. Make sure the leads are held firmly on the pins during this procedure. Refer to Sheet 2 of [Figure 523](#) to locate the correct pins for the upper and lower deploy switch.
- (4) On the multimeter monitor the continuity indicating beep.
- (5) Manually open the pivot door until the beep must be heard.
- (6) Connect electrical connector P1773 back.

S. Secondary Lock - Adjustment Procedure ([Figure 526](#))

SUBTASK 820-073-A

- (1) On the outer skin of the pivot door, remove access panels 416MT, 416NT, 416FB, 416GB or 426MT, 426NT, 426FB, 426GB to gain access to the actuator rod end connection. Refer to DET. A of [Figure 526](#).
- (2) Open the pivot door with your hand.
- (3) Install GSE 340 to support the pivot door in the open position.
 - (a) Put the door retaining rod in position.
 - (b) Use the inhibition bolt to secure the retaining rod to the pivot door.
- (4) Disconnect the actuator rod end from the pivot door as follows. Refer to DET. C of [Figure 526](#):



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- (a) At the actuator rod end, remove and discard the cotter pin (1).
- (b) Remove the nut (2), the two washers (3) and the sleeve (4).
- (c) Remove the bolt (5) and the washer (6).
- (d) Move the actuator rod-end clear of the pivot door bracket.

CAUTION: WHEN YOU ADJUST THE ACTUATOR ROD-END DO NOT MOVE THE OVERSTOW NUT OR THE ACTUATOR ROD. IF THE OVERSTOW NUT AND ACTUATOR ROD ARE MOVED IT CAN CHANGE THE RIGGING SETTINGS.

- (5) Adjust the actuator rod end as follows:
 - (a) Remove and discard the lockwire (9). Refer to DET. D of [Figure 526](#).
 - (b) Loosen the locknut (11) and retract the locking collar (10) from the overstow nut (8).
 - (c) Turn the rod-end the necessary number of turns to get the secondary lock setting in limits. Do not let the rod or the overstow nut turn. Refer to DET. E of [Figure 526](#).
 - (NOTE: One half turn of the rod-end is equal to 1,4 mm (0.055 in.) movement of the secondary lock.)
 - (d) Put the actuator rod-end in position at the pivot door bracket.
 - (e) Install the bolt (5) and the washer (6). Loosely assemble the sleeve (4), the washers (3) and the nut (2).
 - (f) Remove the inhibition bolt.
 - (g) Remove GSE 340.
 - (h) Make sure the work area is clean and clear of all tools, equipment and unwanted material.
 - (i) Close the pivot door with your hand.
 - (j) Check the secondary lock adjustment again ([SUBTASK 820-070-A](#)). Make sure that it is within tolerance.
 - (k) Manually open the pivot door and install GSE 340.
- (6) Safety the actuator locknut and the actuator rod end as follows (refer to DET. C of [Figure 526](#)):
 - (a) Remove the loosely assembled nut (2), washers (3) and sleeve (4) from the actuator rod end. Remove the bolt (5) and the washer (6) to disconnect the actuator rod end from the pivot door attachment bracket.
 - (b) At the actuator rod end, make sure the overstow Nut (8) does not move and that the locking collar (10) is positioned correctly.

- (c) Hold the rod end in position and tighten the Locknut (11) to between 36.6 N.m (27.0 lbf.ft) and 44.7 N.m (33.0 lbf.ft).
- (d) Safety the locknut to the overstow nut with new lockwire.
- (e) Position the actuator rod end in the pivot door attachment bracket
- (f) Install the retaining bolt (5) and washer (6).
- (g) Install the sleeve (4), the two washers (3) and the nut (2).
- (h) Tighten the retaining bolt (5) to between 30.5 N.m (22.5 lbf.ft) and 33.9 N.m (25.0 lbf.ft).
- (i) Safety the assembly with a new cotter pin (1).
- (j) Remove GSE 340 and install the Hold Open Rod (HOR).
- (k) On the outer skin of the pivot door, position the access panels removed to gain access to the actuator rod end connection. Install the attaching screws kept on removal.

T. Stow and Transit Microswitch Striker Assemblies - Adjustment Procedure ([Figure 527](#))

SUBTASK 820-074-A

- (1) Get access to the applicable Stow/Transit switch and do the actuator switch wear measure as follows:
 - (a) Use a micrometer to measure the actuator switch diameter. Record this as dimension Y ([Figure 527](#)):
 - 1 If the Y dimension is less than 7.9 mm (0.31 in), replace the applicable stow/transit switch ([AMM MPP 78-34-01/400](#)) and continue with stow/transit microswitch striker assemblies - adjustment procedure.
 - 2 If the Y dimension is more than 7.9 mm (0.31 in), continue with stow/transit microswitch striker assemblies - adjustment procedure.
- (2) Remove microswitch striker riveted assemblies as follows (PRE-MOD SB145-780031):
 - (a) Use a micrometer to measure the total thickness of the assembly (striker plate, laminated shims and striker bracket). Record this as dimension A. Refer to DET. C of [Figure 527](#).
 - (b) With the correct drill bit, drill out the rivets (1) . Remove and discard the remaining rivet parts.
 - (c) Remove the striker plate (2) and laminated shim(s) (3).
 - (d) Use a micrometer to measure the thickness of the Striker Plate (2). Record this as Dimension X.

1 (For striker plate part number 145-78328-001):

- a If the X dimension is less than 0.45 mm (0.017 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure, using a new striker plate.
- b If the X dimension is more than 0.45 mm (0.017 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.

2 (For striker plate part numbers except 145-78328-001):

- a If the X dimension is less than 1.05 mm (0.041 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure, using a new striker plate.
- b If the X dimension is more than 1.05 mm (0.041 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.

- (e) Use a micrometer to measure the thickness of the striker bracket and the striker plate. Record this as Dimension B.
- (f) Subtract the total thickness (dimension A) from the thickness of the striker assembly recorded in step (d) (dimension B). The resultant dimension is the thickness of the removed Laminated Shim. Record this as Dimension C.

(3) Remove the applicable microswitch striker assemblies secured with Hilite pins (POST-MOD. [S.B.145-78-0031](#)):

NOTE: Refer to [Figure 527](#) to correct disassembly and assembly of the microswitch striker.

- (a) Use a micrometer to measure the total thickness of the assembly (striker plate, laminated shims and striker bracket). Record this as dimension A.
- (b) Record the location and number of washers installed.
- (c) With an applicable ring spanner and allen key remove the kaynar collars (1).
- (d) Remove the washers (2) and Hi-lite Pins (3).
- (e) Remove the Striker Plate (4) and the Laminated Shims (5) from the Striker Bracket (6).
- (f) Discard the collars, washers, pins and shims.
- (g) Use a micrometer to measure the thickness of the Striker Plate (4). Record this as Dimension X.

1 (For striker plate part number 145-78328-001):

- a If the X dimension is less than 0.45 mm (0.017 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure using a new striker plate.
- b If the X dimension is more than 0.45 mm (0.017 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.

2 (For striker plate part numbers except 145-78328-001):

a If the X dimension is less than 1.05 mm (0.041 in), discard the applicable striker plate and continue with stow/transit microswitch striker assemblies - adjustment procedure, using a new striker plate.

b If the X dimension is more than 1.05 mm (0.041 in), and continue with stow/transit microswitch striker assemblies - adjustment procedure.

(h) Use a micrometer to measure the thickness of the Striker Bracket and the Striker Plate. Record this as Dimension B.

(i) Subtract the total thickness recorded in step (2) (a) (dimension A) from the thickness of the striker assembly recorded in step (2) (g) (dimension B). The resultant dimension is the thickness of the removed laminated shim. Record this as Dimension C.

WARNING: TO PREVENT INJURY BE CAREFUL WHEN YOU USE A KNIFE TO REMOVE SHIM LAMINATIONS.

(4) Do these steps to adjust the Transit Microswitch striker assembly:

(a) If the dimension recorded during the transit setting procedure is more than 19,0 mm (0.748 in.), adjust the shims as follows:

1 Get a new laminated shim that is less than the thickness of the removed shim (Dimension C).

2 With an applicable knife, remove the necessary number of layers to get the dimension for the transit microswitch in limits.

3 Remove an additional 1 mm of laminates to get the operation point near to the center of the tolerance range.

(b) If the dimension recorded during the transit setting procedure is less than 17,0 mm (0.669 in.), adjust the shims as follows:

1 Get a new laminated shim that is more than the thickness of the removed shim (Dimension C).

2 With an applicable knife, remove the necessary number of layers to get the dimension for the transit microswitch in limits.

3 Add an additional 1 mm of laminates to get the operation point near to the center of the tolerance range.

(5) Do this step to adjust the Stow Microswitch Striker assemblies:

WARNING: TO PREVENT INJURY BE CAREFUL WHEN YOU USE A KNIFE TO REMOVE SHIM LAMINATIONS.

(a) If the dimension recorded during the stow setting procedure is more than 4,0 mm (0.157 in.), adjust the shims as follows:

1 Get a new laminated shim that is less than the thickness of the removed shim (Dimension C).

- 2 With an applicable knife, remove the necessary number of layers to get the dimension for the stow microswitch in limits.
 - 3 Remove an additional 0,5 mm of laminates to get the operation point near to the center of the tolerance range.
- (b) If the dimension recorded during the stow setting procedure is less than 3,0 mm (0.118 in.), adjust the shims as follows:
- 1 Get a new laminated shim that is more than the thickness of the removed shim (Dimension C).
 - 2 With an applicable knife, remove the necessary number of layers to get the dimension for the stow microswitch in limits.
 - 3 Add an additional 0,5 mm of laminates to get the operation point near to the center of the tolerance range.

WARNING: SEALANT PR1791A IS DANGEROUS. IT CAN CAUSE IRRITATION TO YOUR EYES, YOUR SKIN AND YOUR THROAT. MAKE SURE THERE IS A FLOW OF AIR IN THE WORK AREA. WEAR GOGGLES, GLOVES AND A BREATHING MASK. IF YOU GET THE SEALANT ON YOUR SKIN, WASH IT OFF IMMEDIATELY. IF YOU GET IT IN YOUR EYES OR IN YOUR MOUTH, WASH IT OUT WITH CLEAN WATER AND GET MEDICAL HELP.

- (6) Install the Microswitch Striker Assemblies as follows:

NOTE: If you use a new undrilled striker plate and with the striker bracket as a template, mark the positions of the striker bracket holes in the striker plate and drill pilot holes.

- (a) For striker attached with Hi-lite pins:
- 1 Apply sealant PR 1791A to the bracket (6) and striker plate (4).
 - 2 Apply sealant PR 1791A to the new laminate shims (5), hilite pins (3), washers (2) and kaynar collars (1).
 - 3 Put the striker plate (4) and the new laminate shims (5) in position on the striker bracket (6).
 - 4 Install the new Hilite pins, washers and kaynar collars.
- NOTE:** Install the same number of washers as recorded during removal.
- 5 Align the laminate shims with the front edge of the striker plate and bracket.
 - 6 Torque the kaynar collars. Refer to Figure 514 for torque values.
 - 7 If required, trim the edges of the laminated shims to the contour of the striker plate. Remove all unwanted material from the striker assembly.
- (b) For strikers attached with rivets:
- 1 Use Sealant PR1791A or approved alternative to wet assemble all components and attaching parts.

- 2 Wet assemble the Striker Plate (2) and the adjusted Laminated Shims (3) to the Striker Bracket (4).
- 3 Wet assemble and install rivets (1) (SRM 51-40-02/1) to attach the adjusted laminated shims (3) and the striker plate (2) to the striker bracket (4).
- 4 If required, trim the edges of the laminated shims (3) to the contour of the striker plate (2). Remove all unwanted material from the striker assembly.

(7) Do the final check of the microswitch actuation point as follows:

- (a) Do a check of the stow microswitch setting again. Make sure the operating point is within the tolerance band ([SUBTASK 820-069-A](#)).
- (b) Do a check of the transit microswitch setting again. Make sure the operating point is within the tolerance band ([SUBTASK 820-071-A](#)).

U. Safety the Actuator Overstow Nut ([Figure 526](#))

SUBTASK 820-075-A

CAUTION: THE POSITION OF THE OVERSTOW NUT IS ESSENTIAL FOR THE CORRECT OPERATION OF THE PRIMARY LOCKS. MAKE SURE THE OVERSTOW NUT DOES NOT TURN WHEN YOU TIGHTEN THE LOCKNUT.

- (1) On the pivot door actuator, hold the overstow nut in position. Safety the actuator overstow nut as follows (refer to [Figure 526](#)):
 - (a) Remove the actuator rod-end from the door bracket:
 - 1 Remove and discard the cotter pin (1).
 - 2 Remove the nut (2), the two washers (3) and the sleeve (4).
 - 3 Remove the bolt (5) and the washer (6).
 - 4 Move the actuator rod-end clear of the pivot door bracket.
 - (b) Make sure the locking collar (10) is in position on the overstow nut (8).
 - (c) Hold the overstow nut and rod.
 - (d) Torque the locknut to between 36.6 and 44.7 Nm (27.0 and 33.0 lbf.ft.).
 - (e) Safety the locknut (10) to the overstow nut (8) with new lockwire (9).
- (2) Do these steps if the actuator rod end has been disconnected to safety the overstow nut:
 - (a) Put the actuator rod end in position on the pivot door bracket.
 - (b) Install the bolt (5) and the washer (6).
 - (c) Install the sleeve (4), the two washers (3) and the nut (2).
 - (d) Torque the actuator nut to between 30.5 N.m (22.5 lbf.ft) and 33.9 N.m (25.0 lbf.ft).

- (e) Install a new cotter pin (1).

V. Safety the Pivot Door Primary Lock Hooks (Figure 521)

SUBTASK 820-076-A

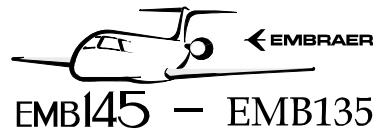
CAUTION: DAMAGE TO THE PIVOT DOOR ACTUATOR ROD CAN DAMAGE THE ACTUATOR SEALS. THIS WILL RESULT IN LEAKAGE OF HYDRAULIC FLUID FROM THE ACTUATOR. TAKE CARE NOT TO DAMAGE THE ACTUATOR ROD WHEN YOU INSTALL OR REMOVE THE HOLD-OPEN ROD AND WHEN YOU USE MAINTENANCE TOOLS NEAR THE PIVOT DOOR ACTUATOR.

- (1) Do this procedure only if the pivot door hooks have been adjusted.
 - (a) Install the pivot door hold-open rod to hold the pivot door in the deploy position.
 - (b) Torque the door hook bolts (3) to between 9,0 and 13,0 Nm (80.0 and 115.0 lbf.in.).
 - (c) Align a cotter pin hole within this range.
 - (d) Install new cotter pins (1).
 - (e) Apply torque seal.

W. Follow-on (Figure 515) (Figure 516)

SUBTASK 842-004-A

- (1) Make sure that the nuts of the pivot door hooks and actuator locknut are safety.
- (2) Manually close the pivot doors.
- (3) Remove the inhibition bolt and cup washers.
- (4) Install the inhibition bolt plugs in the sockets. Refer to [Figure 516](#)
- (5) Tighten the screws.
- (6) Make sure the torsion box areas are clean and clear of tools, equipment and unwanted materials.
- (7) Put the torsion box access panels in position. Install the screws kept on removal.
- (8) Put the LH and RH link arms in position at the primary lock actuators. Refer to [Figure 515](#).
 - (a) Install the bolt (4), washers (3) and nut (2).
 - (b) Safety the nut (2) with a new cotter pin (1).
- (9) Install access panels 416FB, 416GB, 416LT, 416MT, 416NT, 416DB, 416HT, 416BB or 426FB, 426GB, 426LT, 426MT, 426NT, 426DB, 426HT, 426BB ([AMM MPP 06-43-00/100](#)), as applicable.
- (10) Connect electrical connectors P1773 and P1775 if applicable.
- (11) Deinhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).



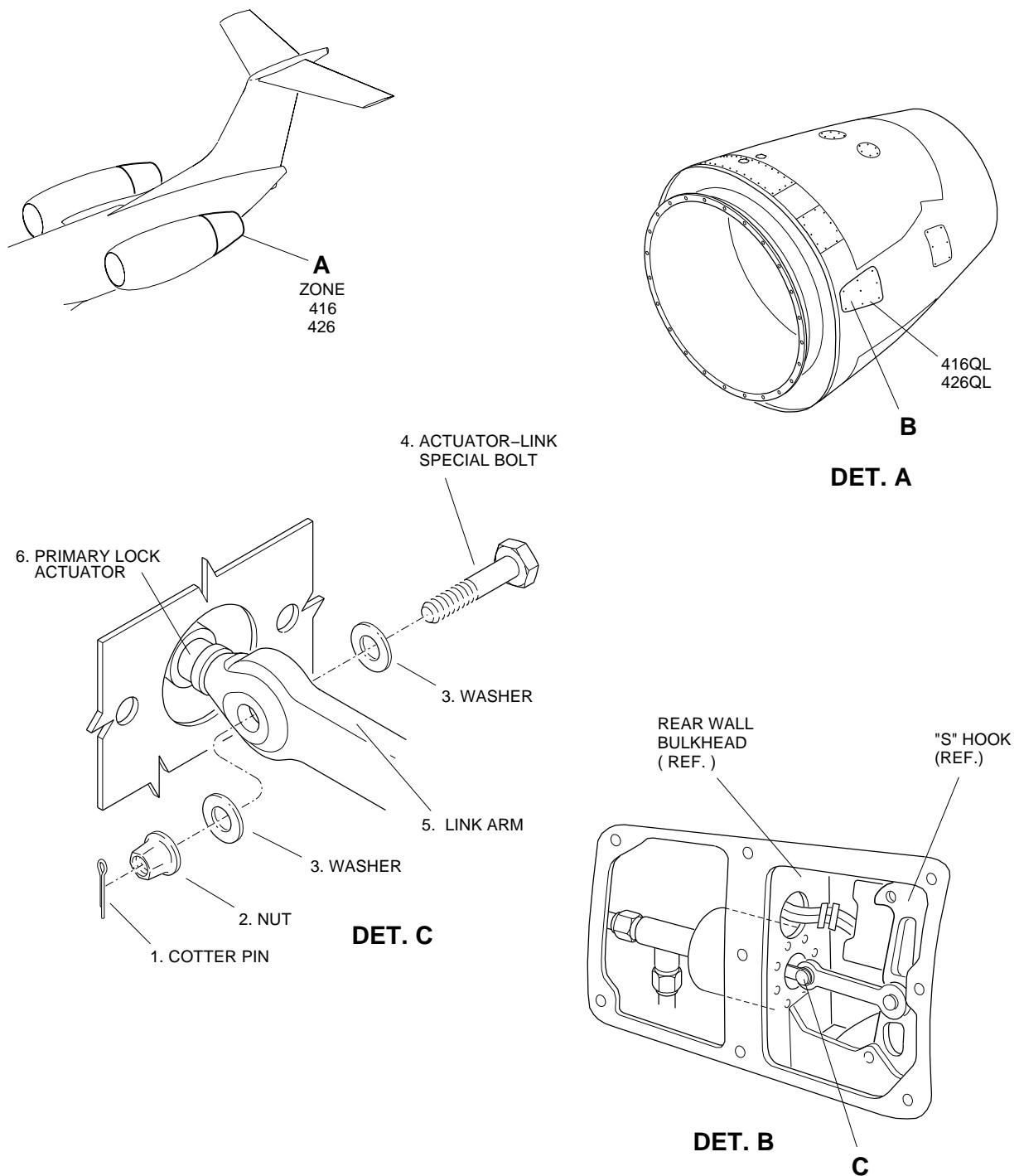
AIRCRAFT
MAINTENANCE MANUAL

- (12) On the circuit breaker panel, close these circuit breakers and remove DO-NOT-CLOSE tags from them.
 - THRUST REVERSER 1.
 - THRUST REVERSER 2.
 - HYD. ELEC. PUMP 1.
 - HYD. ELEC. PUMP 2.
- (13) Reset the CMC with the CMC switch on the maintenance panel.
- (14) Do the thrust reverser operation check ([AMM TASK 78-31-01-700-801-A/500](#)). Cycle the pivot doors a minimum of two times and make sure that there is no EICAS and/or CMC messages.
- (15) Do a visual inspection, through access panels 416QL, 416PR or 426QL,426PR as applicable, to make sure that the primary locks are correctly engaged.
- (16) Install access panels 416QL, 416PR or 426QL,426PR ([AMM MPP 06-43-00/100](#)), as applicable.
- (17) Remove the workstand from the work area.

EFFECTIVITY: ALL

Thrust-Reverser Door Primary Lock Actuator - Link Arm Disconnection

Figure 515

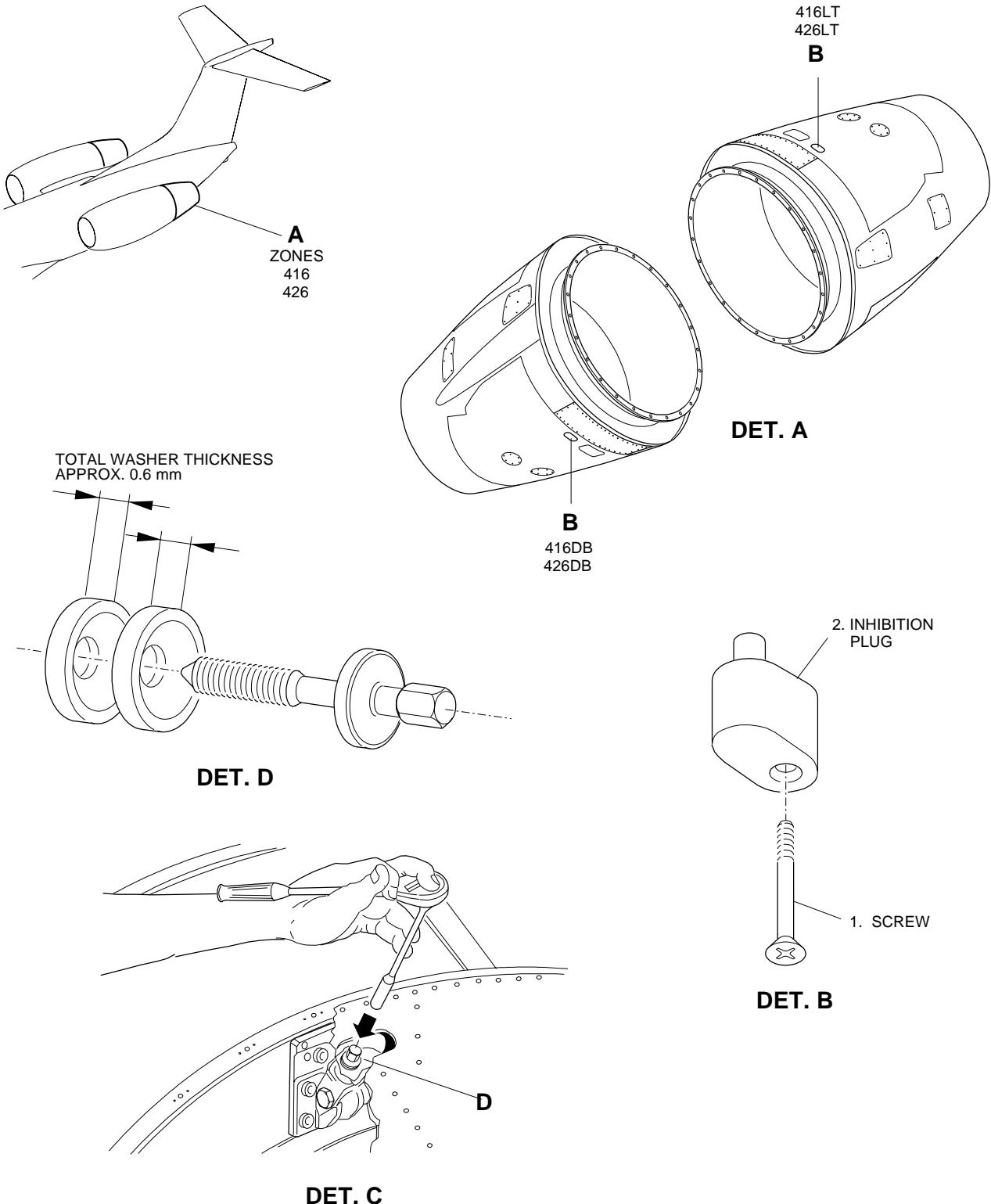


 **TORQUE: 15.8 Nm (140 lb.in)**

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EFFECTIVITY: ALL

Thrust-Reverser Inhibition Plug - Removal/Installation
Figure 516

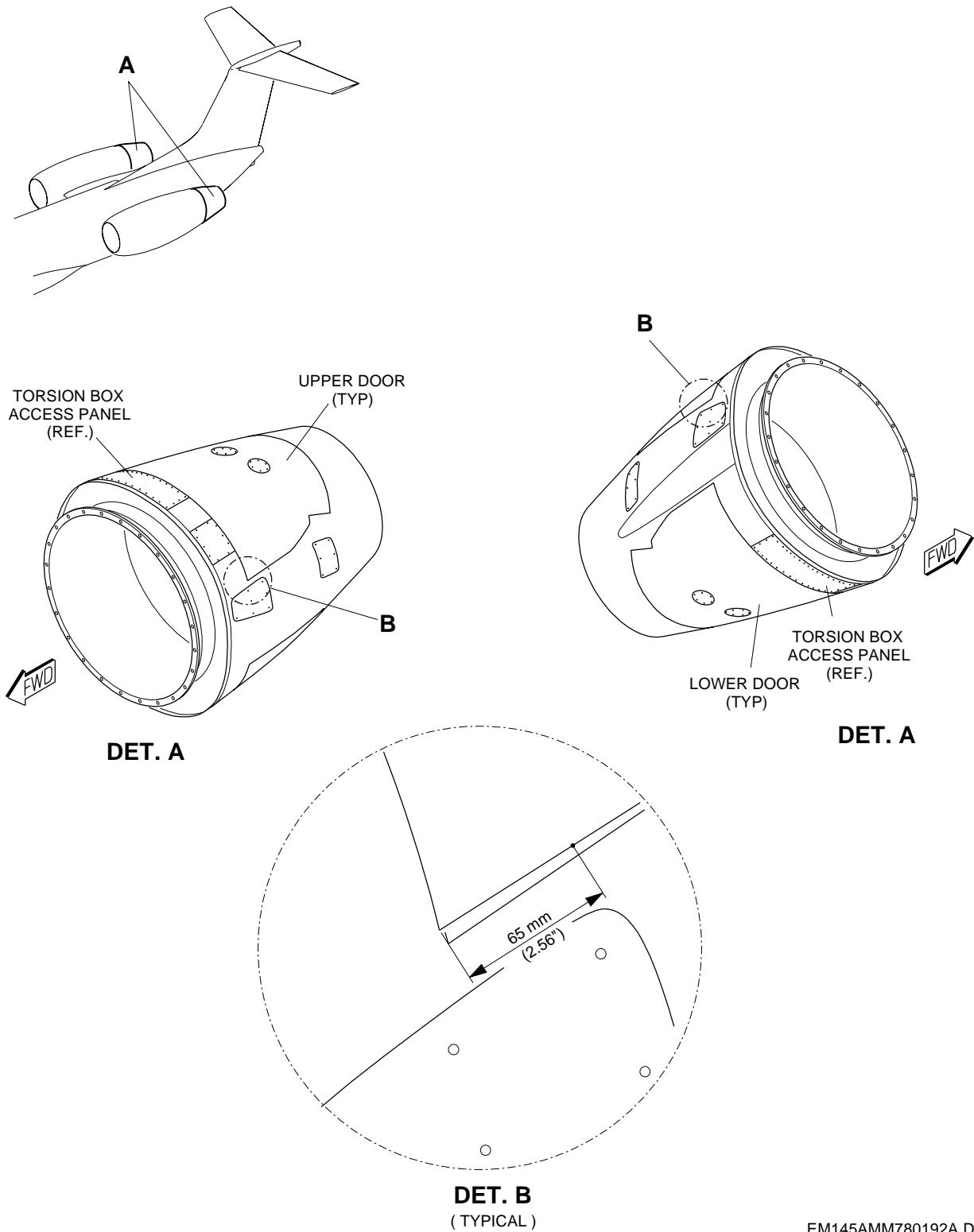


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EFFECTIVITY: ALL

Door Overstowed Position- Manual Rigging Procedure

Figure 517

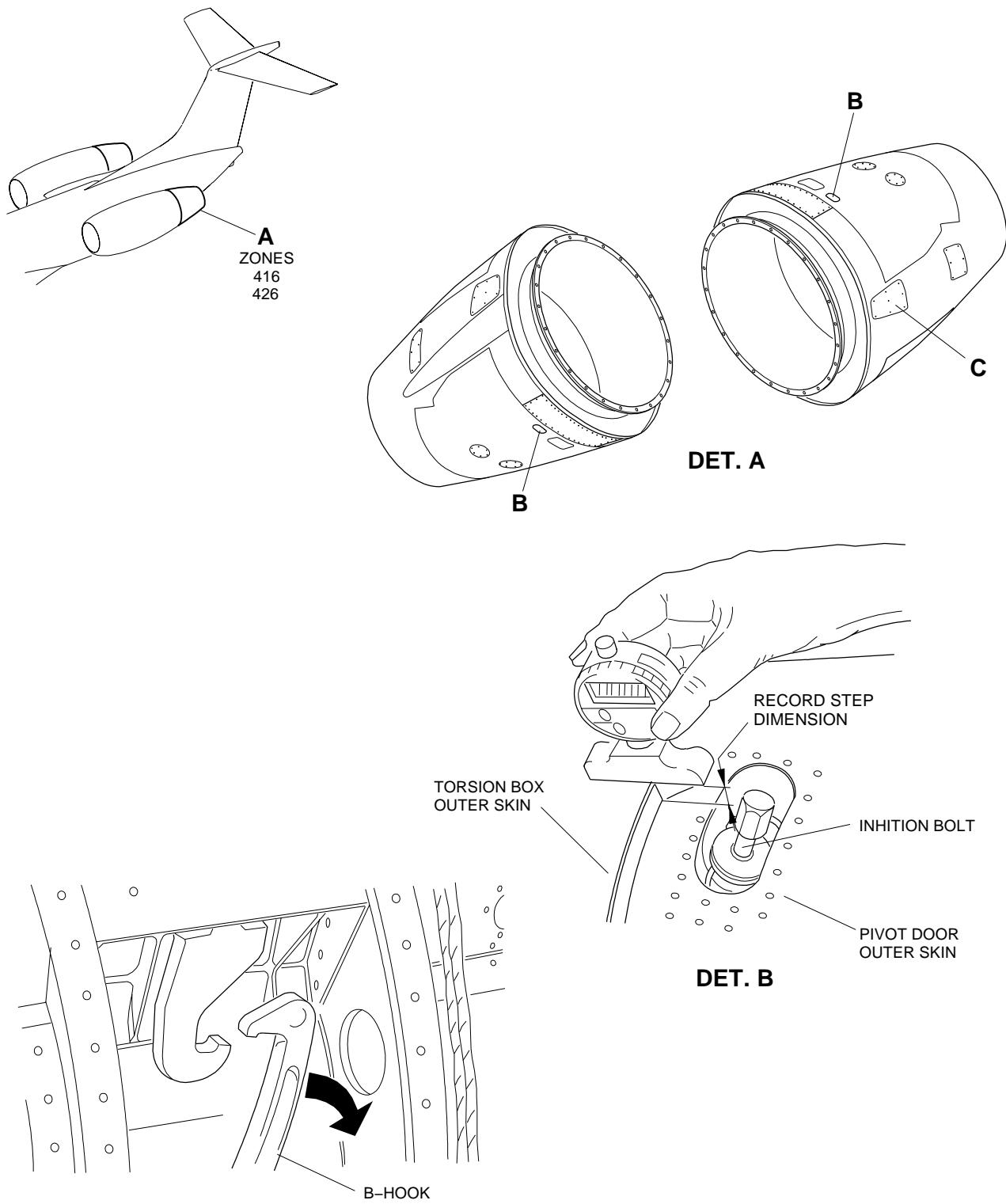


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EFFECTIVITY: ALL

Door Stow Position- Manual Rigging Procedure

Figure 518

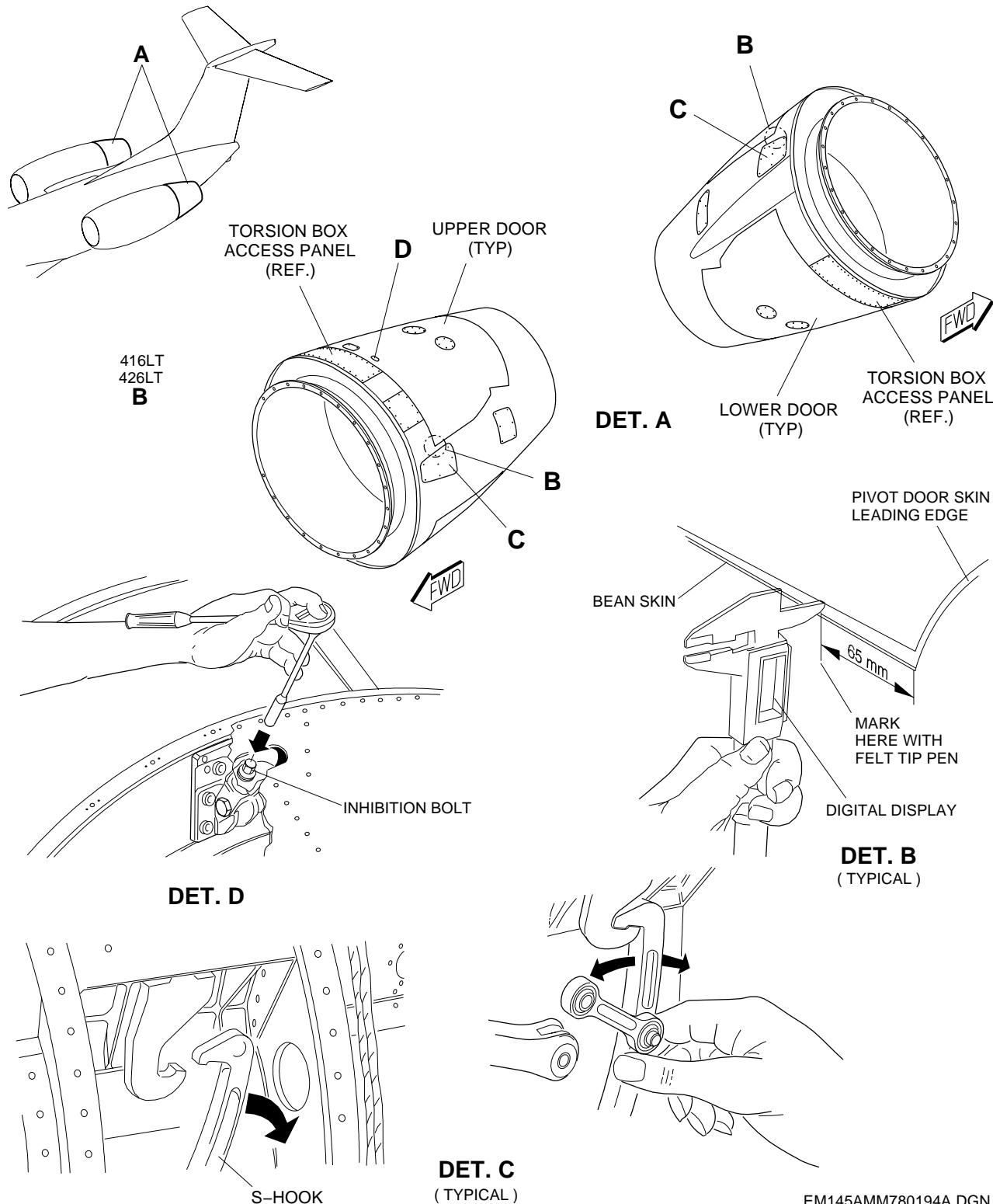


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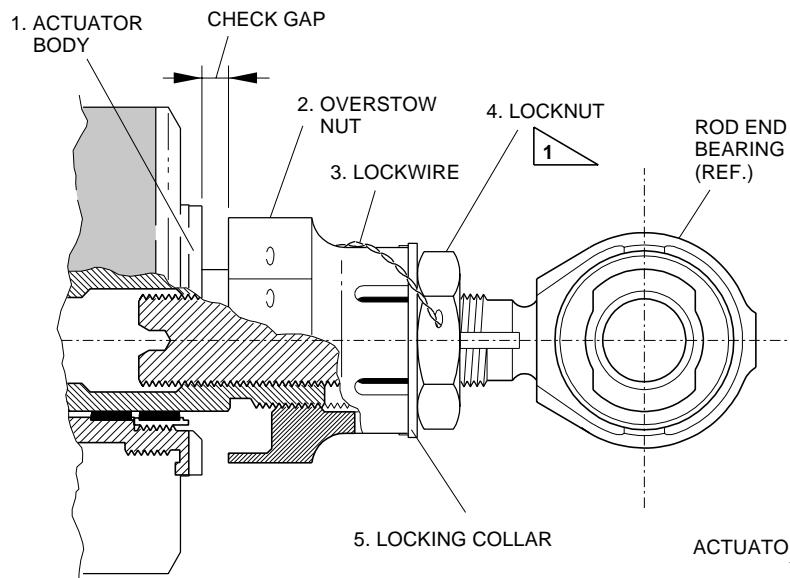
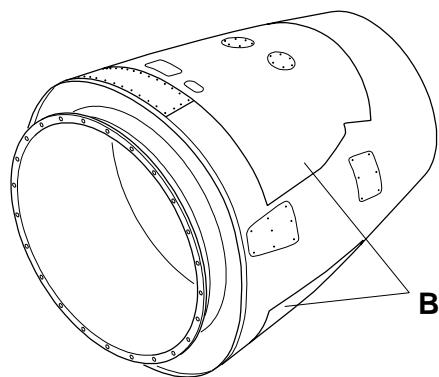
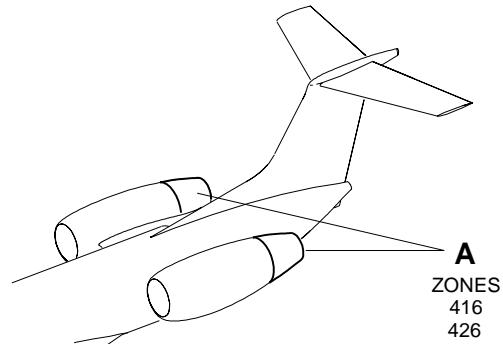
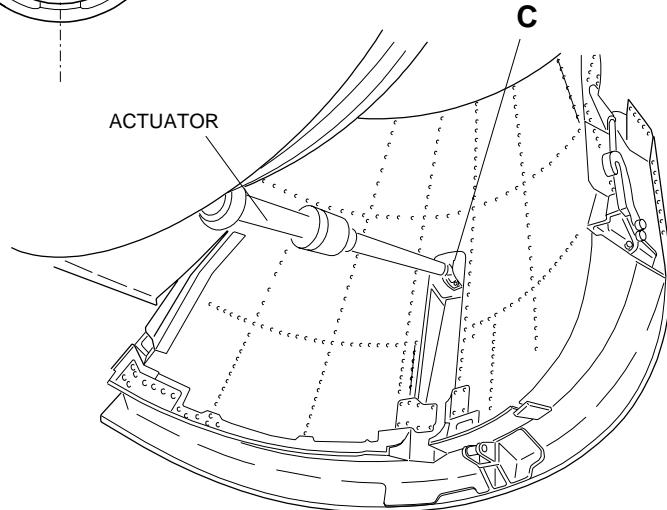
EFFECTIVITY: ALL

Pivot Door Overstow - Test Procedure

Figure 519



EFFECTIVITY: ALL

 Pivot Door Actuator Gap - Test Procedure
 Figure 520

DET. C


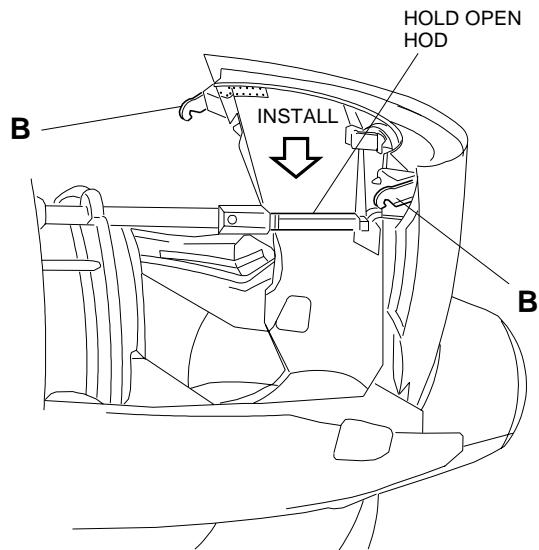
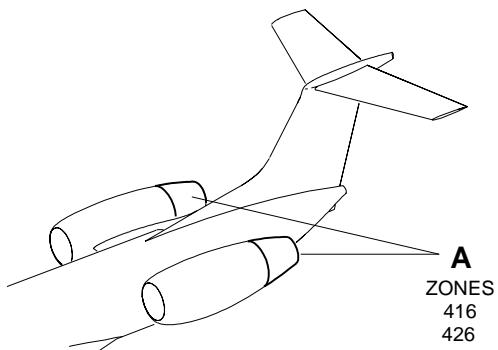
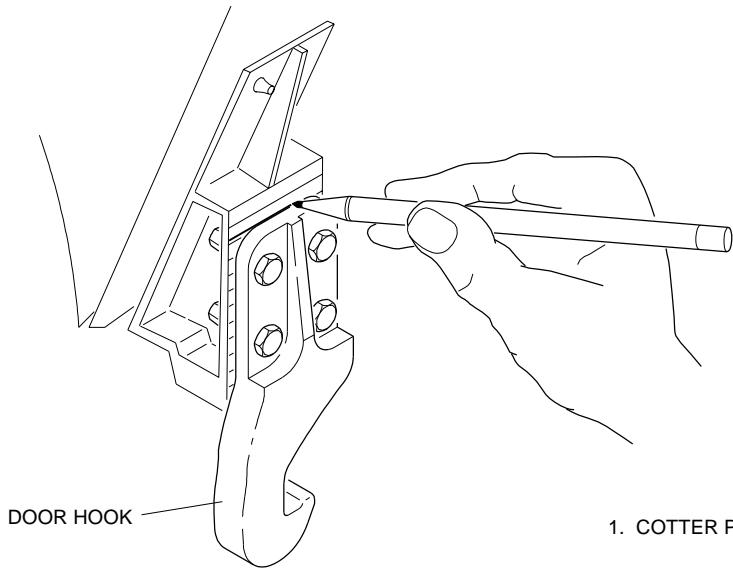
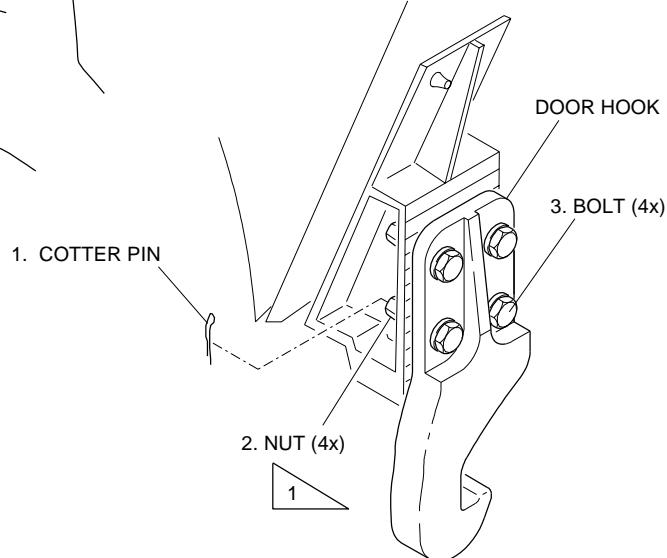
TORQUE: 36.6 – 44.7 N.m (27.0 – 33.0 lb.ft).

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EFFECTIVITY: ALL

Pivot Door Hooks - Adjustment Procedure

Figure 521


DET. A

DET. B


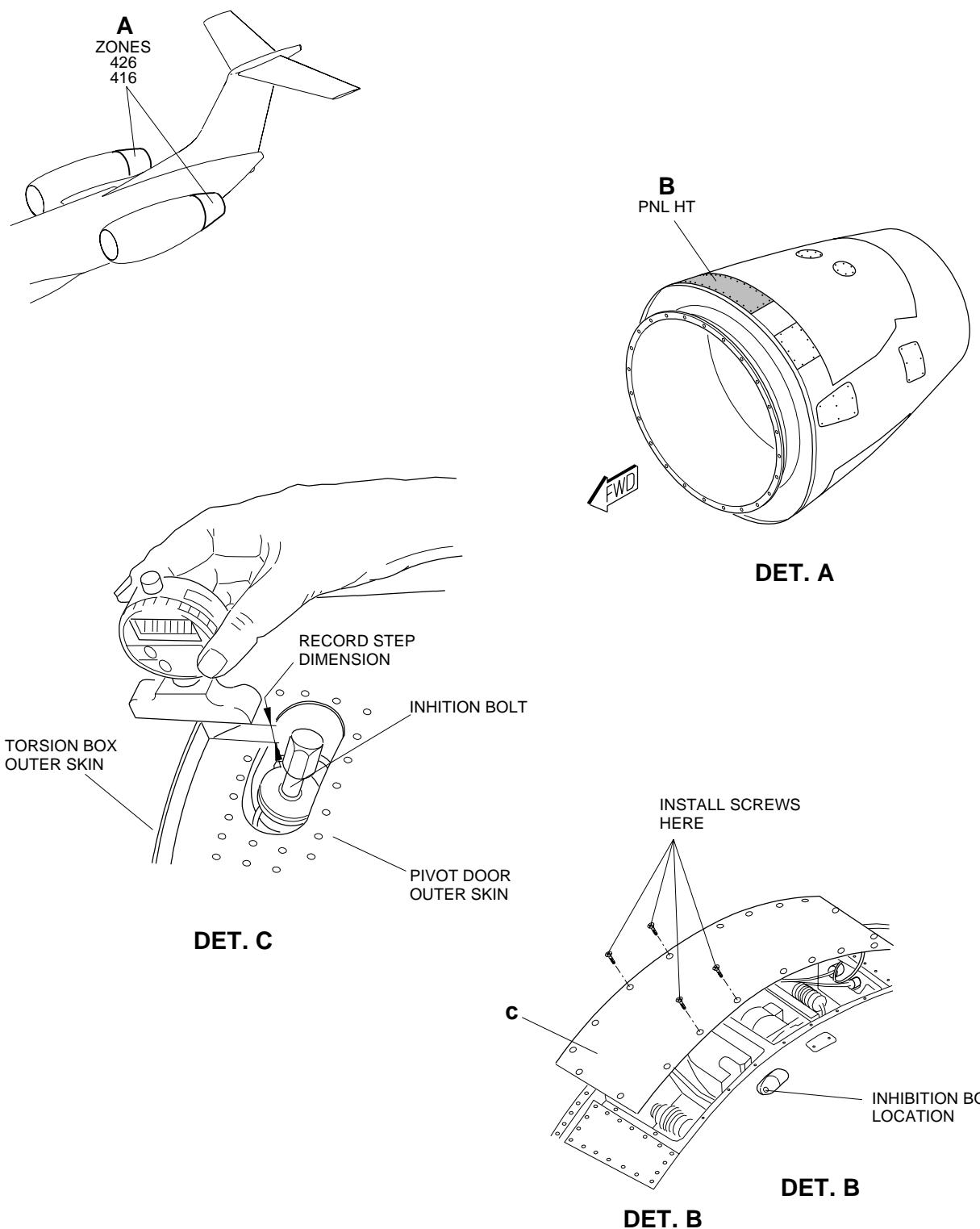
 1 TORQUE: 9.0 TO 13.0 N.m (80 TO 115 Lb.in).

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EFFECTIVITY: ALL

Stow Microswitches - Test Procedure

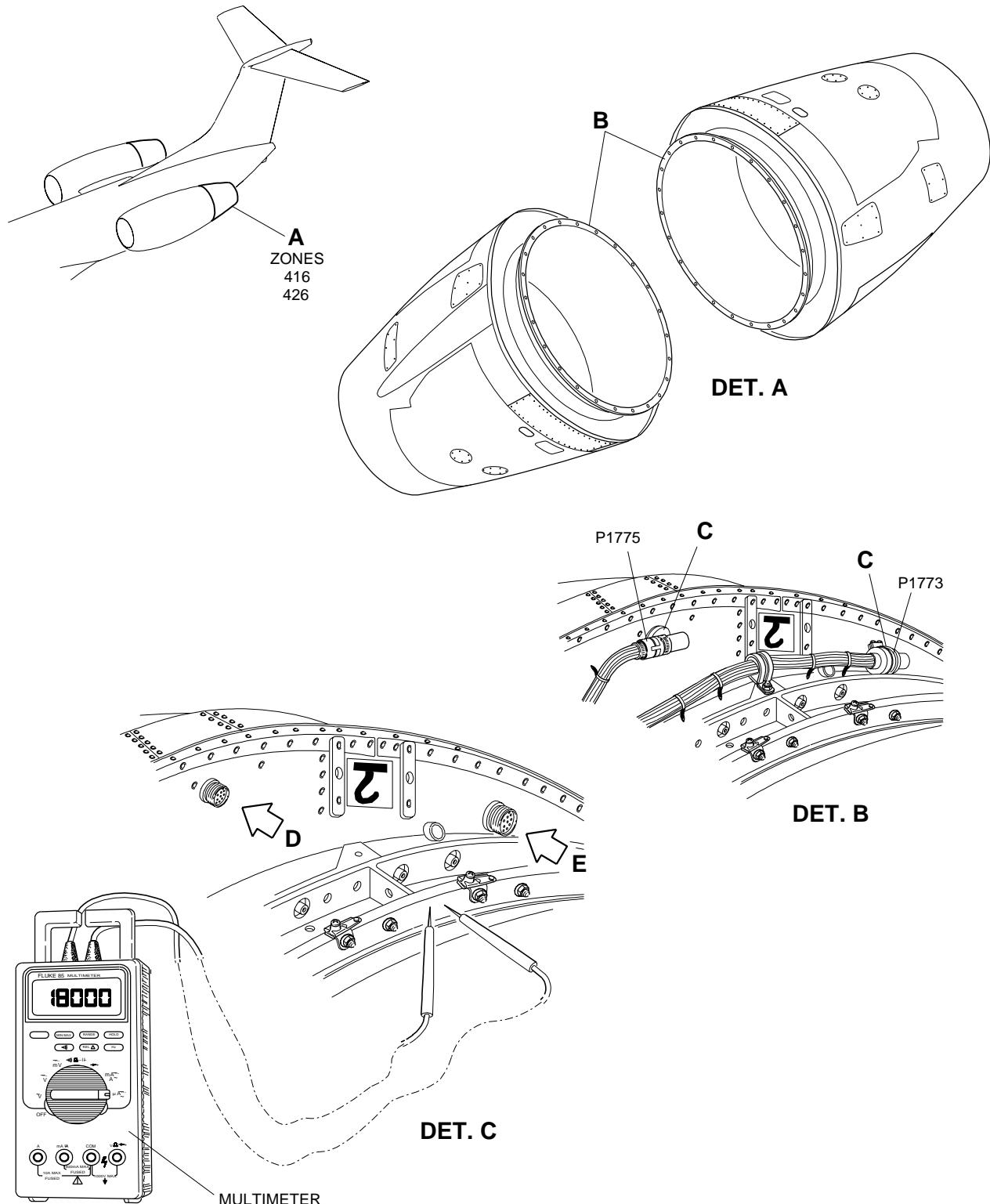
Figure 522



EFFECTIVITY: ALL

Thrust Reverser Microswitches - Connectors and Pins Locations

Figure 523 - Sheet 1

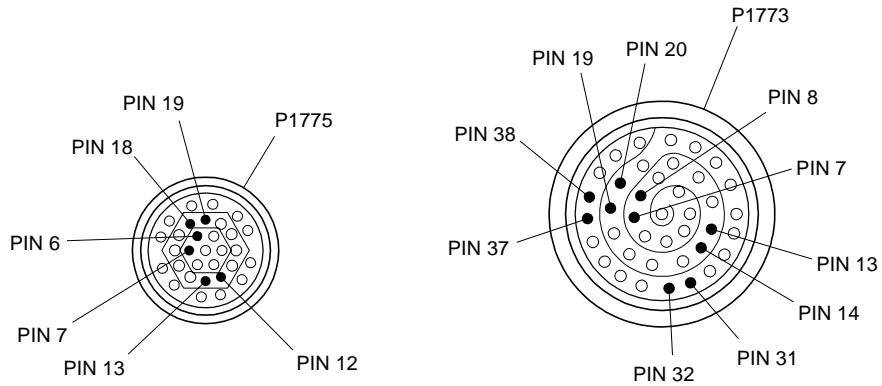


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EFFECTIVITY: ALL

Thrust Reverser Microswitches - Connectors and Pins Locations

Figure 523 - Sheet 2


DET. D
DET. E

<u>UPPER PIVOT DOOR</u>		
<u>MICROSWITCH</u>	<u>HARNESS PLUG</u>	<u>PINS</u>
LEFT STOW	J1773	13 & 14
RIGHT STOW	J1775	18 & 19
TRANSIT	J1773	7 & 8
DEPLOY	J1773	31 & 32

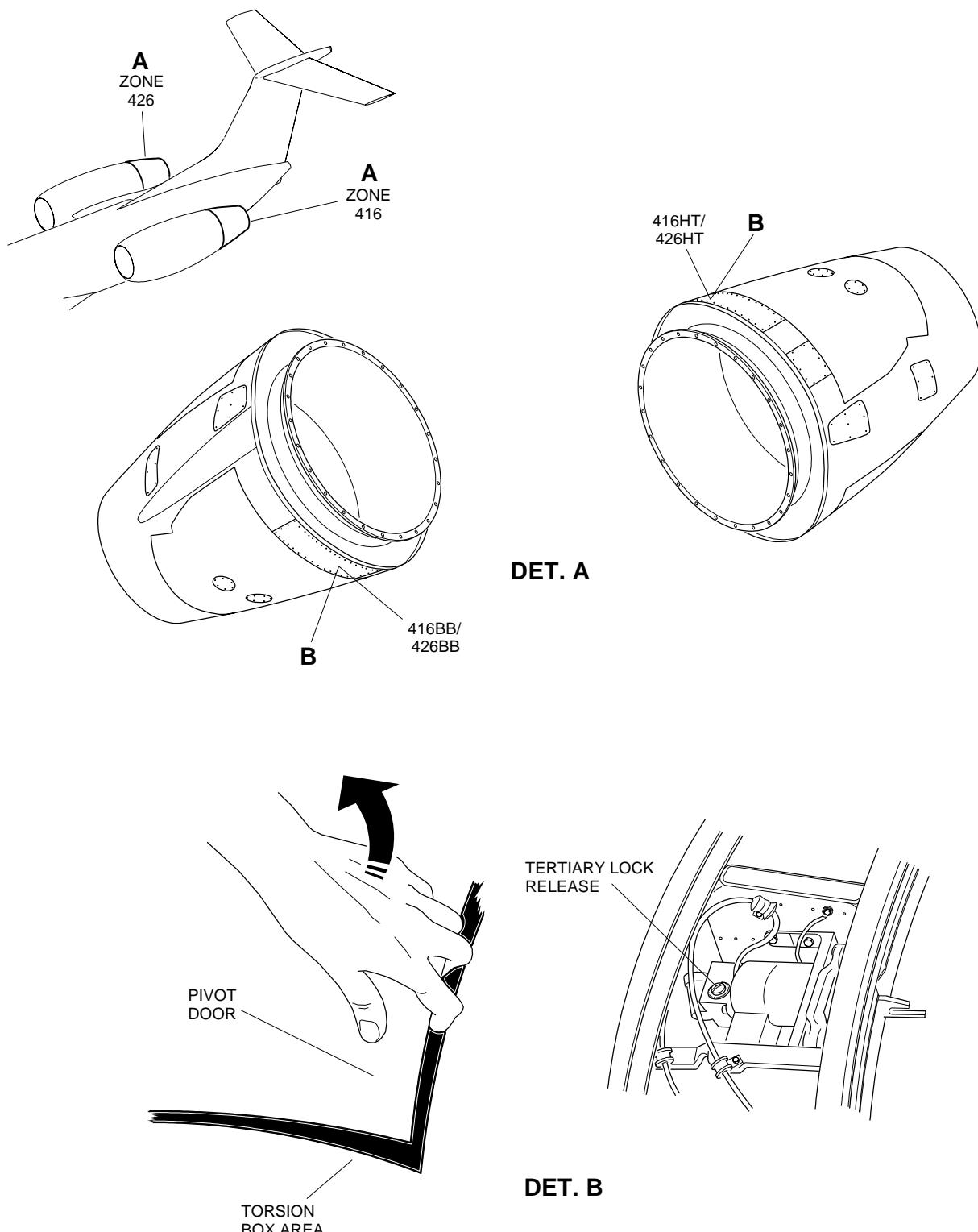
<u>LOWER PIVOT DOOR</u>		
<u>MICROSWITCH</u>	<u>HARNESS PLUG</u>	<u>PINS</u>
LEFT STOW	J1773	19 & 20
RIGHT STOW	J1775	12 & 13
TRANSIT	J1775	6 & 7
DEPLOY	J1773	37 & 38

EM145AMM780200A.DGN

EFFECTIVITY: ALL

Secondary Lock Setting - Test Procedure

Figure 524

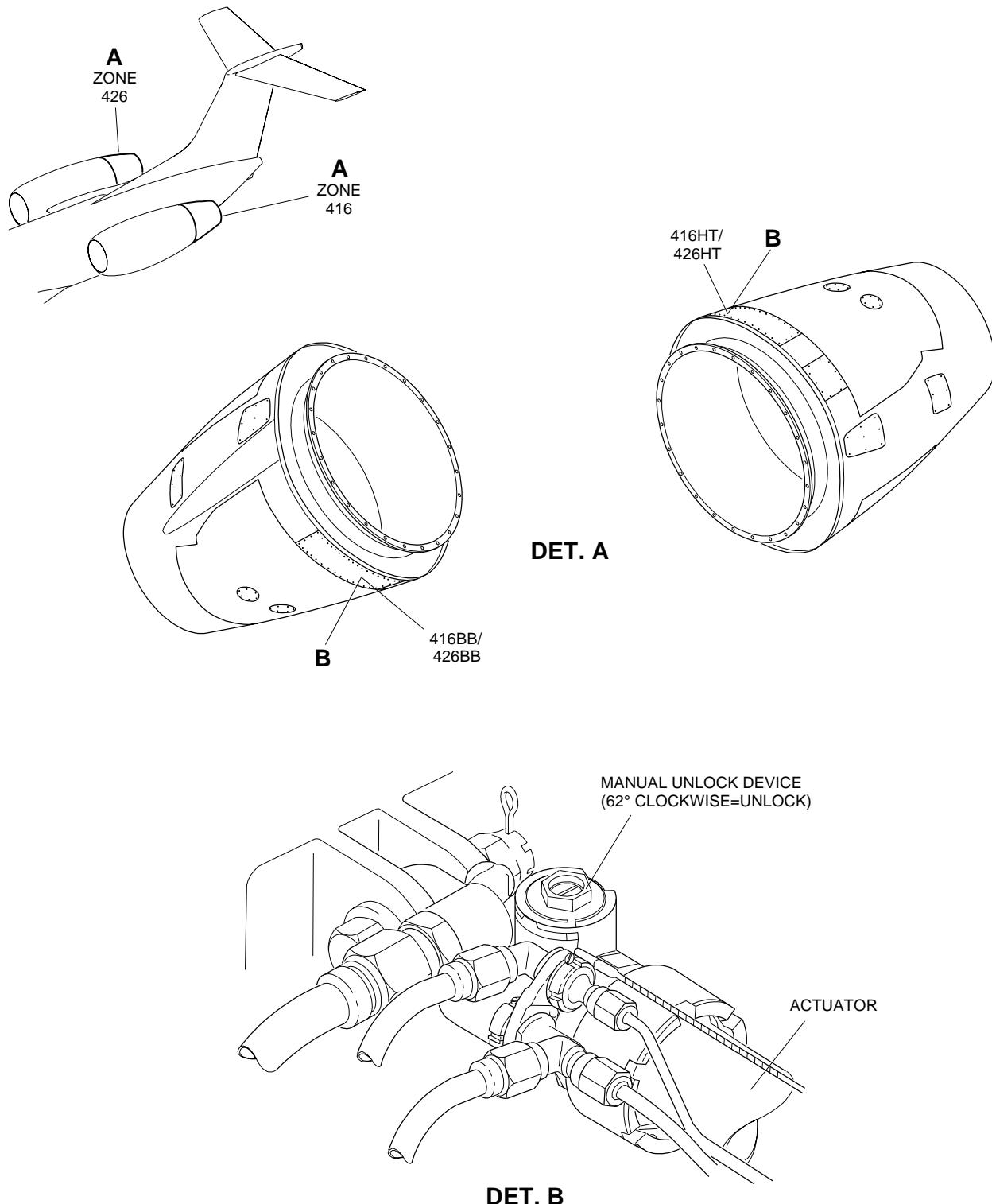


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EFFECTIVITY: ALL

Transit Microswitch - Test Procedure

Figure 525

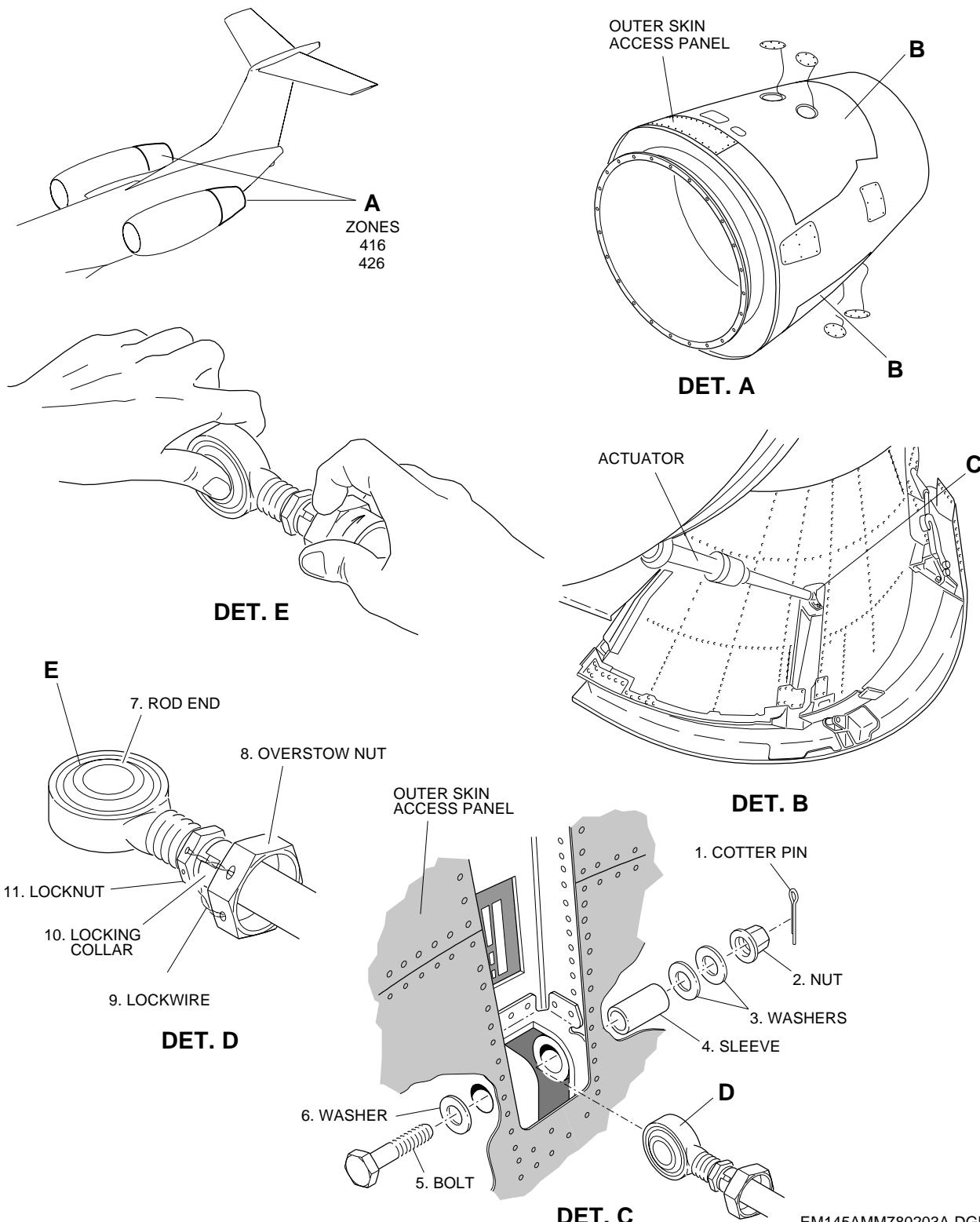


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EFFECTIVITY: ALL

Secondary Lock - Adjustment Procedure

Figure 526

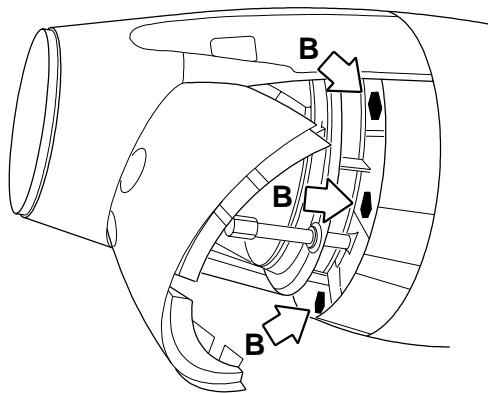
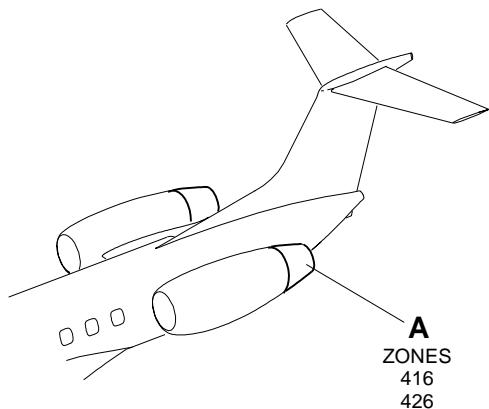


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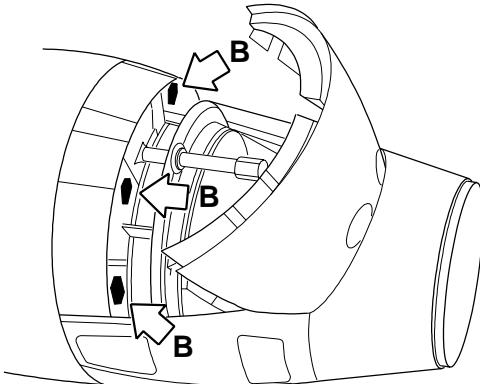
EFFECTIVITY: ALL

Stow/Transit Switches - Adjustment Procedure

Figure 527 - Sheet 1

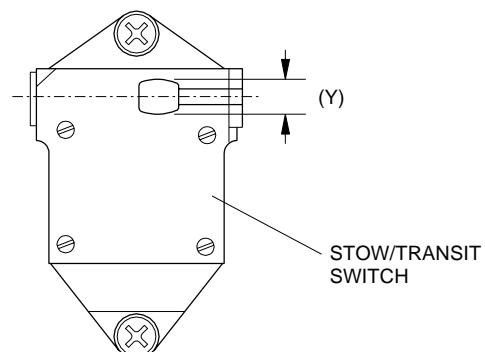


LOWER PIVOT DOOR



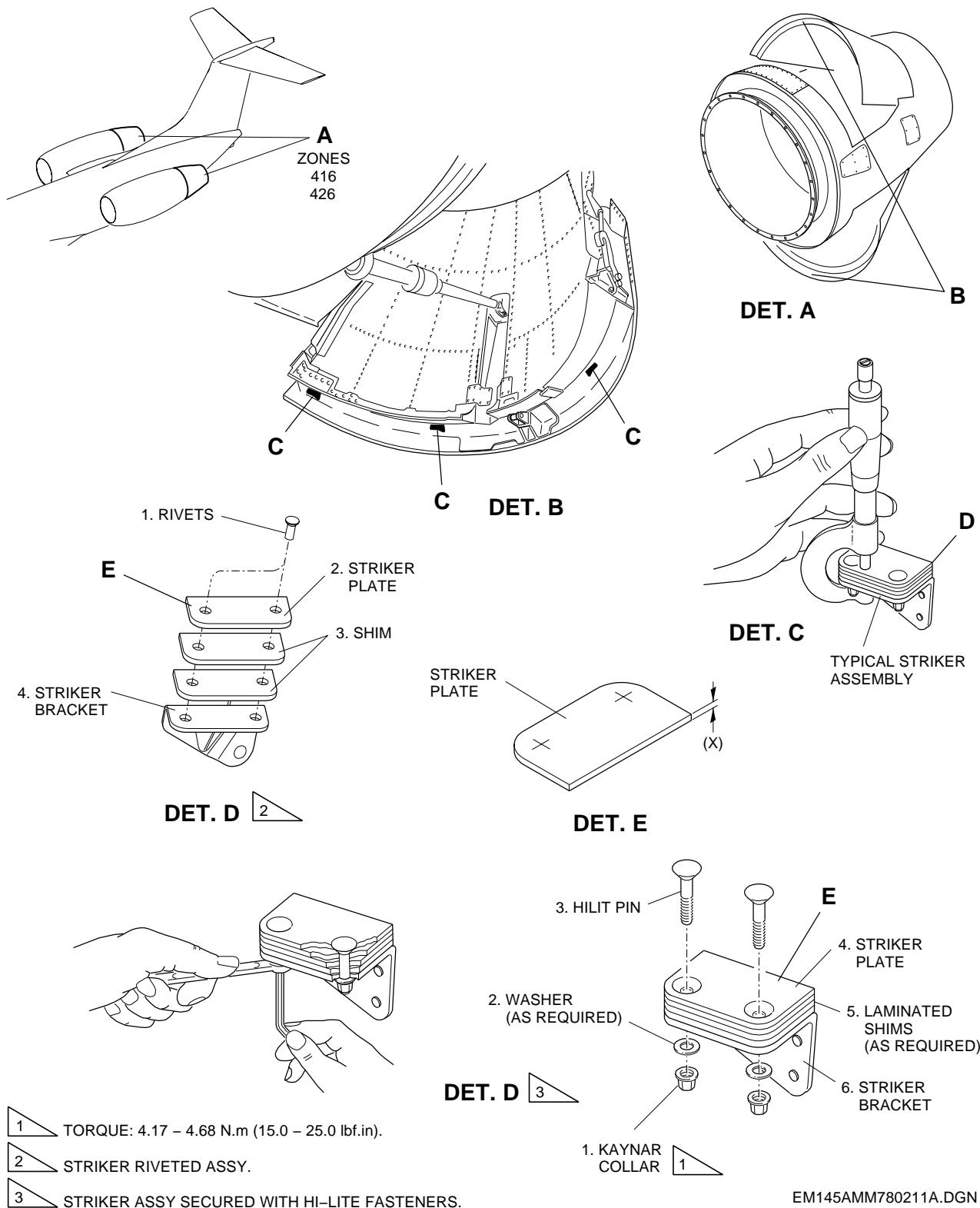
UPPER PIVOT DOOR

DET. A



DET. B

EM145AMM780209A.DGN

EFFECTIVITY: ALL
Stow/Transit Switches - Adjustment Procedure
Figure 527 - Sheet 2

EM145AMM780211A.DGN