HORIZONTAL STABILIZER - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

A. This section gives the procedures to do:

- The measurement of the backlash of the link of the horizontal stabilizer and horizontal-stabilizer actuator rods.
- The measurement of the backlashes of the right and left links of the horizontal stabilizer with the vertical stabilizer.
- The electrical/electronic operational test of the Horizontal Stabilizer.
- The operational check of the BACKUP SYS CUTOUT pushbutton, MAIN SYS CUTOUT switch, and Quick Disconnect switch.
- The functional check of the stabilizer timer control.
- The operational check of "Takeoff Trim" aural warning.

B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
27-40-00-700-801-A ♦	HORIZONTAL STABILIZER BACKLASH - FUNCTIONAL CHECK	ALL
27-40-00-700-802-A	HORIZONTAL-STABILIZER ELECTRICAL/ ELECTRONIC OPERATIONAL TEST	ALL
27-40-00-700-803-A ♦	BACKUP SYS CUTOUT PUSHBUTTON MAIN SYS CUTOUT SWITCH AND QUICK DISCONNECT SWITCH - OPERATIONAL CHECK	ALL
27-40-00-700-804-A	STABILIZER TIMER CONTROL - FUNC-TIONAL CHECK	ALL
27-40-00-700-805-A	"TAKEOFF TRIM" AURAL WARNING - OP-ERATIONAL CHECK	ALL
27-40-00-700-806-A ♦	LOCKOUT LOGIC TEST	POST-MOD. S.B. 145-27-0106

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TASK 27-40-00-700-801-A
EFFECTIVITY: ALL

2. HORIZONTAL STABILIZER BACKLASH - FUNCTIONAL CHECK

A. General

(1) This task gives the procedures to measure the horizontal stabilizer backlashes.

(2) The backlash of the link of the horizontal stabilizer and horizontal-stabilizer actuator rods is the actuator backlash.

(3) The backlashes of the right and left links of the horizontal stabilizer with the vertical stabilizer are the bearing backlashes.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
FIM TASK 27-40-00-810-802-A	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 036	Hydraulic Platform	To get access to the horizontal stabilizer	
GSE 062	Horizontal-Stabilizer Measurement Backlash Kit	To measure the backlash of the horizontal stabilizer	
GSE 072	Magnetic Stand	To hold the dial indicator	
GSE 073	Dial Indicator	To measure the tab displacements	

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	Horizontal stabilizer
2	Help the other technician	On the ground

I. Preparation

SUBTASK 841-002-A

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(1) Make sure that the aircraft is safe for maintenance.

(2) Energize the aircraft with the External DC-power supply (AMM TASK 20-40-01-860-801-A/200).

WARNING: DO NOT MOVE THE HORIZONTAL STABILIZER AFTER YOU SET IT TO ZERO DEGREES UNTIL YOU COMPLETE THE BACKLASH MEASUREMENT PROCEDURES.

(3) Set the horizontal stabilizer to zero degrees.

(4) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

J. Functionally Check Horizontal Stabilizer Backlash

SUBTASK 720-002-A

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT UNDER THE HORIZONTAL STABILIZER AREA.

(1) Do these procedures to install the GSEs for the actuator backlash inspection. Refer to Figure 501 and Figure 502.

(a) Install the two supports and their belts on the leading edge of the horizontal stabilizer, at a distance from the root, that prevents the belts interference with the fuselage. Refer to Figure 502.

- Remove the two bolts that attach the leading edge to the horizontal stabilizer.
- Use the bolts of GSE to install the support of the belts.

NOTE: When you remove these supports and belts, install the bolts that were removed.

(b) Install magnetic stand support AGE-00606-401 of the dial indicator (GSE 073) on the left side of the vertical stabilizer. Refer to Figure 501.

- Remove the two bolts that attach the boom fairing to the vertical stabilizer.
- Use the bolts of GSE to install the magnetic stand support of the dial indicator.

NOTE: When you remove this support, you must install the bolts that were removed.

(c) Install the magnetic stand (GSE 072) to support AGE-00606-401.

(d) Install the dial indicator on the magnetic stand.

(e) The dial indicator stylus must touch the lower skin of the horizontal stabilizer near the boom fairing.

NOTE:
- Adjust the position of the dial indicator stylus perpendicularly to the horizontal stabilizer plane.
- Adjust the rod of the dial indicator approximately in the middle of its travel.

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(f) Set the dial indicator to zero.

(g) Attach two trays to the belts installed in the horizontal stabilizer.

NOTE: If you use trays that are not items of GSE 062, make sure that they each weigh 4 kgf (8.8 lbf).

(2) Apply the loads to measure the actuator backlash.

- See Table 501.

Table 501 - ACTUATOR BACKLASH

TOTAL LOAD APPLIED		CYCLE 1	CYCLE 2	CYCLE 3
d_1	40 kgf (88.2 lbf)			
d_2	90 kgf (198.4 lbf)			
actuator backlash (mm)				
average actuator backlash (mm)				

(a) Carefully put 16 kgf (35.3 lbf) in each tray simultaneously. Thus, you apply a total load of 40 kgf symmetrically to the horizontal stabilizer.

NOTE:
- Make sure that the weight of the 4 kgf (8.8 lbf) tray is included in a total weight of 20 kgf (44.1 lbf).
- Put the weight to the tray smoothly to prevent bumps.
- Do not set the dial indicator to zero, after you start the procedure.
- There must be no gaps in the assembly of the dial indicator.
- You can achieve the total load with small loads in increments or with the total load increment.

(b) Write the displacement shown on the dial indicator for 40 kgf (88.2 lbf). This value is d_1.

(c) Carefully add 25 kgf (55.1 lbf) in each tray simultaneously. Thus, you apply a total load of 90 kgf (198.4 lbf) symmetrically to the horizontal stabilizer.

NOTE:
- Make sure the weight of the 4 kgf (8.8 lbf) tray is included in a total weight of 45 kgf (99.2 lbf).
- Put the weight to the tray smoothly to prevent bumps.
- There must be no gaps in the assembly of the dial indicator
- Weight of load applied in step (a) (20 kgf or 44.1 lbf) plus 25 kgf (55.1 lbf): the load applied to the leading edge of the horizontal stabilizer is 45 kgf (99.2 lbf).
- You can achieve the total load with small loads in increments or with the total load increment.

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(d) Write the displacement shown on the dial indicator for 90 kgf (198.4 lbf). This value is d_2.

(e) The actuator backlash for each cycle is:

Actuator Backlash = $d_2 – (2.25 \times d_1)$.

(f) Remove the weights from the trays.

(g) Remove the trays from the hooks.

(h) Set the dial indicator to zero.

(i) Do the cycle from step (a) to step (h) again two more times.

(j) The actuator backlash is the average value of the backlash of the three cycles.

(k) The maximum value permitted for the actuator backlash is 0.30 mm.

NOTE: If the value found is out of the limit, refer to FIM TASK 27-40-00-810-802-A.

(3) Remove the dial indicator, magnetic stand and its support, and the two trays from the aircraft.

- Remove the two supports and their belts from the the horizontal stabilizer.
- Install the bolts to the vertical stabilizer that were removed.

(4) Do these procedures to install the GSEs to measure the bearing backlash of the left link. Refer to Figure 503 and Figure 504.

(a) Install the support and its belt on the right horizontal-stabilizer tip. Refer to Figure 504.

- Remove the two bolts that attach the leading edge to the horizontal stabilizer.
- Use the bolts of the GSE to install the support of the belts.

NOTE: When you remove this support and belt, install the bolts that were removed.

(b) Install magnetic stand support AGE-00592-401 of the dial indicator (GSE 073) on the left side of the vertical stabilizer. Refer to Figure 503.

- Remove the two bolts that attach the boom fairing to the vertical stabilizer.
- Use the bolts of the GSE to install the magnetic stand support of the dial indicator.

NOTE: When you remove this support, you must install the bolts that were removed.

(c) Install the magnetic stand (GSE 072) to support AGE-00592-401.

(d) Install the dial indicator on the magnetic stand.

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(e) The dial indicator stylus must touch the lower skin of the horizontal stabilizer near the boom fairing.

NOTE:
- Adjust the position of the dial indicator stylus perpendicularly to the horizontal stabilizer plane.
- Adjust the rod of the dial indicator approximately in the middle of its travel.

CAUTION: YOU MUST ADJUST THE DIAL INDICATOR TO ZERO BEFORE YOU INSTALL THE TRAY.

(f) Set the dial indicator to zero.

(g) Attach the tray to the belt installed at the right horizontal-stabilizer tip.

NOTE: If you use a tray that is not an item of GSE 062, make sure that it weighs 4 kgf (8.8 lbf).

(5) Apply the loads to measure the bearing backlash of the left link.

- See Table 502.

Table 502 - BEARING BACKLASH OF THE LEFT LINK

TOTAL LOAD APPLIED		CYCLE 1	CYCLE 2	CYCLE 3
d_3	10 kgf (22.0 lbf)			
d_4	22 kgf (48.5 lbf)			
bearing backlash (mm)				
average bearing backlash (mm)				

(a) Carefully put 6 kgf (13.2 lbf) in the tray at the leading edge of the horizontal stabilizer.

NOTE:
- Put the weight in the tray smoothly to prevent bumps.
- Do not set the dial indicator to zero, after you start this cycle.
- There must be no gaps in the assembly of the dial indicator.
- The weight of the tray 4 kgf (8.8 lbf) plus 6 kgf (13.2 lbf): load applied to the leading edge of the horizontal stabilizer is 10 kgf (22.0 lbf).
- You can achieve the total load with small loads in increments or with the total load increment.

(b) Write the displacement shown on the dial indicator for 10 kgf (22.0 lbf). This value is d_3.

(c) Carefully add 12 kgf (26.5 lbf) in the tray at the leading edge of the horizontal stabilizer.

NOTE:
- Put the weight in the tray smoothly to prevent bumps.

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- Do not set the dial indicator to zero, after you start this cycle.
- There must be no gaps in the assembly of the dial indicator.
- Weight of the load applied in step (a) (10 kgf or 22.0 lbf) plus 12 kgf (26.5 lbf): the load applied to the leading edge of the horizontal stabilizer is 22 kgf (48.5 lbf).
- You can achieve the total load with small loads in increments or with the total load increment.

(d) Write the displacement shown on the dial indicator for 22 kgf (48.5 lbf). This value is d_4.

(e) The bearing backlash of the left link for each cycle is:

$$\text{Bearing backlash} = d_4 - (2.2 \times d_3).$$

(f) Remove the weights from the trays.

(g) Remove the trays from the hooks.

(h) Set the dial indicator to zero.

(i) Do the cycle from step (a) to step (h) again two more times.

(j) The bearing backlash of the left link is the average value of the three cycles.

(k) The maximum value permitted for the bearing backlash is 0.15 mm.

NOTE: If the value found is out of the limit, refer to FIM TASK 27-40-00-810-802-A.

(6) Remove the tray, belt and support from the right horizontal-stabilizer tip and the dial indicator, magnetic stand and support from the left horizontal stabilizer.

(7) Install the bolts to the vertical stabilizer that was removed.

(8) Do steps 5 and 6 to measure the bearing backlash of the right link. Refer to Table 503. For this, it is necessary:

(a) To install magnetic stand support AGE-00592-401 of the dial indicator (GSE 073) on the right side of the vertical stabilizer.

(b) To put the tray at the left horizontal-stabilizer tip. Refer to Figure 505.

NOTE: If you use a tray that is not an item of GSE 062, make sure that it weighs 4 kgf (8.8 lbf).

(c) To apply load to this tray.

(d) The maximum backlash value permitted for the bearing of right link of the horizontal stabilizer is 0.15 mm.

NOTE: If the value found is out of the limit, refer to FIM TASK 27-40-00-810-802-A.

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Table 503 - BEARING BACKLASH OF THE RIGHT LINK

TOTAL LOAD APPLIED		CYCLE 1	CYCLE 2	CYCLE 3
d_3	10 kgf (22.0 lbf)			
d_4	22 kgf (48.5 lbf)			
bearing backlash (mm)				
average bearing backlash (mm)				

K. Follow-on

SUBTASK 842-002-A

(1) Examine all bolts removed during this procedure and make sure that they are correctly installed.

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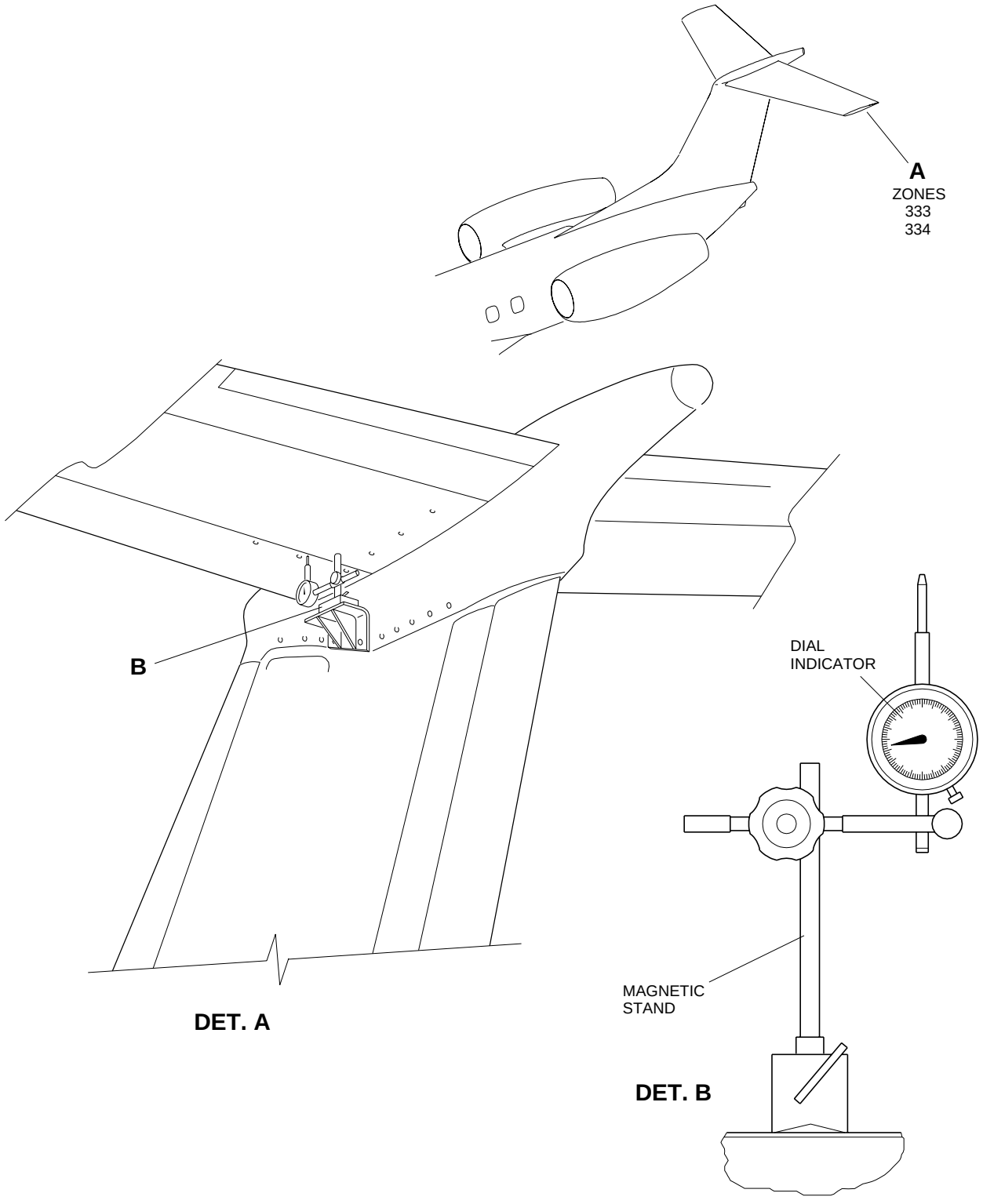
EFFECTIVITY: ALL

Dial Indicator Location for Actuator Backlash Inspection
Figure 501 - Sheet 1



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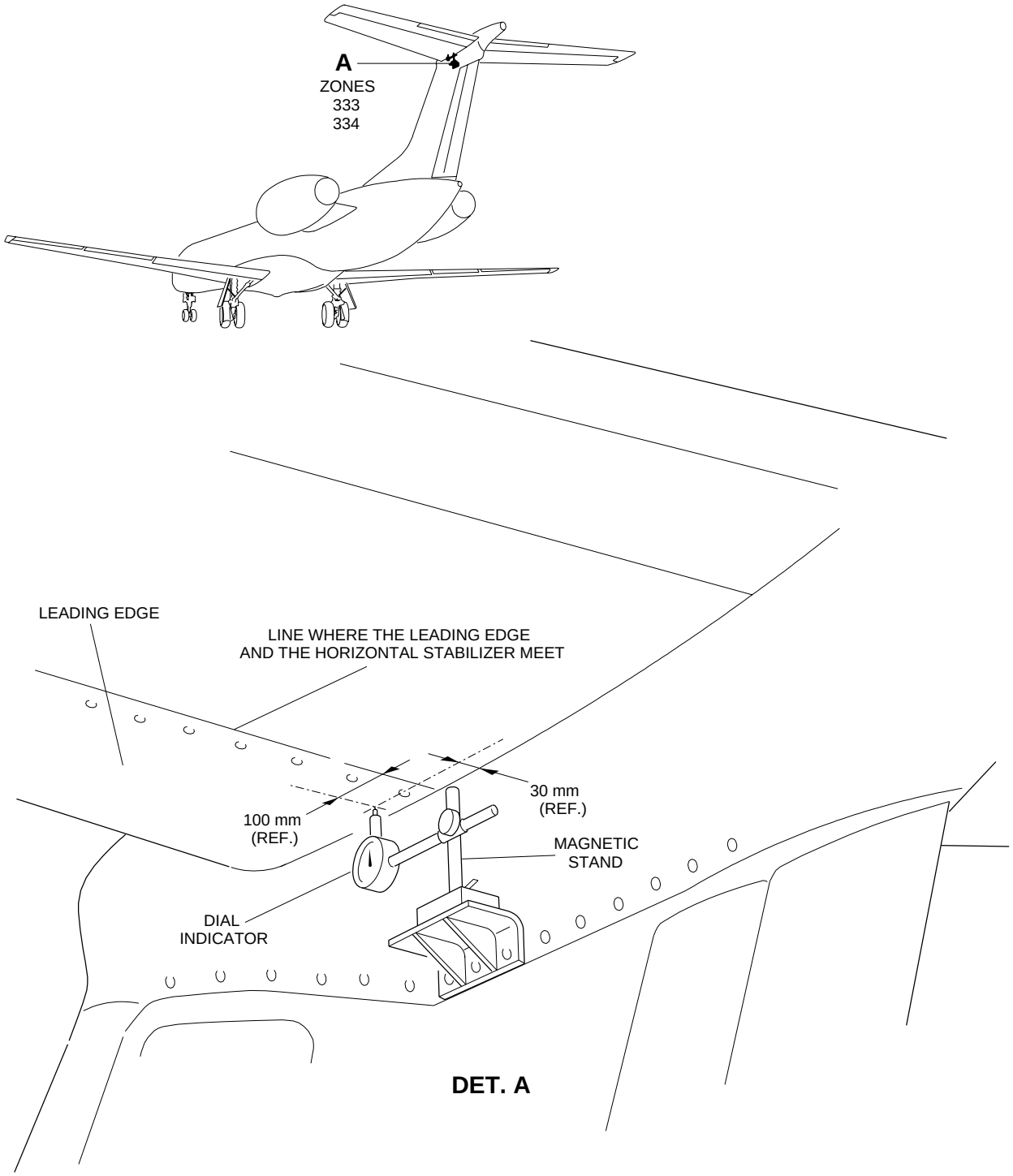
EFFECTIVITY: ALL

Dial Indicator Location for Actuator Backlash Inspection
Figure 501 - Sheet 2



145AMM270487.MCE

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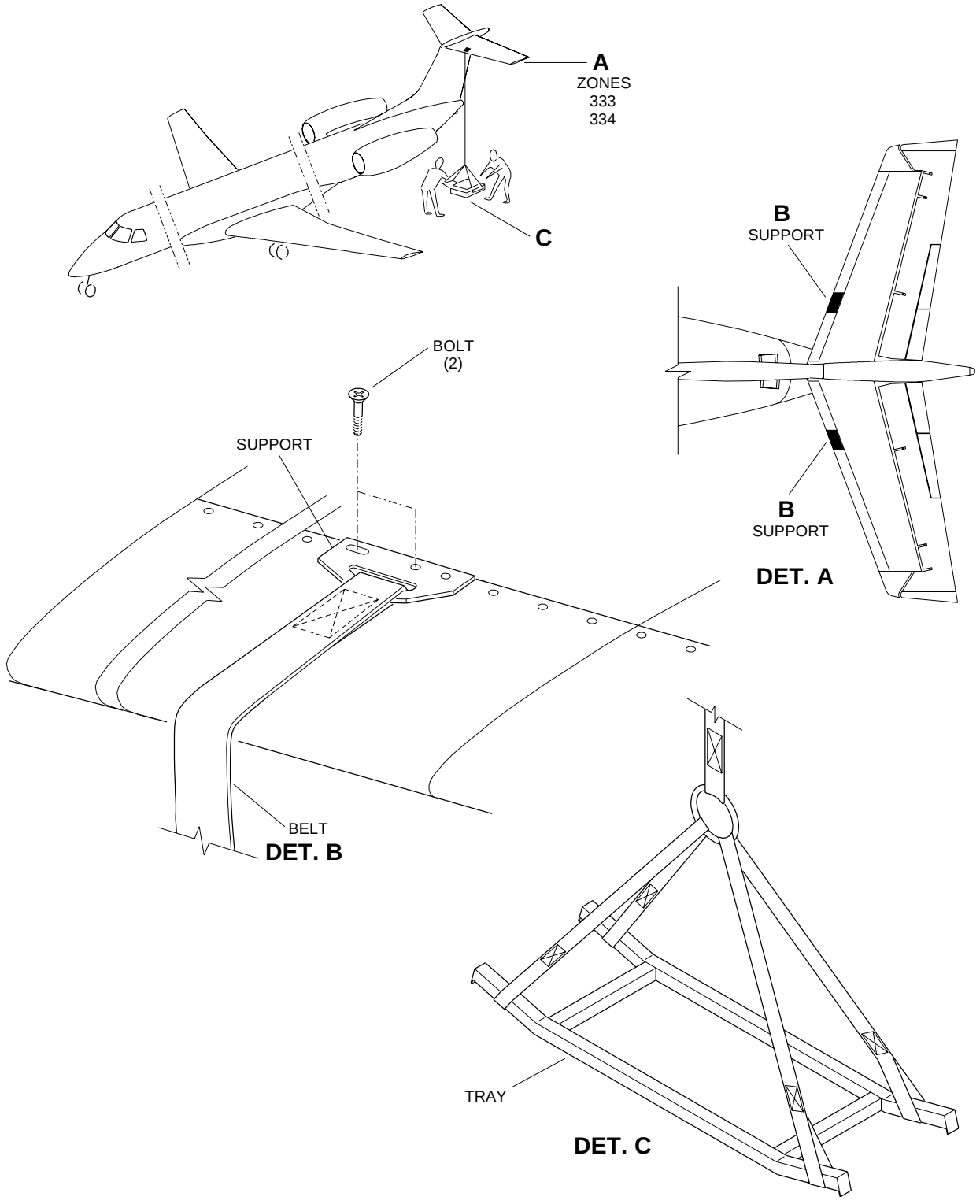
EFFECTIVITY: ALL

GSE Location for Load Application to Measure Actuator Backlash
Figure 502



EM145AMM270716B.DGN

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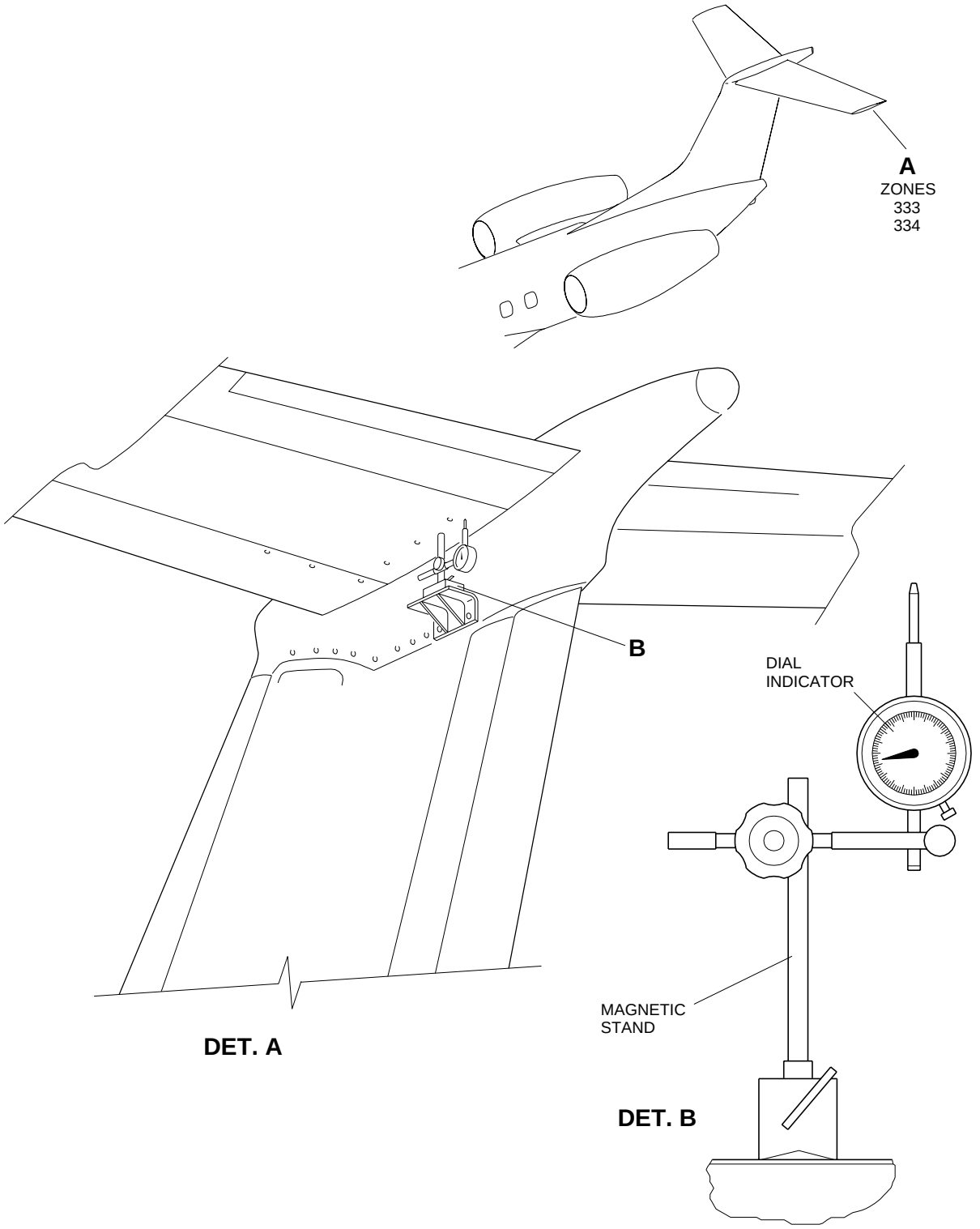
EFFECTIVITY: ALL

Dial Indicator Location for LH Bearing Backlash Inspection
Figure 503 - Sheet 1



145AMM270452.MCE A

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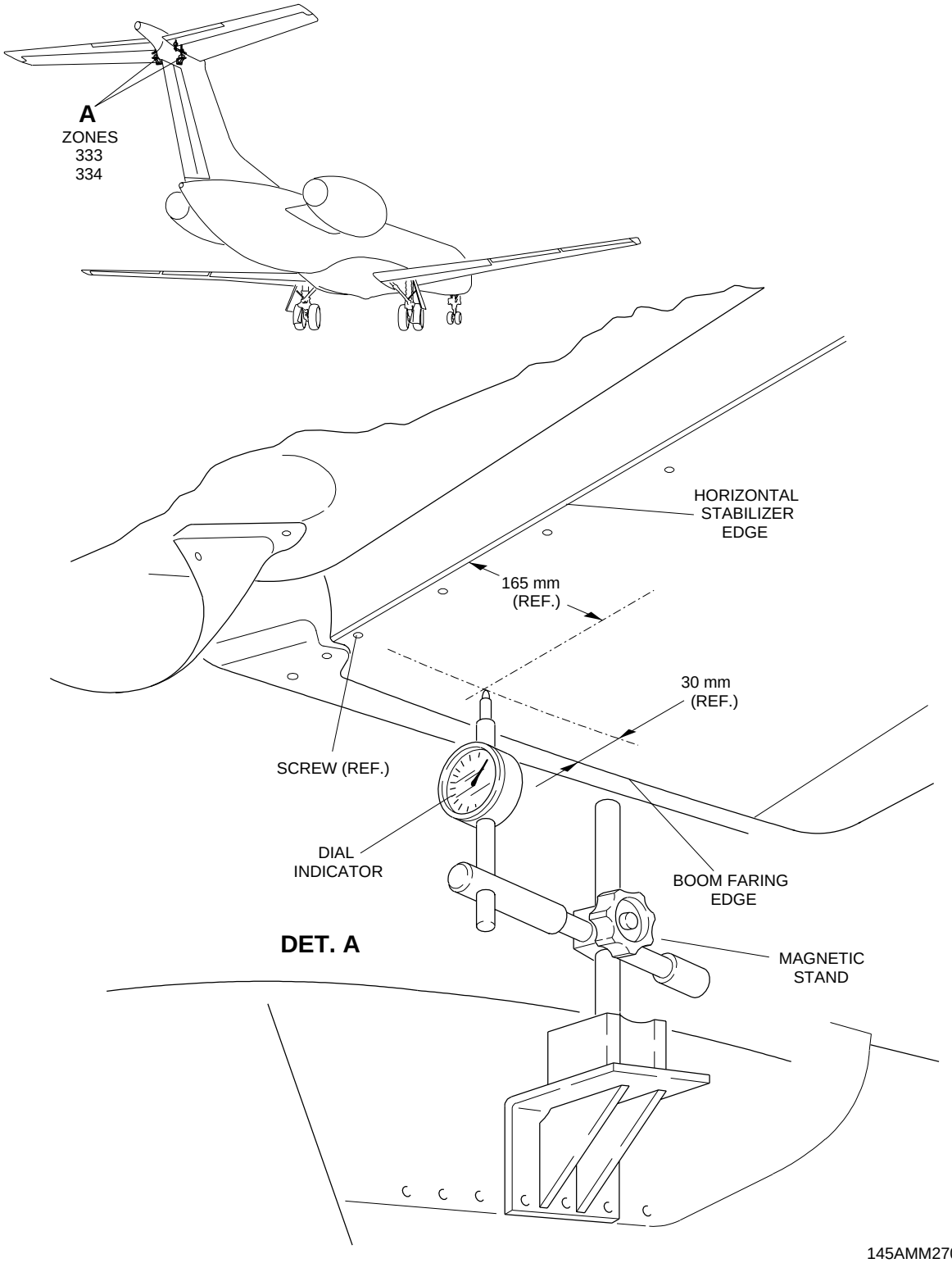
EFFECTIVITY: ALL

Dial Indicator Location for LH Bearing Backlash Inspection
Figure 503 - Sheet 2



145AMM270488.MCE

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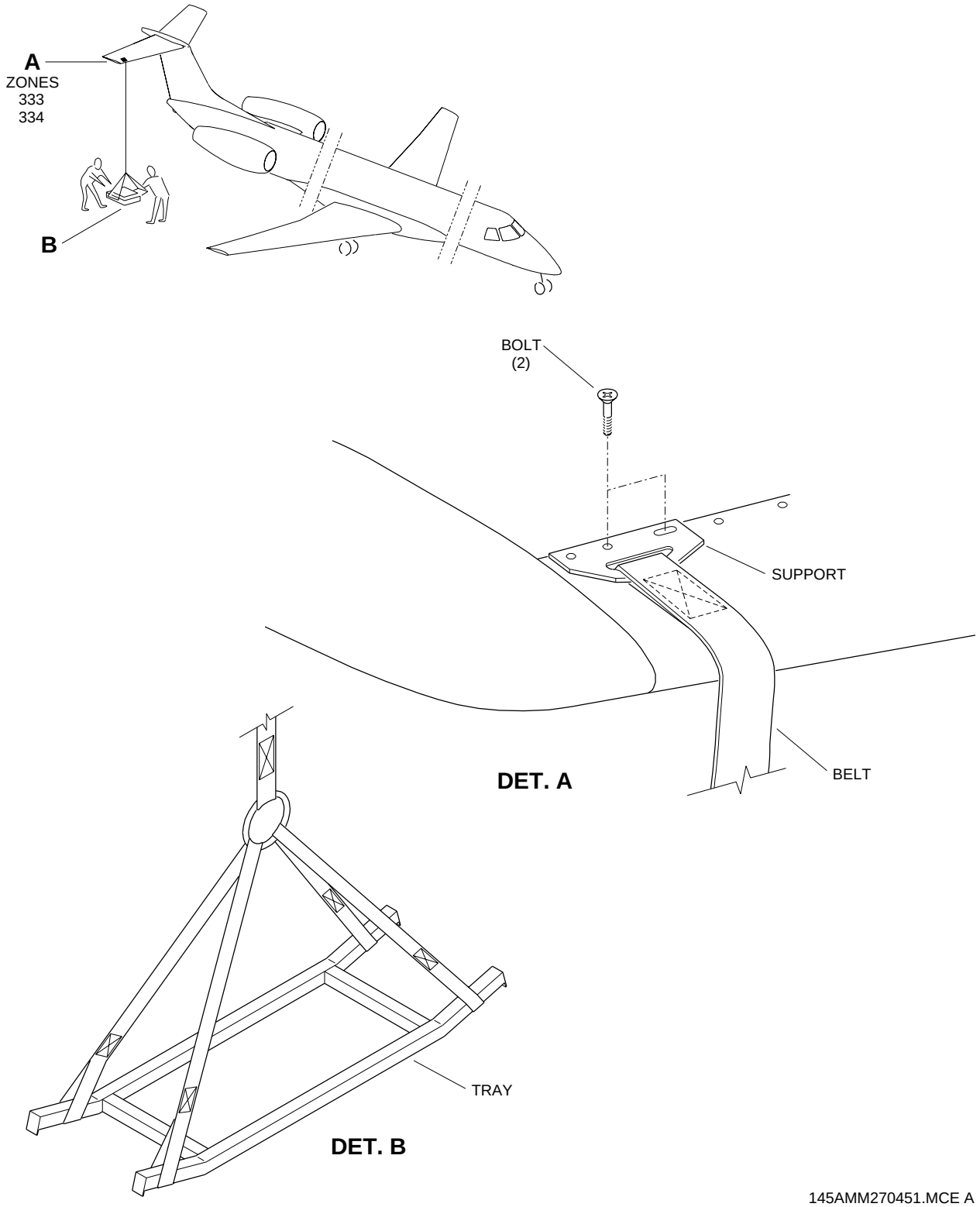
EFFECTIVITY: ALL

GSE Location for Load Application to Measure LH Bearing Backlash
Figure 504



145AMM270451.MCE A

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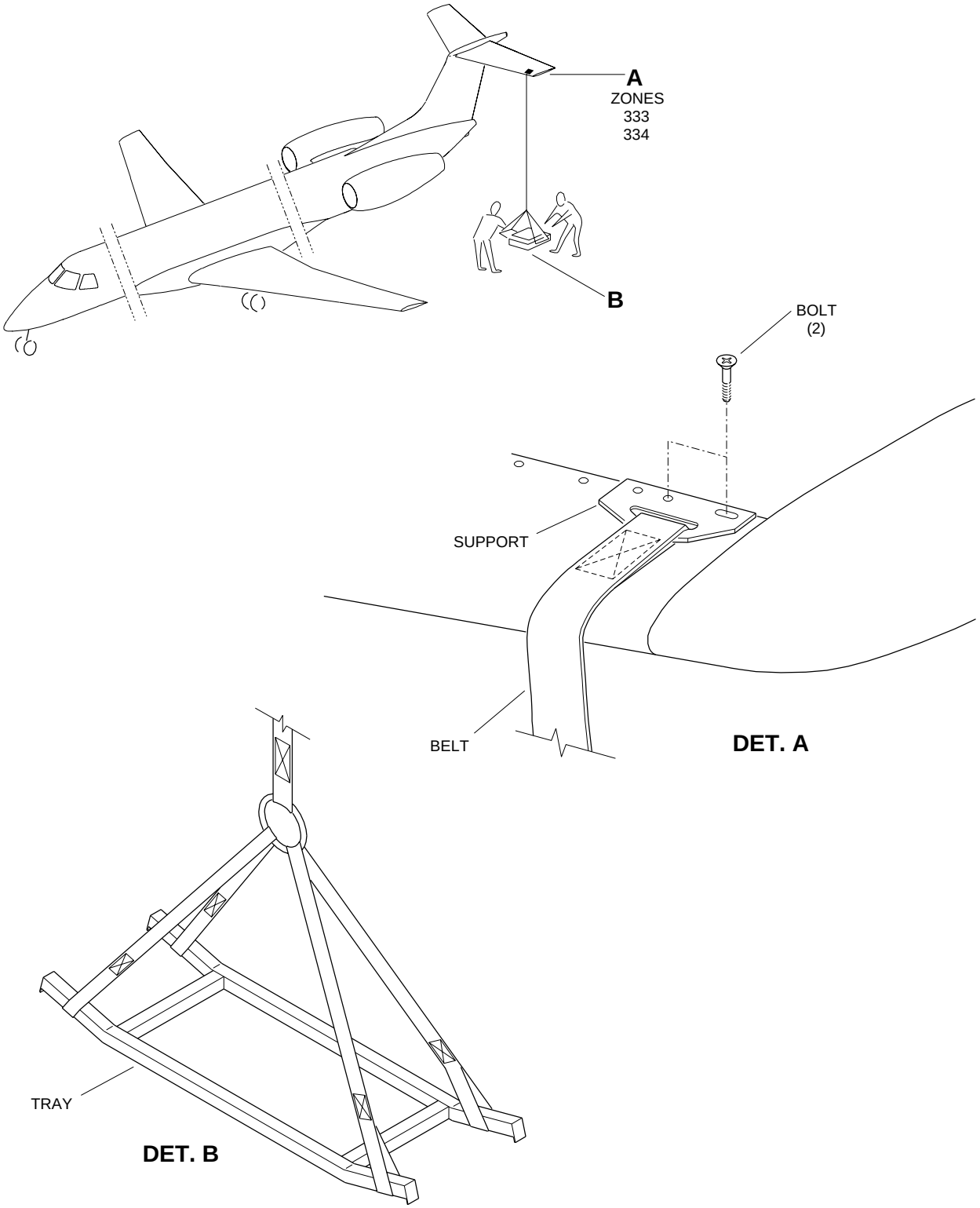
EFFECTIVITY: ALL

GSE Locations for Load Application to Measure RH Bearing Backlash
Figure 505



145AMM270450.MCE A

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TASK 27-40-00-700-802-A
EFFECTIVITY: ALL

3. HORIZONTAL-STABILIZER ELECTRICAL/ELECTRONIC OPERATIONAL TEST

A. General

(1) This task gives the procedures to do the operational check of the horizontal stabilizer.

(2) Figure 506 shows the location of the pilot control trim switch, the pitch trim indication on the EICAS, and the Trim Control panel.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 49-10-00-910-802-A/200	APU - START
S.B.145-27-0084	-

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	Cockpit

I. Preparation

SUBTASK 841-003-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Do not do other tasks on the rudder, elevator, and horizontal stabilizer at the same time.

(3) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200) or with APU AMM TASK 49-10-00-910-802-A/200).

J. Horizontal-Stabilizer Electrical/Electronic Operational Test (Figure 506)

SUBTASK 710-002-A

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(1) Do a check of the horizontal stabilizer movement. Use the trim switch, on the pilot control wheel.

(a) Set the trim switch to the UP position.

Result:

1 The horizontal-stabilizer surface leading edge moves down.

2 On the EICAS, the pitch trim indication moves up.

3 After three seconds, the movement of the Horizontal Stabilizer stops and, for all aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

NOTE: If the conditions of result 3 are not applicable, no aural message is heard .

(b) Set the trim switch to the DOWN position.

Result:

1 The horizontal-stabilizer surface leading edge moves up.

2 On the EICAS, the pitch trim indication moves down.

3 After three seconds, the movement of the Horizontal Stabilizer stops and, for all aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

NOTE: If the conditions of result 3 are not applicable, no aural message is heard.

(2) Again do step (1) on the copilot control wheel.

(3) Do a check of the horizontal stabilizer movement. Use the backup trim switch.

(a) Set the backup trim switch to the UP position.

Result:

1 The horizontal-stabilizer surface leading edge moves down.

2 On the EICAS, the pitch trim indication moves up.

3 After three seconds, the movement of the Horizontal Stabilizer stops and, for all aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

NOTE: If the conditions of result 3 are not applicable, no aural message is heard .

(b) Set the backup trim switch to the DOWN position.

Result:

1 The horizontal-stabilizer surface leading edge moves up.

2 On the EICAS, the pitch trim indication moves down.

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3 After three seconds, the movement of the Horizontal Stabilizer stops and, for all aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

NOTE: If the conditions of result 3 are not applicable, no aural message is heard .

(4) Do a check on the aural warning message and the messages displayed on the EICAS.

(a) Move only one half of the trim switch on the pilot control wheel to the UP or Down position and keep it thus.

Result:

1 The horizontal-stabilizer surface and the pitch trim indication, on the EICAS, do not move.

2 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028 or aircraft equipped with HSCU 1009, after one second, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

3 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0033 or for aircraft POST-MOD. S.B. 145-31-0033 and equipped with HSCU 1009 or 5009, after seven seconds, on the EICAS, the message PTRIM CPT SW FAIL comes on, and the TRIM aural message stops.

NOTE: If the conditions of results 2 and 3 are not applicable, no aural message is heard and no visual message is displayed on the EICAS.

(b) Move only one half of the trim switch on the co-pilot control wheel to the UP or Down position and keep it thus.

Result:

1 The horizontal-stabilizer surface and the pitch trim indication, on the EICAS, do not move.

2 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028 or aircraft equipped with HSCU 1009, after one second, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

3 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0033 or for aircraft POST-MOD. S.B. 145-31-0033 and equipped with HSCU 1009 or 5009, after seven seconds, on the EICAS, the message PTRIM F/O SW FAIL comes on, and the TRIM aural message stops.

NOTE: If the conditions of results 2 and 3 are not applicable, no aural message is heard and no visual message is displayed on the EICAS.

(c) Move only one half of the backup trim switch on the control pedestal to the UP or Down position and keep it thus.

Result:

1 The horizontal-stabilizer surface and the pitch trim indication on the EICAS, do not move.

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2 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0028 or aircraft equipped with HSCU 1009, after one second, the aural warning gives forth a single chime discrete tone and the TRIM aural message is heard many times.

3 For aircraft POST-MOD. S.B.145-27-0084 and S.B. 145-31-0033 or for aircraft POST-MOD. S.B. 145-31-0033 and equipped with HSCU 1009 or 5009, after seven seconds, on the EICAS, the message PTRIM BKP SW FAIL comes on, and the TRIM aural message stops.

NOTE: If the conditions of results 2 and 3 are not applicable, no aural message is heard and no visual message is displayed on the EICAS.

K. Follow-on

SUBTASK 842-003-A

(1) On the Circuit Breaker Panel open the PTRIM 1 and PTRIM 2 circuit breakers and close them to reset the EICAS messages.

(2) Set the horizontal stabilizer to the neutral position.

(3) De-energize the aircraft (AMM TASK 20-40-01-860-801-A/200).

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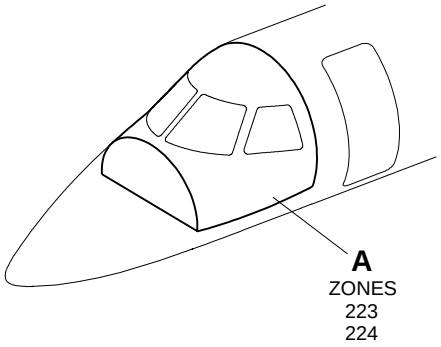
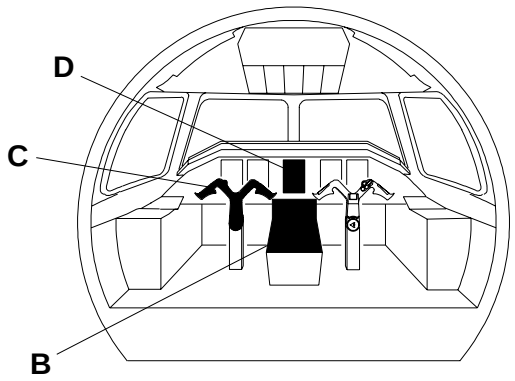
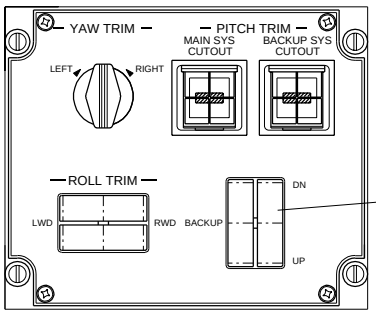
EFFECTIVITY: ALL

Horizontal-Stabilizer Electrical/Electronic Test
Figure 506

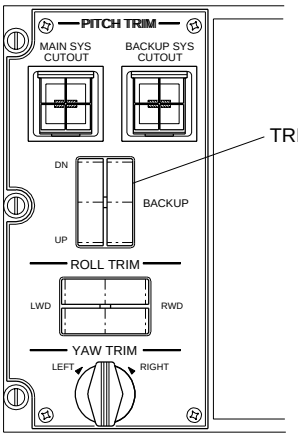




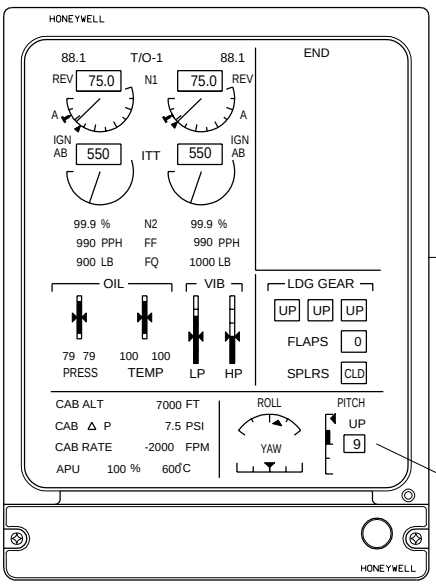
DET. A



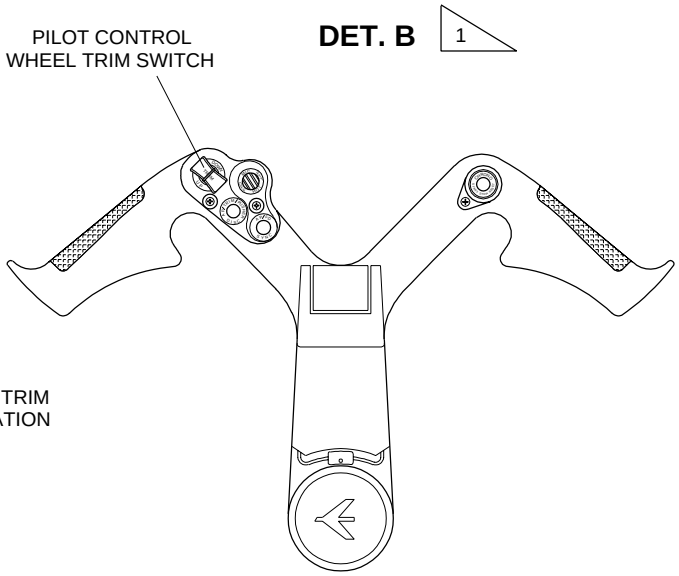
DET. B 2



DET. B 1



DET. D



DET. C

1 APPLICABLE TO AIRCRAFT WITH SINGLE FMS INSTALLED.

2 APPLICABLE TO AIRCRAFT WITH DUAL FMS INSTALLED.

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TASK 27-40-00-700-803-A
EFFECTIVITY: ALL

4. BACKUP SYS CUTOUT PUSHBUTTON MAIN SYS CUTOUT SWITCH AND QUICK DISCONNECT SWITCH - OPERATIONAL CHECK

A. General

(1) This task gives the procedures to do the operational check of the BACKUP SYS CUTOUT pushbutton, MAIN SYS CUTOUT switch, and Quick Disconnect switch.

(2) Figure 507 show the location of the pilot control trim switch, Trim Control panel, and quick disconnect switch.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
SB 145-27-0016	-
SB 145-27-0022	-

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	Cockpit

I. Preparation

SUBTASK 841-004-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Do not do other tasks on the rudder, elevator, and horizontal stabilizer.

(3) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

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(4) Make sure that the MAIN SYS CUTOUT switch and BACKUP SYS CUTOUT pushbutton lights are off.

J. Operationally Check BACKUP SYS CUTOUT Switch, MAIN SYS CUTOUT Switch, and Quick Disconnect Switch (Figure 507)

SUBTASK 710-003-A

(1) Do a check of the BACKUP SYS CUTOUT pushbutton and MAIN SYS CUTOUT switch to make sure that they are serviceable.

(a) Push the MAIN SYS CUTOUT switch on the control pedestal.

Result:

1 The switch light comes on.

2 On the EICAS display, the PIT TRIM 1 INOP or PIT TRIM MAIN INOP (EICAS 18.5 and on), warning message comes into view.

(b) Operate the Pilot Trim Switch on the control yoke.

Result:

1 The system does not operate.

(c) Operate the Copilot Trim Switch on the control yoke.

Result:

1 The system does not operate.

(d) Push the BACKUP SYS CUTOUT pushbutton on the control pedestal.

Result:

1 The pushbutton light comes on.

2 On the EICAS display (up to version 17.5), the PIT TRIM 1 INOP warning message changes to PIT TRIM 1-2 INOP.

3 On the EICAS display (version 18.5 and on), the PIT TRIM BACKUP INOP warning message comes into view.

(e) Operate the BACKUP TRIM switch.

Result:

1 The system does not operate.

(f) Push the MAIN SYS CUTOUT switch on the control pedestal.

Result:

1 The switch light goes off.

2 On the EICAS display (up to version 17.5), the PIT TRIM 1-2 INOP warning message changes to PIT TRIM 2 INOP.

3 On the EICAS display (version 18.5 and on), the PIT TRIM MAIN INOP warning message goes out of view.

(g) Operate the Pilot Trim Switch on the control yoke.

Result:

1 The system operates.

(h) Operate the Copilot Trim Switch on the control yoke.

Result:

1 The system operates.

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(i) Push the BACKUP SYS CUTOUT pushbutton on the control pedestal.

Result:

1 The pushbutton light goes off.

2 On the EICAS display (up to version 17.5), the PIT TRIM 2 INOP warning message goes out of view.

3 On the EICAS display (version 18.5 and on), the PIT TRIM BACKUP INOP warning message goes out of view.

(j) Operate the BACKUP trim switch.

Result:

1 The system operates.

(2) Do a check of the pilot Quick-Disconnect switch.

(a) Operate the pilot trim switch on the control yoke.

(b) While the system operates, push the pilot Quick-Disconnect switch, on the pilot control yoke, and keep it pushed.

Result:

1 The system stops.

(c) Operate the copilot trim switch on the control yoke.

(d) While the system operates, push the pilot Quick-Disconnect switch, on the pilot control yoke, and keep it pushed.

Result:

1 The system stops.

(3) Do a check of the copilot Quick-Disconnect switch.

(a) Operate the pilot trim switch on the control yoke.

(b) While the system operates, push the copilot Quick-Disconnect switch, on the copilot control yoke, and keep it pushed.

Result:

1 The system stops.

(c) Operate the copilot trim switch on the control yoke.

(d) While the system operates, push the copilot Quick-Disconnect switch, on the copilot control yoke, and keep it pushed.

Result:

1 The system stops.

(4) Do a check of the functions of the BACKUP trim switch and Quick-Disconnect switch.

NOTE: This step is applicable only to aircraft POST-MOD SB 145-27-0016 and SB 145-27-0022.

(a) Push the UP position of the BACKUP trim switch.

Result:

1 The horizontal-stabilizer surface leading edge moves down.

2 On the EICAS, the pitch trim indication moves up.

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(b) While the system operates, push the pilot Quick-Disconnect switch, on the pilot control yoke, and keep it pushed.

Result:

1 The system stops.

(c) Release the pilot Quick-Disconnect switch and BACKUP trim switch.

(d) Push the DOWN position of the BACKUP trim switch.

Result:

1 The horizontal-stabilizer surface leading edge moves up.

2 On the EICAS, the pitch trim indication moves down.

(e) While the system operates, push the pilot Quick-Disconnect switch, on the pilot control yoke, and keep it pushed.

Result:

1 The system stops.

(f) Release the pilot Quick-Disconnect switch and BACKUP trim switch.

(g) Push the UP position of the BACKUP trim switch.

Result:

1 The horizontal-stabilizer surface leading edge moves down.

2 On the EICAS, the pitch trim indication moves up.

(h) While the system operates, push the copilot Quick-Disconnect switch, on the copilot control yoke, and keep it pushed.

Result:

1 The system stops.

(i) Release the copilot Quick-Disconnect switch and BACKUP trim switch.

(j) Push the DOWN position of the BACKUP trim switch.

Result:

1 The horizontal-stabilizer surface leading edge moves up.

2 On the EICAS, the pitch trim indication moves down.

(k) While the system operates, push the copilot Quick-Disconnect switch, on the copilot control yoke, and keep it pushed.

Result:

1 The system stops.

(l) Release the copilot Quick-Disconnect switch and BACKUP trim switch.

K. Follow-on

SUBTASK 842-004-A

(1) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

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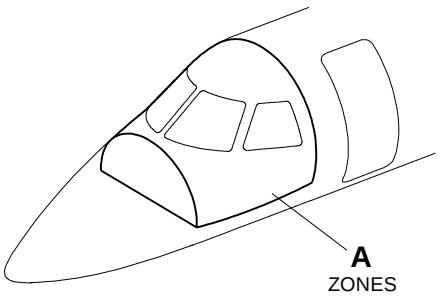
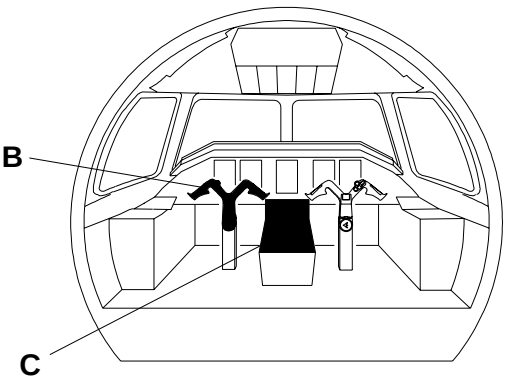
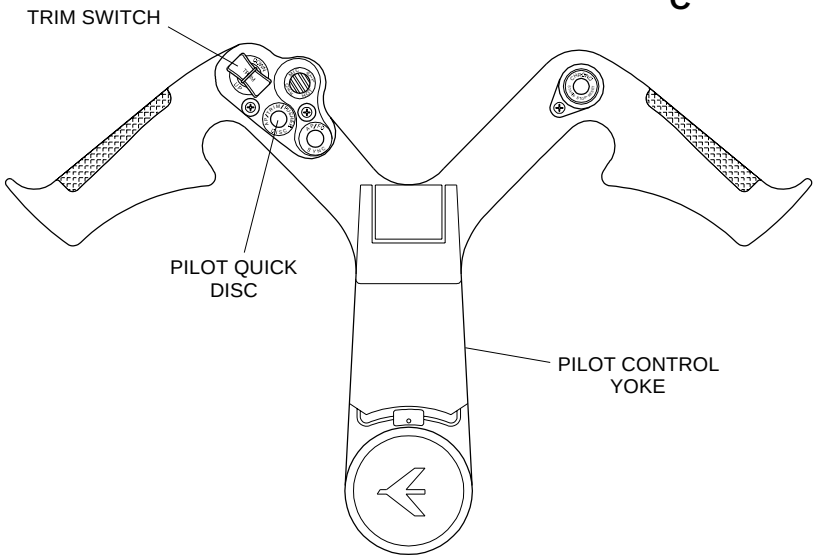
EFFECTIVITY: ALL

Pilot Trim Switch, Trim Control Panel, and Quick-Disconnect Switch Location
Figure 507

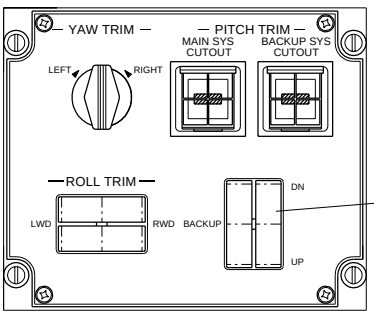




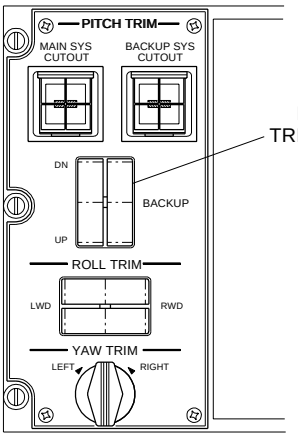
DET. A



DET. B



DET. C 2



DET. C 1

1 APPLICABLE TO AIRCRAFT WITH SINGLE FMS INSTALLED.

2 APPLICABLE TO AIRCRAFT WITH DUAL FMS INSTALLED.

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TASK 27-40-00-700-804-A
EFFECTIVITY: ALL

5. STABILIZER TIMER CONTROL - FUNCTIONAL CHECK

A. General

(1) This task gives the procedures to do the functional check of the stabilizer timer control.

(2) Figure 507show the location of the pilot control trim switch, Trim Control panel, and quick disconnect switch.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Stopwatch	To measure the time	

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	Cockpit

I. Preparation

SUBTASK 841-005-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Do not do other tasks on the rudder, elevator, and horizontal stabilizer.

(3) Energize the aircraft with the External DC-Power Supply (AMM TASK 20-40-01-860-801-A/200).

J. Functionally Check the Stabilizer Timer Control Figure 507

SUBTASK 720-003-A

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(1) Do a check of the timer control.

(a) Operate the pilot trim switch to the up or down position on the control yoke.
Result:
1 The horizontal stabilizer moves.

(b) Operate the copilot trim switch to the up or down position on the control yoke.
Result:
1 The horizontal stabilizer moves.

(c) Operate the BACKUP Trim switch to the up or down position on the control pedestal.
Result:
1 The horizontal stabilizer moves.

(d) Operate the pilot trim switch continuously for more than 3 seconds.
Result:
1 The horizontal stabilizer does not move after 3 seconds.

(e) Operate the copilot trim switch continuously for more than 3 seconds.
Result:
1 The horizontal stabilizer does not move after 3 seconds.

(f) Operate the BACKUP trim switch continuously for more than 3 seconds.
Result:
1 The horizontal stabilizer does not move after 3 seconds.

K. Follow-on

SUBTASK 842-005-A

(1) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

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TASK 27-40-00-700-805-A
EFFECTIVITY: ALL

6. "TAKEOFF TRIM" AURAL WARNING - OPERATIONAL CHECK

A. General

(1) This task gives the procedures to do the operational check of the “Takeoff Trim” aural warning.

(2) Because of the tolerance of EICAS and AWS, when the pitch trim is adjusted on the threshold of green band (Figure 508), there will probably be a disagreement between NO TAKEOFF CONFIG message, on the EICAS, and "Takeoff Trim" aural warning. NO TAKEOFF CONFIG comes into view on the EICAS display without the "Takeoff Trim" aural warning, or vice versa.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 10-10-01-500-801-A/200	AIRCRAFT NORMAL PARKING
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-44-00-700-801-A/500	EMERGENCY/PARKING BRAKE SYSTEM - FUNCTIONAL CHECK

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	Cockpit

I. Preparation

SUBTASK 841-006-A

(1) Make sure that the aircraft is safe for maintenance.

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(2) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

(3) Make sure that the AWS 1, AWS 2, FADEC 1A, FADEC 2A, FLAP 1, FLAP 2, AIR GROUND A, B, C, and D circuit breakers are closed, on the Circuit Breaker Panel.

(4) Do not put the aircraft on jacks.

(5) Put shocks at the landing gear wheels (AMM TASK 10-10-01-500-801-A/200).

(6) Make sure that the emergency parking-brake handle is released and the BRAKE ON light is off, on the instrument and ramp panels (AMM TASK 32-44-00-700-801-A/500).

J. Operational Check of the “Takeoff Trim” Aural Warning (Figure 508)

SUBTASK 710-004-A

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

(1) Do a check of the “Takeoff Trim” aural warning as follows:

(a) Check that spoilers are closed.

(b) Set the flaps to the 9-degree position.

(c) Make sure that the thrust levers are at the IDLE position.

(d) On the control yoke, operate the pilot trim switch (See Figure 506) to make the pitch trim indication show 1 DN degree (indication out of green band) on the EICAS display.

(e) Move the left (Eng 1) Thrust Lever to the THRUST SET position.

Result:

1 The “Takeoff Trim” aural warning will be in operation.

2 The EICAS display shows the NO TAKEOFF CONFIG warning message.

(f) Move the left (Eng 1) Thrust Lever back to the IDLE position.

Result:

1 The “Takeoff Trim” aural warning is canceled.

2 On the EICAS display, the NO TAKEOFF CONFIG warning message goes out of view.

(g) Move the right (Eng 2) Thrust Lever to the THRUST SET position.

Result:

1 The “Takeoff Trim” aural warning will be in operation.

2 The EICAS display shows the NO TAKEOFF CONFIG warning message.

(h) Move the right (Eng 2) Thrust Lever back to the IDLE position.

Result:

1 The “Takeoff Trim” aural warning is canceled.

2 On the EICAS display, the NO TAKEOFF CONFIG warning message goes out of view.

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(i) On the control yoke, operate the pilot trim switch (See Figure 506) to make the pitch trim indication show 5 UP degrees (indication in the green band) on the EICAS display.

(j) Move the left (Eng 1) Thrust Lever to the THRUST SET position.

Result:

1 The “Takeoff Trim” aural warning stays off.

(k) Move the right (Eng 2) Thrust Lever to the THRUST SET position.

Result:

1 The “Takeoff Trim” aural warning stays off.

(l) Move the two thrust levers back to the IDLE position.

K. Follow-on

SUBTASK 842-006-A

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

(2) Pressurize the hydraulic system (AMM TASK 29-10-00-860-802-A/200).

(3) Set the emergency/parking brake and remove the shocks from the landing gear wheels (AMM TASK 10-10-01-500-801-A/200).

(4) Release the pressure of the hydraulic system (AMM TASK 29-10-00-860-802-A/200).

(5) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

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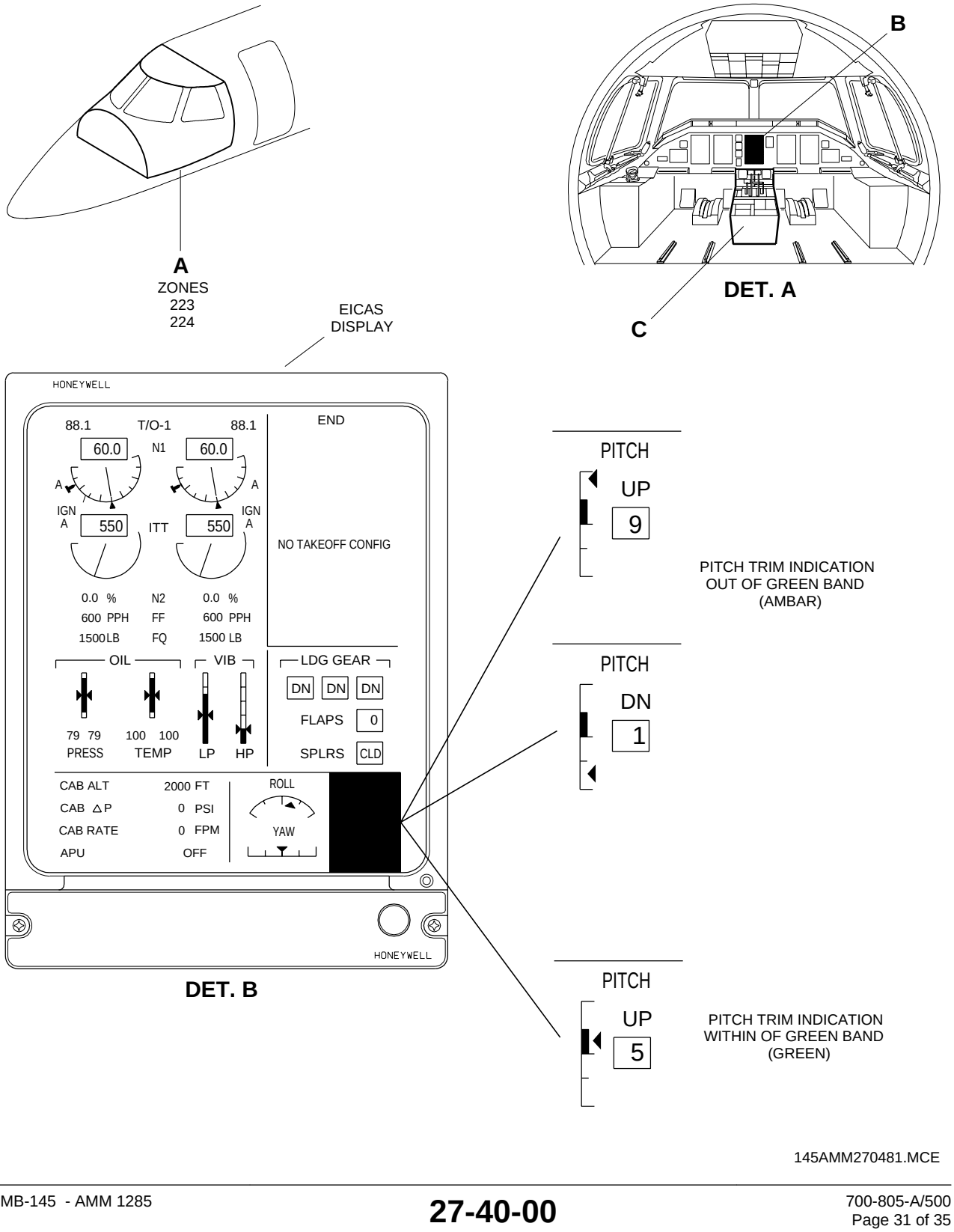
EFFECTIVITY: ALL

EICAS display, Thrust Lever, and Flap Selector Lever - Location
Figure 508 - Sheet 1



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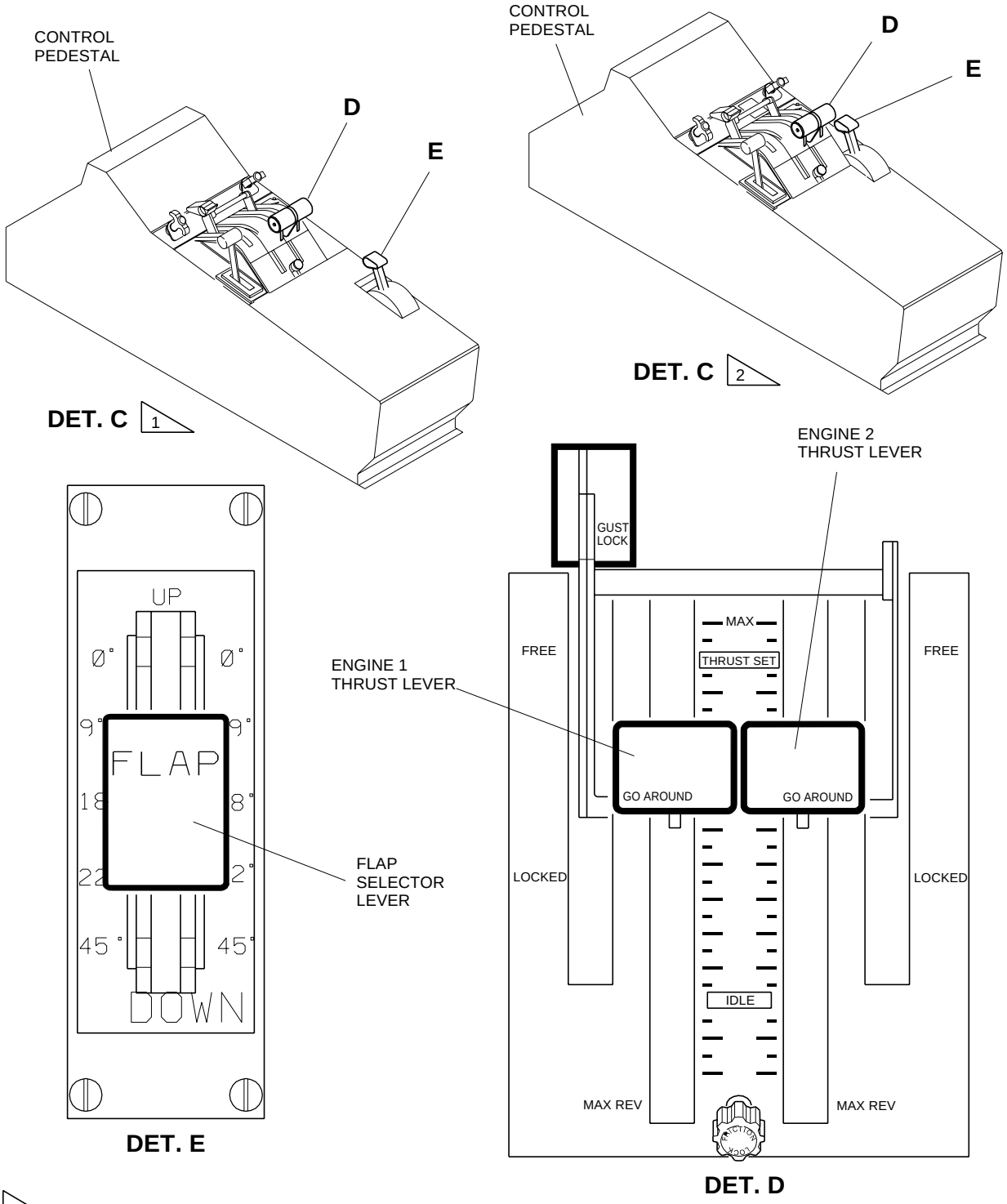
EFFECTIVITY: ALL

EICAS display, Thrust Lever, and Flap Selector Lever - Location
Figure 508 - Sheet 2



1 APPLICABLE TO AIRCRAFT WITH SINGLE FMS INSTALLED

2 APPLICABLE TO AIRCRAFT WITH DUAL FMS INSTALLED

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TASK 27-40-00-700-806-A
EFFECTIVITY: POST-MOD. S.B. 145-27-0106

7. LOCKOUT LOGIC TEST

A. General

(1) This task gives the procedures to do the operational check of the "LOCKOUT LOGIC".

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

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	Cockpit

I. Preparation

SUBTASK 841-007-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Do not do other tasks on the rudder, elevator and horizontal stabilizer at the same time.

(3) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

J. Operational Check of the "LOCKOUT LOGIC". (Figure 509)

SUBTASK 710-005-A

EFFECTIVITY: POST-MOD. S.B. 145-27-0106

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE HORIZONTAL STABILIZER.

(1) Do the operational "LOCKOUT LOGIC" test as follows:

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(a) Command the pilot trim switch and backup trim switch simultaneously to nose up direction.

(b) Make sure that a “PTRIM MAIN INOP” or a “PTRIM BACKUP INOP” non latching message is displayed.

NOTE: The message shown depends on which switch is commanded first. If backup switch starts to be commanded after the pilot switch, the message displayed shall be “PTRIM BACKUP INOP”, and if pilot switch starts to be commanded after the backup switch, the message displayed shall be “PTRIM MAIN INOP”.

(c) Command the copilot trim switch and backup trim switch simultaneously to nose up direction.

(d) Make sure that a “PTRIM MAIN INOP” or a “PTRIM BACKUP INOP” non latching message is displayed.

NOTE: The message shown depends on which switch is commanded first. If backup switch starts to be commanded after the copilot switch, the message displayed shall be “PTRIM BACKUP INOP”, and if copilot switch starts to be commanded after the backup switch, the message displayed shall be “PTRIM MAIN INOP”.

K. Follow-on

SUBTASK 842-007-A

(1) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

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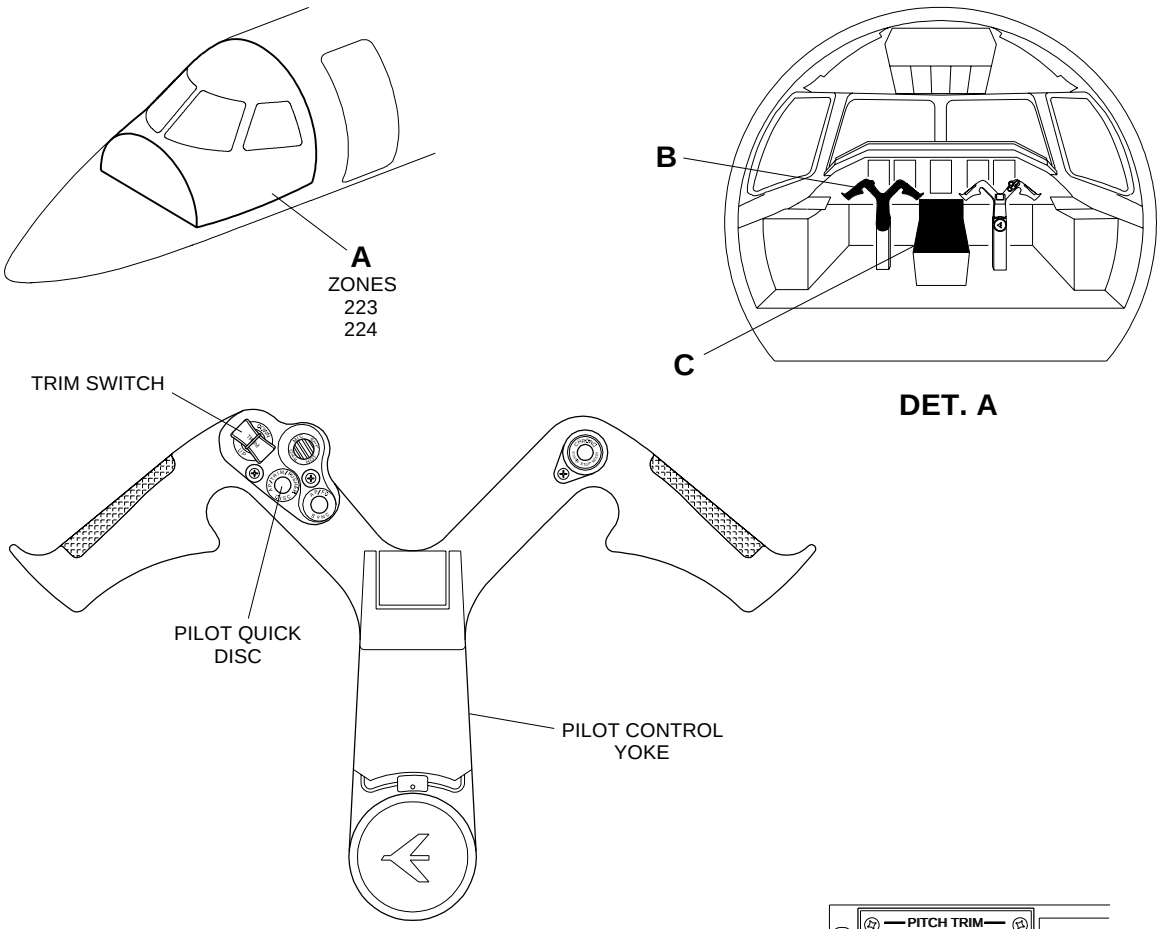
EFFECTIVITY: POST-MOD. S.B. 145-27-0106

Trim Control Panel, Pilot Trim Switch, Copilot Trim Switch and Backup Trim Switch.
Figure 509



1 APPLICABLE TO AIRCRAFT WITH SINGLE FMS INSTALLED.

2 APPLICABLE TO AIRCRAFT WITH DUAL FMS INSTALLED.

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