



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

RUDDER - ELECTRICAL - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to do a check on the alerting function of the rudder movable primary stop and the operational check of the rudder system.

NOTE: The check of the alerting function of the rudder movable primary stop is applicable only to the JAA-certified aircraft (POST-MOD [SB145-27-0015](#)).

- 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
27-23-00-700-803-A ♦	ALERTING FUNCTION OF THE RUDDER MOVABLE PRIMARY STOP - OPERATIONAL CHECK	ALL
27-23-00-700-804-A	RUDDER SYSTEM - OPERATIONAL CHECK	ALL



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AIRCRAFT
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TASK 27-23-00-700-803-A

EFFECTIVITY: ALL

2. ALERTING FUNCTION OF THE RUDDER MOVABLE PRIMARY STOP - OPERATIONAL CHECK

A. General

- (1) This task gives the procedures to do a check on the alerting function of the rudder movable primary stop.
- (2) The rudder movable primary stop permits a rudder deflection of 15 degrees when the aircraft is on the ground and of 10 degrees when the aircraft is in flight.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
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
SB145-22-0004	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
312	312AR	Empennage

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	Rudder

I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Open access door 312AR (AMM MPP 06-42-00/100) to get access to the rudder rear torque tube.

(3) Energize the aircraft with the external DC-power supply ([AMM TASK 20-40-01-860-801-A/200](#)).

(4) Pressurize hydraulic system 2 ([AMM TASK 29-10-00-860-801-A/200](#)).

J. Operationally Check Alerting Function of the Rudder Movable Primary Stop

SUBTASK 710-002-A

(1) Do this procedure to do the check of the alerting function of the rudder movable primary stop for aircraft PRE-MOD [SB145-22-0004](#) ([Figure 501](#)).

(a) Make sure that the AIR/GND C and D circuit breakers are closed on the circuit breaker panel.

(b) Disconnect connector 1P7221 of the microswitch installed in the stop actuator.

(c) On the circuit breaker panel, open the AIR/GND C circuit breaker.

Result:

1 The RUD STOP amber alerting light comes on, after five seconds.

(d) On the circuit breaker panel, close the AIR/GND C circuit breaker.

Result:

1 The RUD STOP amber alerting light goes off.

(e) Connect connector 1P7221 of the microswitch installed in the stop actuator.

Result:

1 The RUD STOP amber alerting light stays off.

(f) Disconnect connector 2P7221 of the microswitch installed in the stop actuator.

(g) On the circuit breaker panel, open the AIR/GND C circuit breaker.

Result:

1 The RUD STOP amber alerting light comes on after five seconds.

(h) On the circuit breaker panel, close the AIR/GND C circuit breaker.

Result:

1 The RUD STOP amber alerting light goes off.

(i) On the circuit breaker panel, open the AIR/GND D circuit breaker.

Result:

1 The RUD STOP amber alerting light comes on, after five seconds.

(j) On the circuit breaker panel, close the AIR/GND D circuit breaker.

Result:

1 The RUD STOP amber alerting light goes off.

(k) Connect connector 2P7221 of the microswitch installed in the stop actuator.

Result:

1 The RUD STOP amber alerting light stays off.

(l) Disconnect connector 1P7221 of the microswitch installed in the stop actuator.

(m) On the circuit breaker panel, open the AIR/GND D circuit breaker.

Result:

1 The RUD STOP amber alerting light comes on, after five seconds.

- (n) On the circuit breaker panel, close the AIR/GND D circuit breaker.
 Result:
 - 1 The RUD STOP amber alerting light goes off.
 - (o) Connect connector 1P7221 of the microswitch installed in the stop actuator.
 Result:
 - 1 The RUD STOP amber alerting light stays off.
- (2) Do this procedure to do the check of the alerting function of the rudder movable primary stop on aircraft POST-MOD [SB145-22-0004](#) ([Figure 502](#)).
- (a) Make sure that the AIR/GND C circuit breaker is closed, on the circuit breaker panel.
 - (b) Disconnect connector 1P7221 of the microswitch installed on the stop actuator.
 Result:
 - 1 On the EICAS display, the RUD STOP DISAGREE caution message comes on.
 - (c) On the circuit breaker panel, open the AIR/GND C and AIR/GND D circuit breakers.
 Result:
 - 1 On the EICAS display, the RUD STOP DISAGREE caution message goes out of view.
 - (d) Connect connector 1P7221 of the microswitch installed on the stop actuator.
 Result:
 - 1 On the EICAS display, the RUD STOP DISAGREE caution message stays out of view.
 - (e) Disconnect connector 2P7221 of the microswitch installed on the stop actuator.
 - (f) On the circuit breaker panel, close the AIR/GND C and AIR/GND D circuit breakers.
 Result:
 - 1 On the EICAS display, the RUD STOP DISAGREE caution message comes on.
 - (g) Connect connector 2P7221 of the microswitch installed on the stop actuator.
 Result:
 - 1 On the EICAS display, the RUD STOP DISAGREE caution message goes out of view.

K. Follow-on

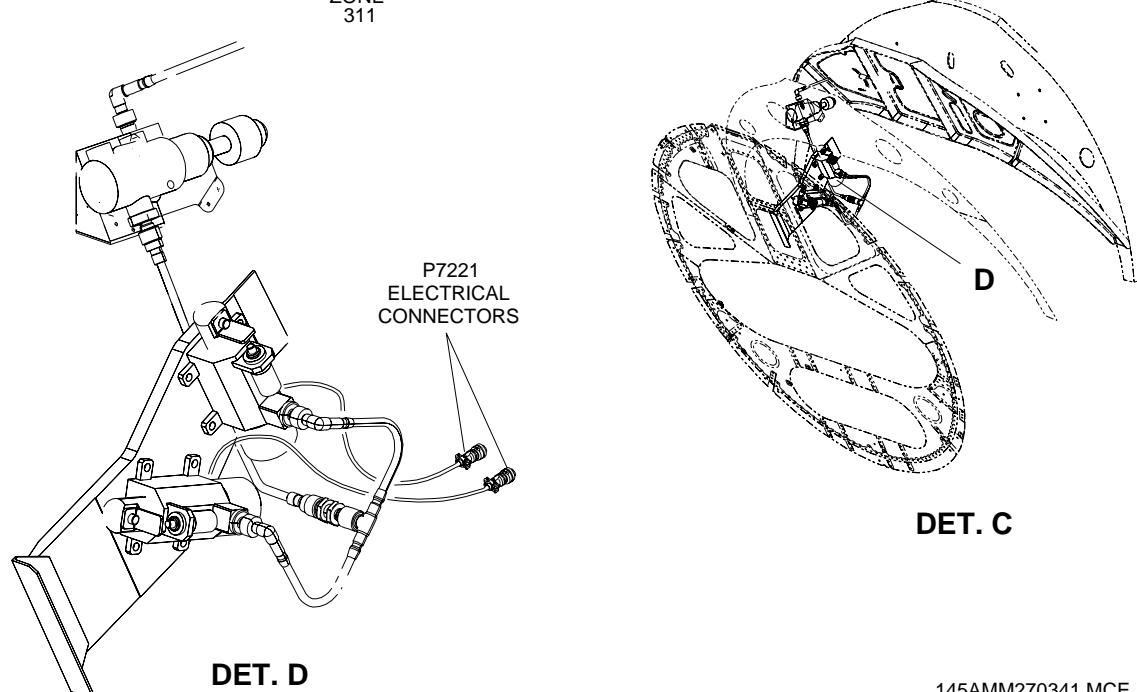
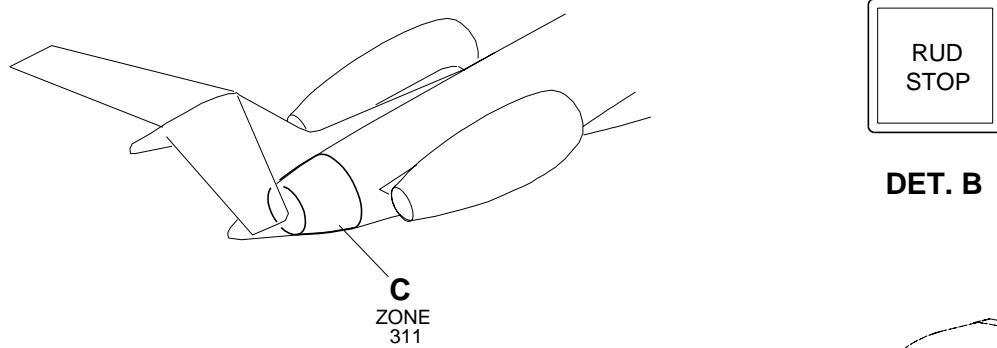
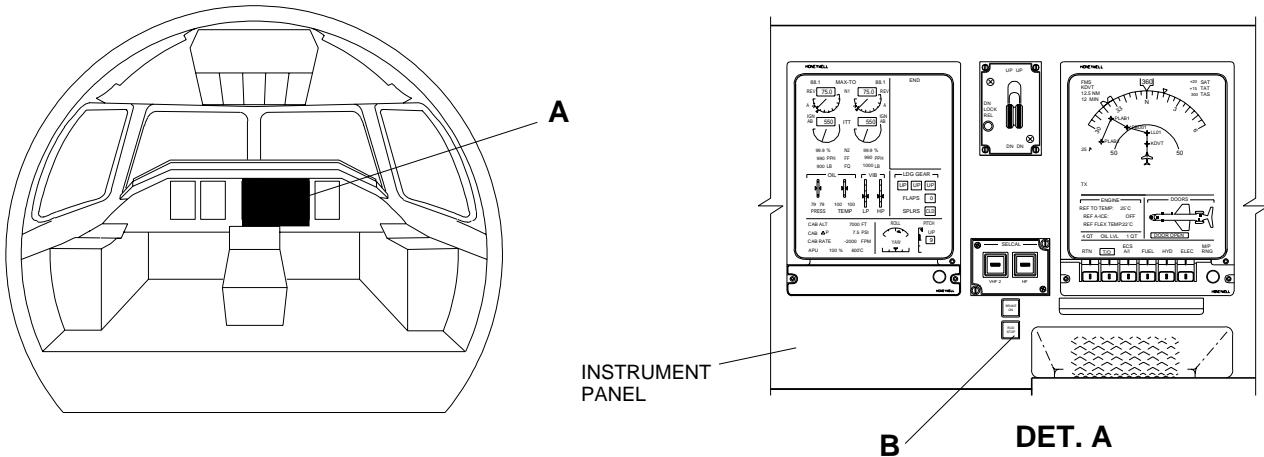
SUBTASK 842-002-A

- (1) Release the pressure from hydraulic system 2 ([AMM TASK 29-10-00-860-801-A/200](#)).
- (2) Deenergize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).
- (3) Close access door 312AR (AMM MPP 06-42-00/100).

EFFECTIVITY: JAA-CERTIFIED AIRCRAFT (POST-MOD SB 145-27-0015 AND PRE-MOD SB 145-22-0004)

RUD STOP Alerting Light and Electrical Connectors - Location

Figure 501

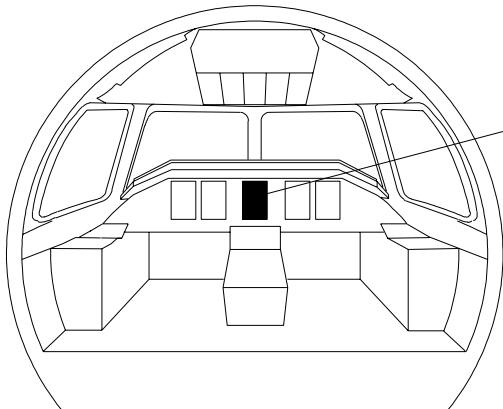


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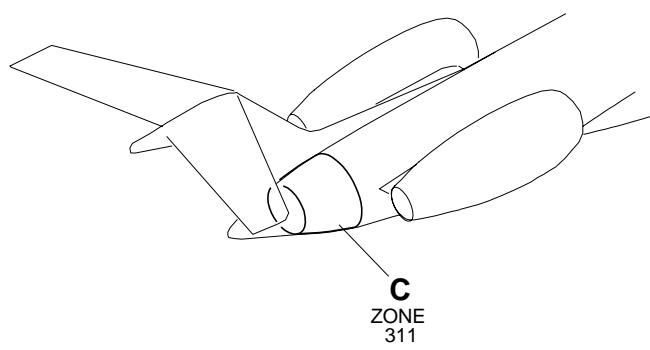
EFFECTIVITY: JAA-CERTIFIED AIRCRAFT (POST-MOD SB 145-27-0015 AND POST-MOD SB 145-22-0004)

EICAS Display and Electrical Connectors - Location

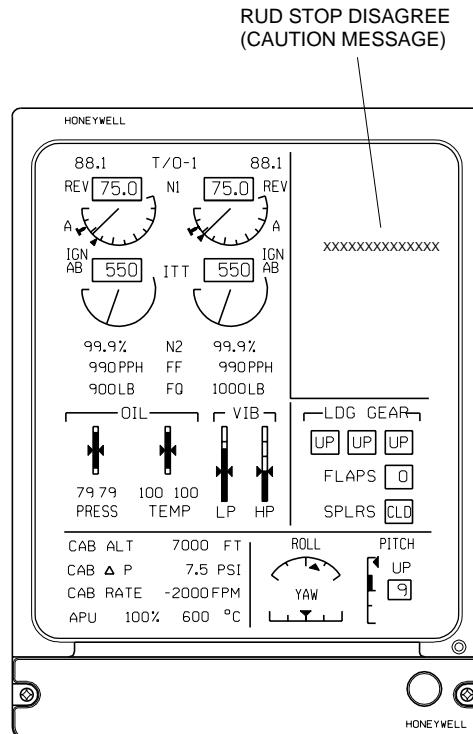
Figure 502



A

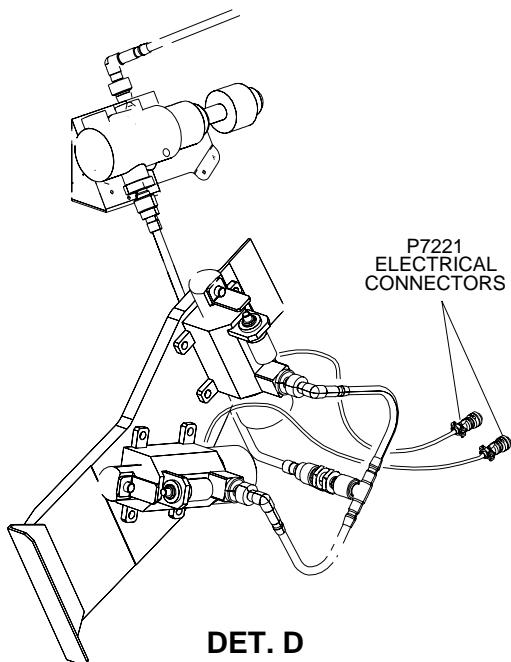


C
ZONE
311

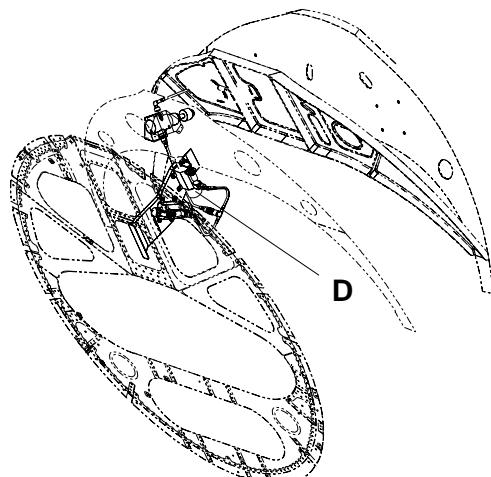


EICAS DISPLAY

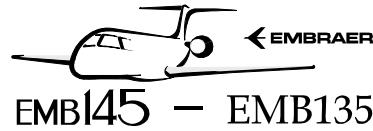
DET. A



DET. D



DET. C



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 27-23-00-700-804-A

EFFECTIVITY: ALL

3. RUDDER SYSTEM - OPERATIONAL CHECK

A. General

- (1) This task gives the procedures to do the operational check of the rudder system.

B. References

REFERENCE	DESIGNATION
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

ZONE	PANEL/DOOR	LOCATION
325	325AL	Vertical stabilizer

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 069	Supporting straight edge	To support the gauge setting	
GSE 336	Gauge-setting, Rudder Neutral Pos.	Adjust the Rudder Neutral Position	

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, rudder

I. Preparation

SUBTASK 841-003-A

- (1) Make sure that the aircraft is safe for maintenance.
- (2) Energize the aircraft with the external DC-power supply ([AMM TASK 20-40-01-860-801-A/200](#)).

- (3) Make sure that the Rudder 1, Rudder 2, ADC 1 and ADC 2 circuit breakers are closed, on the circuit breaker panel.
- (4) Do not operate the ADC 1 and ADC 2 test switches, on the maintenance panel.

J. Operational Check of the Rudder System

SUBTASK 710-003-A

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

- (1) Do a check of the rudder neutral position.
 - (a) Make sure that hydraulic systems 1 and 2 are on ([AMM TASK 29-10-00-860-801-A/200](#)).
 - (b) Make sure that rudder hydraulic systems 1 and 2 are on. The RUDDER SHUTOFF SYS 1 and 2 pushbutton lights must be off.
 - (c) Make sure that the Yaw trim indication, on the EICAS, is in the neutral position.
 - (d) Remove two screws from the access panel 325AL.

NOTE: You must remove exactly the same screws as shown in [Figure 503](#).
 - (e) Install the gauge setting.
 - (f) The rudder is in the neutral position when the rudder II trailing edge centerline is between the zero degree limit marks of the gauge setting with a tolerance of ± 1 degree.
 - (g) Remove the gauge setting and install the two screws to access panel 325AL.
- (2) Do a check of the rudder EICAS message.
 - (a) Make sure that rudder system 1 and rudder system 2 are off, on the flight control panel.

Result:

 - 1 The EICAS display shows the RUDDER SYS 1-2 INOP caution message.
 - 2 On the flight control panel, the RUDDER SHUTOFF SYS 1 and 2 pushbutton lights are on.
 - (b) Turn on EMDP 1 ([AMM TASK 29-10-00-860-802-A/200](#)).
 - (c) Turn on EMDP 2 ([AMM TASK 29-10-00-860-802-A/200](#)).

Result:

 - 1 On the EICAS display, the RUDDER SYS 1-2 INOP caution message stays in view.
 - (d) On the circuit breaker panel, open the RUDDER 1 and RUDDER 2 circuit breakers.

Result:

 - 1 On the EICAS display, the RUDDER SYS 1-2 INOP caution message goes out of view.
 - (e) On the circuit breaker panel, close the RUDDER 1 and RUDDER 2 circuit breakers.

Result:

- 1 On the EICAS display, the RUDDER SYS 1-2 INOP caution message comes into view.

- (f) On the flight control panel, push RUDDER SHUTOFF SYS 1 to turn on rudder system 1.

Result:

- 1 The RUDDER SHUTOFF SYS 1 pushbutton light goes off.

- 2 On the EICAS display, the RUDDER SYS 1-2 INOP caution message changes to RUDDER SYS 2 INOP.

- (g) On the flight control panel, push the RUDDER SHUTOFF SYS 2 pushbutton to turn on rudder system 2.

Result:

- 1 The RUDDER SHUTOFF SYS 2 pushbutton light goes off.

- 2 On the EICAS display, the RUDDER SYS 2 INOP caution message goes out of view.

- (3) With the pedals, control the rudder fully to the right and fully to the left, five times.

- (4) On the flight control panel, push the RUDDER SHUTOFF SYS 1 and 2 pushbuttons to turn off the rudder hydraulic system.

- In the mechanical reversion mode, control the rudder fully to the right and fully to the left, five times.

- (5) On the flight control panel, push the RUDDER SHUTOFF SYS 1 and 2 pushbuttons to turn on the rudder hydraulic system.

- The RUDDER SHUTOFF SYS 1 and 2 pushbutton light goes off.

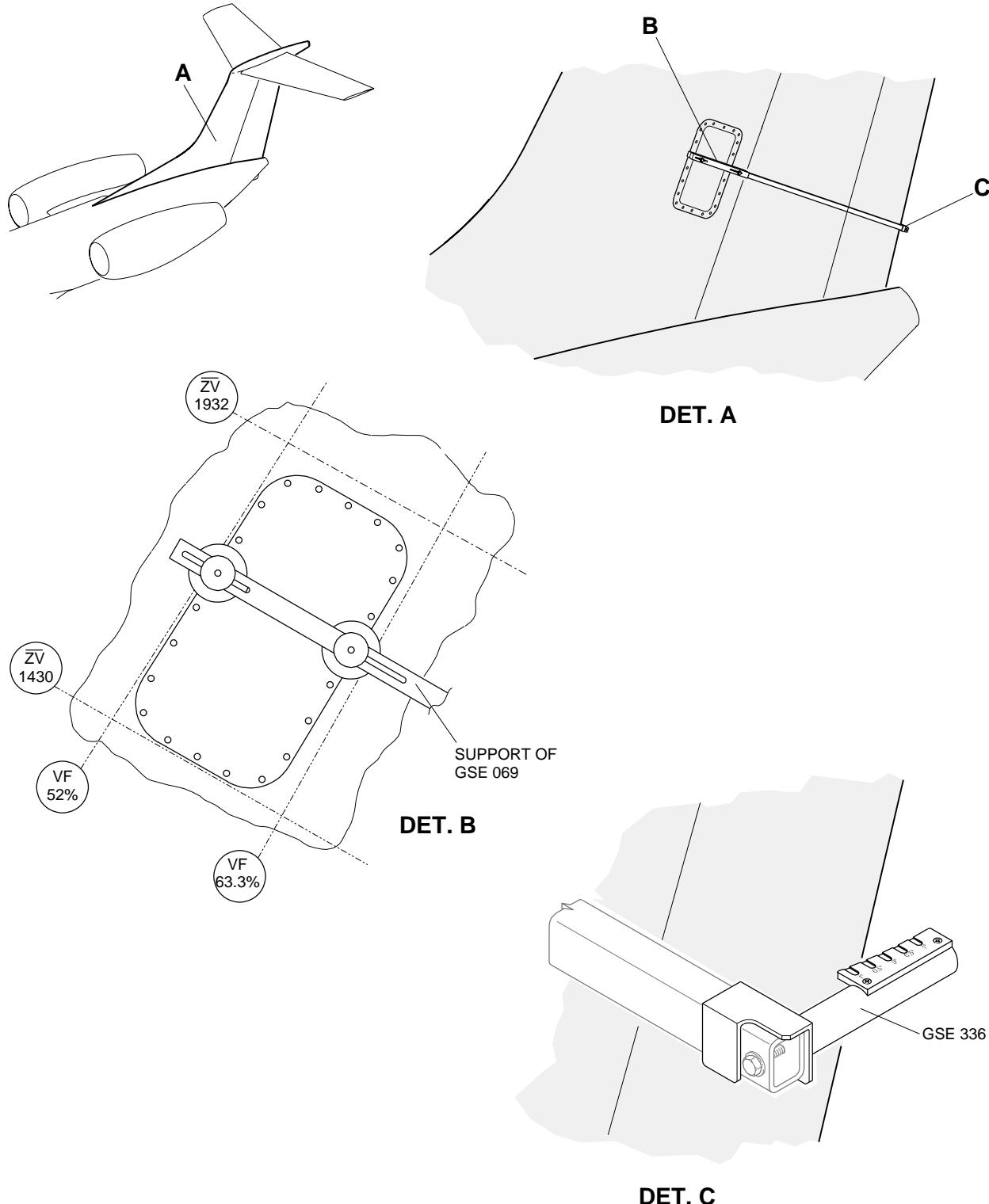
- (6) Turn off EMDP 1 and EMDP 2 ([AMM TASK 29-10-00-860-802-A/200](#)).

K. Follow-on

SUBTASK 842-003-A

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

EFFECTIVITY: ALL
Gauge-Setting - Location
Figure 503



DET. C

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