



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

PITOT LINES HEATER - ADJUSTMENT/TEST

EFFECTIVITY: ON ACFT WITH PITOT LINES HEATER INSTALLED

1. General

- A. This section gives the procedures to do the operational check of the pitot lines heater(s).
- B. This procedure is applicable to the two pitot lines.
- C. The pitot lines heater(s) is/are installed in the forward electronic compartment.
- D. 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
30-31-03-700-801-A ♦	PITOT LINES HEATER - OPERATIONAL TEST	ON ACFT WITH PITOT LINES HEATER INSTALLED



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TASK 30-31-03-700-801-A

EFFECTIVITY: ON ACFT WITH PITOT LINES HEATER INSTALLED

2. PITOT LINES HEATER - OPERATIONAL TEST

A. General

- (1) The function of this test is to make sure that the pitot lines heater(s) operates correctly.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM MPP 30-31-03/400	- REMOVAL/INSTALLATION
AMM MPP 34-13-00/600	- INSPECTION/CHECK
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
IPC 30-31-00	PITOT/STATIC & PRESSURIZATION STATIC PORT HEATING
S.B.145-30-0056	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
213	113CZ	Forward Electronic Compartment

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Infrared thermometer	To measure the temperature	1

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
-	Crushed ice	AR
-	Dry ice	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Tie-down strap	IPC 30-31-00	1

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Forward Electronic Compartment

I. Preparation
SUBTASK 841-004-A

- (1) On the Overhead Circuit Breaker panel, on the cockpit ceiling, make sure that the SENSORS HTG circuit breaker is closed.
 - SENSORS HTG (Location tip: DC BUS 2/ICE AND RAIN PROTECTION/SENSORS HTG).
- (2) Energize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).

CAUTION: BE CAREFUL WHEN YOU GET ACCESS TO FORWARD ELECTRONIC COMPARTMENT TO NOT LEAN ON THE PITOT LINE. DAMAGE TO THE ANEMOMETRIC SYSTEM CAN OCCUR.

- (3) Open the access door 113CZ (AMM MPP 06-41-01/100).

- WARNING:**
- ISOLATE THE TEST AREA AND IDENTIFY IT TO PREVENT INJURY TO THE MAINTENANCE PERSONS.
 - DO NOT TOUCH THE ITEMS BELOW IMMEDIATELY AFTER THE AIRCRAFT LANDING OR DURING THE TEST, BECAUSE THE HIGH TEMPERATURE CAN CAUSE INJURY TO YOU:
 - PITOT SENSORS.
 - PITOT/STATIC SENSOR.
 - ANEMOMETRIC STATIC PORTS.
 - TAT SENSORS.
 - PRESSURIZATION STATIC PORTS.
 - AOA SENSORS.

CAUTION: DO NOT STOP THIS TASK BEFORE IT IS COMPLETED, BECAUSE THIS CAN DECREASE THE SERVICE LIFE OF THESE COMPONENTS.

- (4) To energize the heater(s) do as follows ([Figure 501](#)):
 - (a) On the overhead panel, set the BATT 1 switch to OFF and make sure that the BATT 2 switch is set to OFF.
 - (b) Set the SENSORS (PITOT 1 - TAT 1/AOA 1, and PITOT 2 - TAT 2/AOA 2) pushbuttons, on the overhead panel, to ON.
 - (c) On the overhead circuit breaker panel, open the N2 SIGNAL 2A circuit breaker.

- NOTE:**
- Pitot sensors 1 and 2, and anemometric static ports 1, 2, 3, and 4 become hot.
 - If the temperature of the pitot lines is less than 40°F (4.4°C) the pitot lines heater(s) will become hot.

- N2 SIGNAL 2A (Location Tip: ESSENTIAL DC BUS 1/POWERPLANT/N2 SIGNAL 2A).

Result:

- 1 The EICAS display shows the PITOT 1-2 INOP caution messages.
- 2 The master CAUTION lights flash.

- (d) Push a master CAUTION light.

Result:

- 1 The master CAUTION lights go off.

J. Operational Test of Pitot Lines Heater

SUBTASK 710-006-A

EFFECTIVITY: ON ACFT PRE-MOD. S.B. 145-30-0056

- (1) Remove the insulation blanket (1) from the tube. Refer to [Figure 502](#).

- (2) If the temperature of the pitot line is less than 35.6°F (2°C), do as follows:

NOTE: The thermostat (3) must be kept at this temperature until the test is completed.

WARNING: DO NOT TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS. IF YOU TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS, IT WILL CAUSE INJURY TO YOU.

- (a) Use the infrared thermometer to check the increase of the temperature on the pitot line heater (2) or feeling the pitot line heater (2) to make sure it is warm. Refer to [Figure 502](#).

- (3) If the temperature of the pitot line is more than 35.6°F (2°C), do as follows:

- (a) Release the pitot line heater (2) to gain access to the thermostat (3). Refer to [Figure 502](#).

NOTE: To release the pitot line heater (2) it is necessary to remove the tie-down strap. Refer to [AMM MPP 30-31-03/400](#).

CAUTION: PROTECT THE EXPOSED ELECTRONIC AGAINST WATER.

- (b) Decrease the temperature of the thermostat (3) to less than 35.6°F (2°C). Refer to [Figure 502](#).

NOTE: • You can use crushed ice or dry ice to decrease the temperature of the thermostat (3).
 • The thermostat (3) must be kept at this temperature until the test is completed.

WARNING: DO NOT TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS. IF YOU TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS, IT WILL CAUSE INJURY TO YOU.

- (c) Use the infrared thermometer to check the increase of the temperature on the pitot line heater (2) or feeling the pitot line heater (2) to make sure it is warm. Refer to [Figure 502](#).

K. Operational Test of Pitot Lines Heater

SUBTASK 710-007-A

EFFECTIVITY: ON ACFT POST-MOD. S.B. 145-30-0056

- (1) If the temperature of the pitot line is less than 35.6°F (2°C), do as follows:

NOTE: The thermostat (3) must be kept at this temperature until the test is completed.

WARNING: DO NOT TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS. IF YOU TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS, IT WILL CAUSE INJURY TO YOU.

- (a) Use the infrared thermometer to check the increase of the temperature on the tube ribbon heater (2) and fitting ribbon heater (1) or feeling the tube ribbon heater (2) and fitting ribbon heater (1) to make sure it is warm. Refer to [Figure 503](#).

- (2) If the temperature of the pitot line is more than 35.6°F (2°C), do as follows:

- (a) Release the tube ribbon heater (2) to gain access to the thermostat (3). Refer to [Figure 503](#).

NOTE: To release the tube ribbon heater (2) it is necessary to remove the tie-down strap. Refer to [AMM MPP 30-31-03/400](#).

CAUTION: PROTECT THE EXPOSED ELECTRONIC AGAINST WATER.

- (b) Decrease the temperature of the thermostat (3) to less than 35.6°F (2°C). Refer to [Figure 503](#).

NOTE: • You can use crushed ice or dry ice to decrease the temperature of the thermostat (3).
• The thermostat (3) must be kept at this temperature until the test is completed.

WARNING: DO NOT TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS. IF YOU TOUCH THE HEATER(S) FOR MORE THAN 3 SECONDS, IT WILL CAUSE INJURY TO YOU.

- (c) Use the infrared thermometer to check the increase of the temperature on the tube ribbon heater (2) and fitting ribbon heater (1) or feeling the tube ribbon heater (2) and fitting ribbon heater (1) to make sure it is warm. Refer to [Figure 503](#).

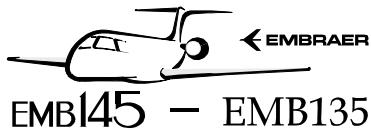
L. Follow-on

SUBTASK 842-004-A

- (1) To de-energize the heater(s) do as follows:

- (a) On the overhead circuit breaker panel, close the N2 SIGNAL 2A circuit breaker.

NOTE: Pitot sensors 1 and 2, pitot lines heater and anemometric static ports 1, 2, 3, and 4 become cool.



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- N2 SIGNAL 2A (Location Tip: ESSENTIAL DC BUS 1/POWERPLANT/N2 SIGNAL 2A).

Result:

- 1 On the EICAS display, the PITOT 1-2 INOP caution messages go out of view.
- (2) Set the SENSORS (PITOT 1 - TAT 1/AOA 1, and PITOT 2 - TAT 2/AOA 2) pushbuttons, on the overhead panel, to OFF.
- (3) Make sure that the pitot lines are not bent. Refer to [AMM MPP 34-13-00/600](#).
- (4) If you release the heater (2), assemble it to the initial configuration.

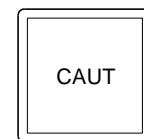
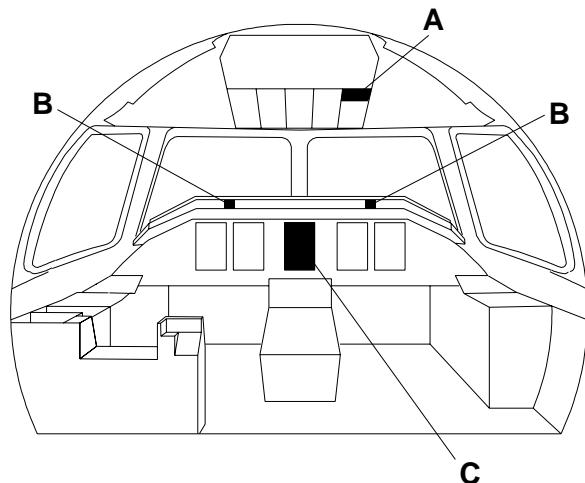
NOTE: Make sure that you installed the tie-down strap after you installed the heater (2). Refer to [AMM MPP 30-31-03/400](#).

- (5) (ON ACFT PRE-MOD. [S.B.145-30-0056](#)) Install the insulation blanket (1).
- (6) Close access door 113CZ (AMM MPP 06-41-01/100).
- (7) De-energize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).

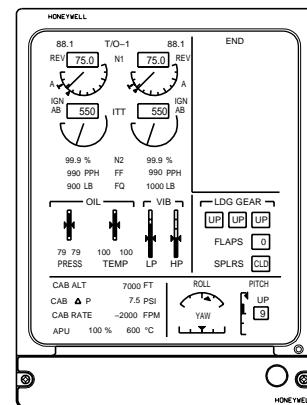
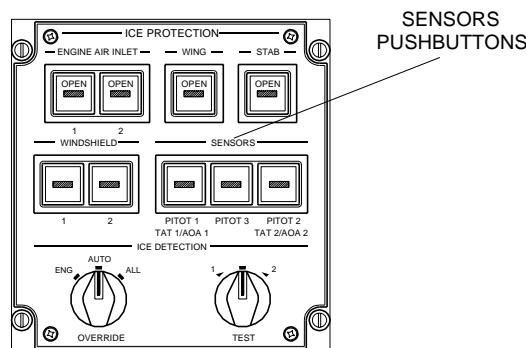
EFFECTIVITY: ON ACFT WITH PITOT LINES HEATER INSTALLED

Pitot lines heater - Operational Check

Figure 501

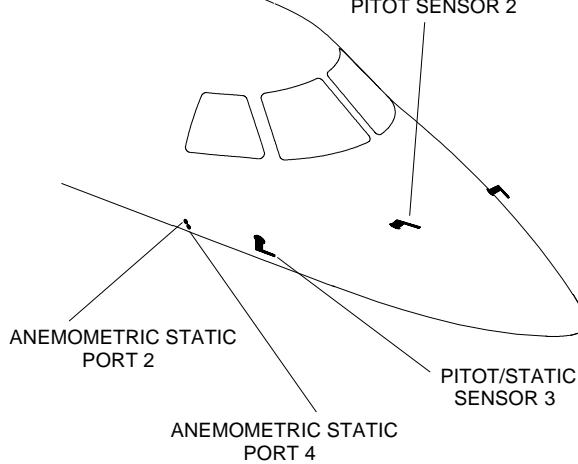


DET. B
MASTER CAUTION
LIGHT

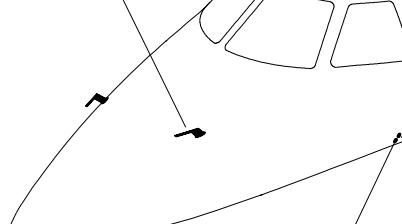


DET. C
EICAS DISPLAY

DET. A
ICE PROTECTION PANEL



PITOT SENSOR 1



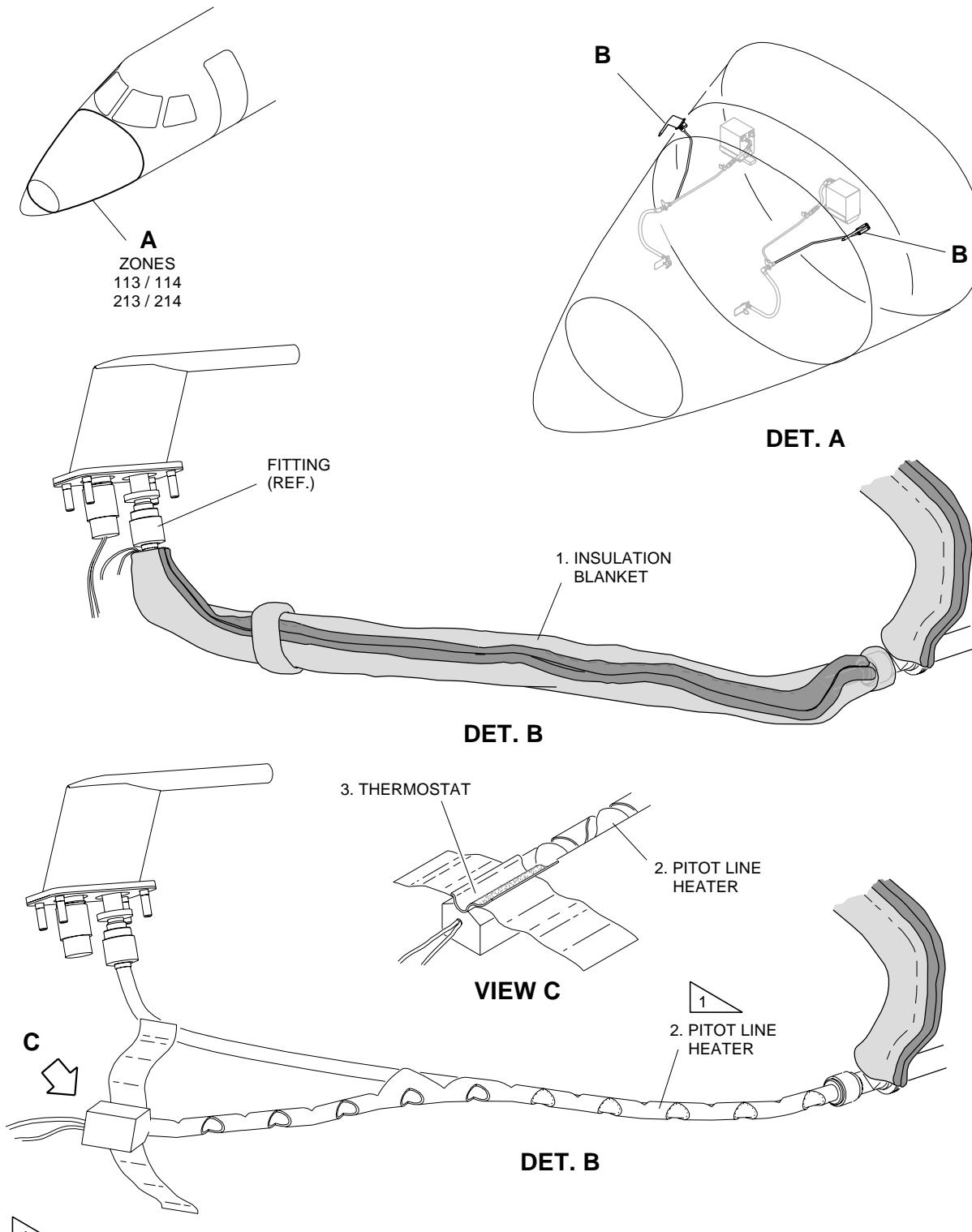
ZONES 123/213

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EFFECTIVITY: ON ACFT PRE-MOD. S.B. 145-30-0056

Pitot lines heater - Operational Check

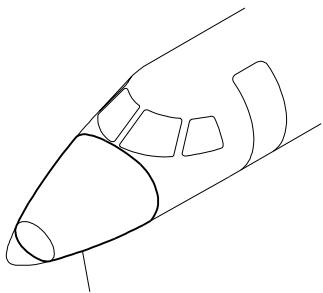
Figure 502



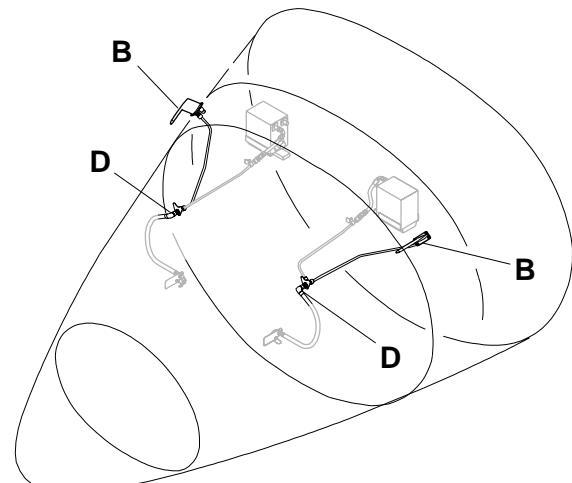
1 CHECK THE INCREASE OF THE TEMPERATURE.

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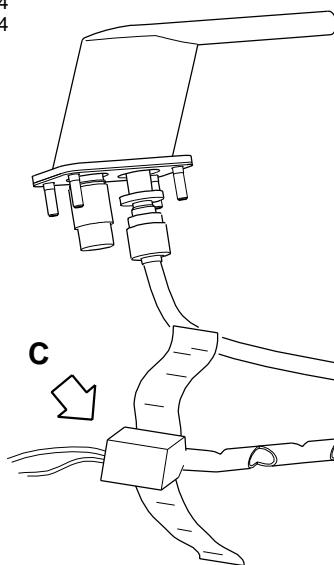
EFFECTIVITY: ON ACFT POST-MOD. S.B. 145-30-0056
Pitot lines heater(s) - Operational Check
Figure 503



A
ZONES
113 / 114
213 / 214

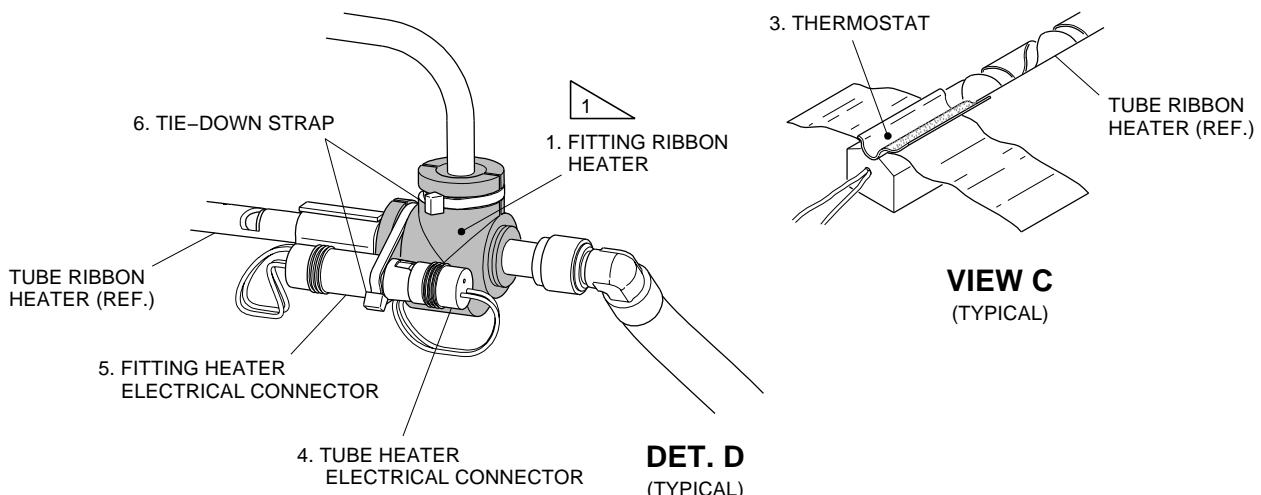


DET. A



DET. B
(TYPICAL)

1
2. TUBE RIBBON
HEATER



VIEW C
(TYPICAL)

1 CHECK THE INCREASE OF THE TEMPERATURE.

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