

CHAPTER - 30 HIGHLIGHTS (Summary of Changes)

Revision No. TR30-7 Sep 12/19

TO: HOLDERS OF THE AIRCRAFT MAINTENANCE MANUAL (06-117751)

Pages that have been added or revised are summarized below. Remove and insert the affected pages as listed, and enter the above revision number with issue date into the Record of Revisions sheet.

This Temporary Revision incorporates and supersedes previously released temporary revisions for the chapters listed below.

Do not remove this page. Keep it in place as a record of previous changes.

CH/SE/SU Page Block No.	Description of Change
30-00-00 PgBlk 501 (A)	Adjustment/Test - Revised the task effectivity. Supersedes TR30-6.
30-00-00 PgBlk 501 (B)	Adjustment/Test - Added Pitot/AOA Probe Auxiliary Heaters Adjustment/Test. - Config B. Supersedes TR30-5.
30-30-00 PgBlk 1 (A)	Description and Operation - Revised the task effectivity. Config A Supersedes TR30-6.
30-30-00 PgBlk 1 (B)	Description and Operation, added task AMM-30-30-00-081 to include Pitot/AOA Probe Auxiliary Heaters (Integrated & Independent) – Config B. Supersedes TR30-6.
30-30-00 PgBlk 501 (C)	Adjustment/Test - Added task AMM-30-30-00-071 to include Pitot/AOA Probe Auxiliary Heaters (Independent) – Config C. Supersedes TR30-6.
30-30-10 PgBlk 401-Rem	Removal - Revised effectivity. Supersedes TR30-6.
30-30-10 PgBlk 401-Inst	Installation - Revised effectivity. Supersedes TR30-6.
30-30-20 PgBlk 401-Rem	Removal - Added task AMM-30-30-20, Pitot/AOA Probe Auxiliary Heater Control - Removal to AMM. Supersedes TR 30-6.
30-30-20 PgBlk 401-Inst	Installation - Added task AMM-30-30-20, Pitot/AOA Probe Auxiliary Heater Control - Installation to AMM. Supersedes TR 30-6.
30-30-30 PgBlk 401-Rem	Removal - Added Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator Removal procedure. Supersedes TR 30-6.
30-30-30 PgBlk 401-Inst	Installation - Added Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator Installation procedure. Supersedes TR 30-6.

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ICE PROTECTION - ADJUSTMENT/TEST

AMM-30-00-00-071-A-801

1. General

- A. This task gives the procedure to do a general test of the ice protection systems. Pitot/AOA probes and static ports anti-ice test and windshield heat test can be done as subsystem tests.
- B. For complete ice and rain protection subsystem adjustment/tests, refer to the systems that follow:
- Airfoil Deice System. Refer to [AMM-30-10-10-071-801 – Airfoil Deice System - Adjustment/Test](#).
 - Engine Inlet Anti-Ice. Refer to [AMM-30-20-10-071-801 – Engine Inlet Anti-Ice - Adjustment/Test](#).
 - Pitot/Angle of Attack (AOA) and Pitot/Static Heat System. Refer to [AMM-30-30-00-071-801 – Pitot and Static Anti-Ice System - Adjustment/Test](#).
 - Windshield Heat. Refer to [AMM-30-40-00-071-801 – Windshield Heat System - Adjustment/Test](#).

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ICE PROTECTION - ADJUSTMENT/TEST

AMM-30-00-00-071-B-801

1. General

- A. This task gives the procedure to do a general test of the ice protection systems. Pitot/AOA probes and static ports anti-ice test and windshield heat test can be done as subsystem tests.
- B. For complete ice and rain protection subsystem adjustment/tests, refer to the systems that follow:
- Airfoil Deice System. Refer to [AMM-30-10-10-071-801 – Airfoil Deice System - Adjustment/Test](#).
 - Engine Inlet Anti-Ice. Refer to [AMM-30-20-10-071-801 – Engine Inlet Anti-Ice - Adjustment/Test](#).
 - Pitot/Angle of Attack (AOA) and Pitot/Static Heat System. Refer to [AMM-30-30-00-071-C-801 – Pitot and Static Anti-Ice System - Adjustment/Test](#)
 - Pitot/Angle of Attack (AOA) Auxiliary Heater System. Refer to [AMM-30-30-00-071-C-801 – Pitot and Static Anti-Ice System - Adjustment/Test](#)
 - Windshield Heat. Refer to [AMM-30-40-00-071-801 – Windshield Heat System - Adjustment/Test](#).

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PITOT AND STATIC ANTI-ICE SYSTEM - DESCRIPTION AND OPERATION

AMM-30-30-00-081-A-801

1. General

- A. The pitot and static anti-ice system prevents ice buildup on the pitot tubes and static ports.
- B. The pitot and static anti-ice system is made up of the components that follow:
 - Aircraft Computer System (ACS)
 - Two Pitot/Angle of Attack (AOA) probes
 - One pitot/static standby probe
 - Two dual Static ports

2. Description

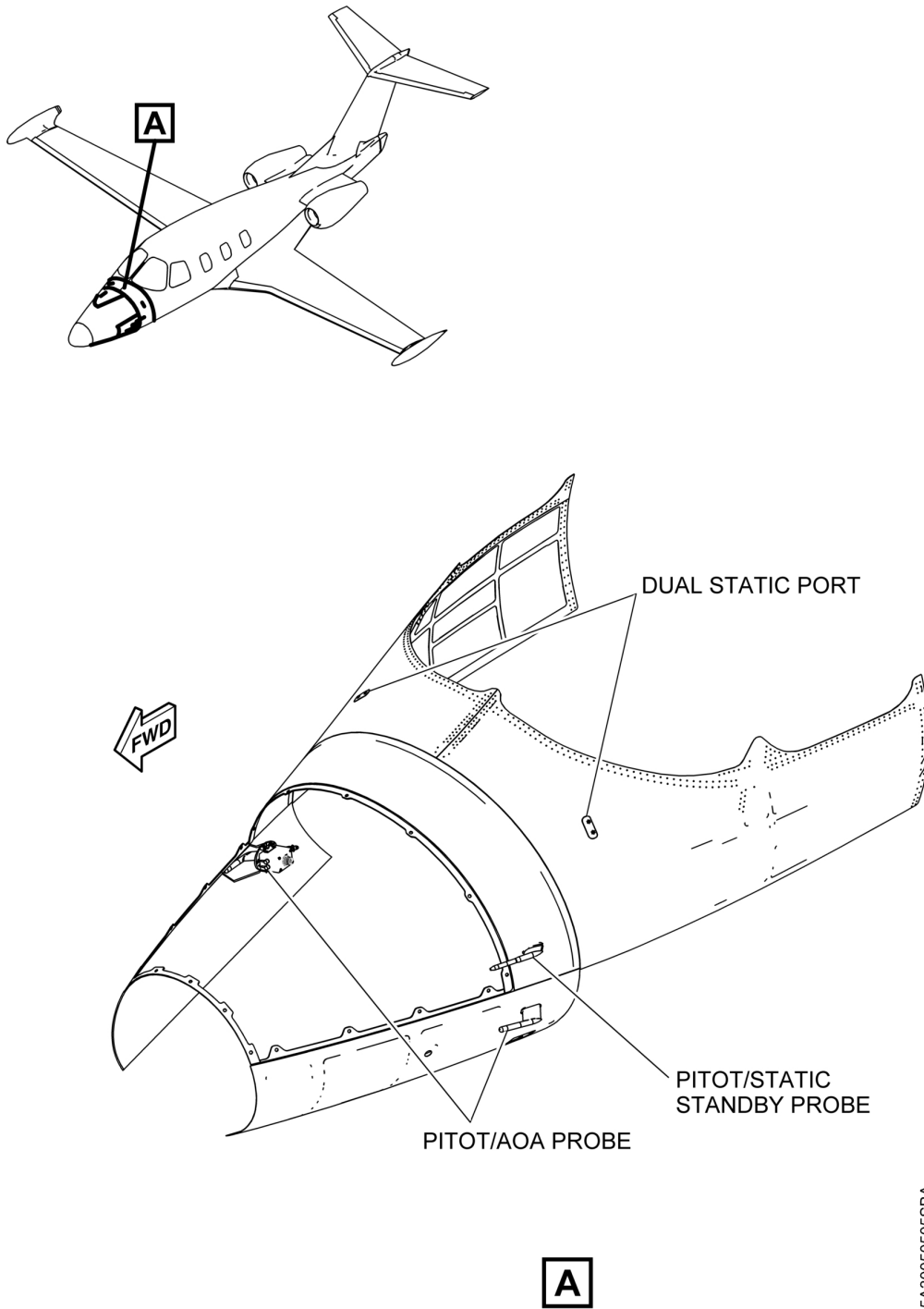
SUBTASK AMM-30-30-00-081-A-871-001

- A. The Pitot/AOA probes are located on the left and right sides of the forward fuselage. Each probe faces forward into the relative wind during flight and is heated by an internal electrical heater element to provide anti-ice protection. Refer to [Fig. 1, Sheet 1](#).
- B. The standby pitot/static probe is located on the left side of the forward fuselage, above the left pitot/AOA probe. The standby pitot/static probe faces forward into the relative wind during flight and is heated by an internal electrical heater element to provide anti-ice protection.
- C. The two static ports are located on the upper left and upper right side of the forward fuselage. Each port faces out from the aircraft, at right angles to the relative wind, so that static air pressure will not be affected by aircraft speed. Each dual static port is heated by an internal electrical heater element to provide anti-ice protection.

3. Operation

SUBTASK AMM-30-30-00-081-A-871-002

- A. All pitot/AOA probes and static ports are automatically heated when either engine is running or when there is no Weight on Wheels. Also, when the engines are not running, a PITOT STAT line select key on the ICE page allows the crew to select probe heat ON. When probe heat is ON, the ACS supplies electrical power the heater in each probe. The heaters prevent the accumulation of ice on the probes.



Pitot and Static Anti-Ice System - Description and Operation
Figure 1 (Sheet 1 of 1)

PITOT AND STATIC ANTI-ICE SYSTEM - DESCRIPTION AND OPERATION

AMM-30-30-00-081-B-801

1. General

- A. The pitot and static anti-ice system prevents ice buildup on the pitot tubes and static ports.
- B. The pitot and static anti-ice system is made up of the components that follow:
 - Aircraft Computer System (ACS)
 - Two pitot/Angle of Attack (AOA) probes
 - One pitot/static standby probe
 - Two dual static ports
 - The two pitot/Angle of Attack (AOA) probe auxiliary heaters are installed on the left and right pitot/AOA probes.

2. Description

SUBTASK AMM-30-30-00-081-B-871-001

- A. The Pitot/AOA probes are located on the left and right sides of the forward fuselage. Each probe faces forward into the relative wind during flight and is heated by an internal electrical heater element to provide anti-ice protection. Refer to [Fig. 1](#).
- B. The standby pitot/static probe is located on the left side of the forward fuselage, above the left Pitot/AOA probe. The standby Pitot/Static probe faces forward into the relative wind during flight and is heated by an internal electrical heater element to provide anti-ice protection.
- C. The two static ports are located on the upper left and upper right side of the forward fuselage. Each port faces out from the aircraft, at right angles to the relative wind, so that static air pressure will not be affected by aircraft speed. Each dual static port is heated by an internal electrical heater element to provide anti-ice protection.
- D. Pitot/AOA Auxiliary Heat

There are two versions of Pitot/AOA Auxiliary Heaters, Integrated (MB 500-34-027) and Independent (MB 500-34-028).

 - (1) The two Pitot/Angle of Attack (AOA) Probe Auxiliary Heaters are installed on the left and right Pitot/AOA probes.
 - (2) **Independent** — The Pitot/AOA Auxiliary Heater Controller is located under floor panel 131 AZ - Floor Panel, Forward Left Cabin aft of the pilot's seat. Refer to [Fig. 2](#)
 - (3) **Independent** — Failure annunciation, and manual shut off is done by the Pitot/AOA Auxiliary Heater Switch and Fail Indicator located below the pilot's lower instrument panel. Refer to [Fig. 3](#)

3. Operation

SUBTASK AMM-30-30-00-081-B-871-002

A. All Pitot/AOA probes and static ports are automatically heated when either engine is running or when there is no Weight on Wheels. Also, when the engines are not running, a PITOT STAT line select key on the ICE page allows the crew to select probe heat ON. When probe heat is ON, the ACS supplies electrical power to the heater in each probe. The heaters prevent freezing internal to the probes.

B. Pitot/AOA Auxiliary Heat

- (1) **Integrated & Independent** — The two Pitot/Angle of Attack (AOA) probe auxiliary heaters provide supplemental heat to the left and right Pitot/AOA probes.
- (2) **Integrated** — Power (28 VDC) is provided from the Aft Power Distribution Center, ECBU #4 (L AFT Bus) through two 5 Amp fuses, one fuse for each heater. Refer to [Fig. 5](#) for location.
- (3) **Independent** — Power (28 VDC) is provided from the Aft Power Distribution Center, ECBU #4 (L AFT Bus) through three 5 Amp fuses, one fuse for each heater and one fuse for the Auxiliary Heater Controller and the Pitot/AOA Auxiliary Heater Switch and Fail Indicator. Refer to [Fig. 5](#) for location.

Power for the AUX PROBE HEAT, ON, and INOP segments within the Pitot/AOA Auxiliary Heater Switch and Fail Indicator is provided from the CSP and is brightness is controlled by the Master Dim switch on the CSP.

- (4) **Integrated** — The auxiliary heaters are controlled by a ACS which receives input from the OAT probes activates the Pitot/AOA probe auxiliary heaters when the Static Air Temperature (SAT) reaches less than -30°C while the aircraft is airborne. Failure monitoring is accomplished by monitoring current feedback to the heating elements during enabled operation. Failure is annunciated by a Advisory CAS message (AUX PROBE HEAT FAIL)

- (5) **Independent** — The auxiliary heaters are controlled by the controller which receives input from the Left ADC ARINC 429 bus activating the Pitot/AOA probe auxiliary heaters when the Total Air Temperature (TAT) reaches between -32°C and -65°C .

Failure monitoring is accomplished by the controller monitoring current to the heating elements during enabled operation and ARINC429 failure. Failure is annunciated by the Pitot/AOA Auxiliary Heater Switch and Fail Indicator

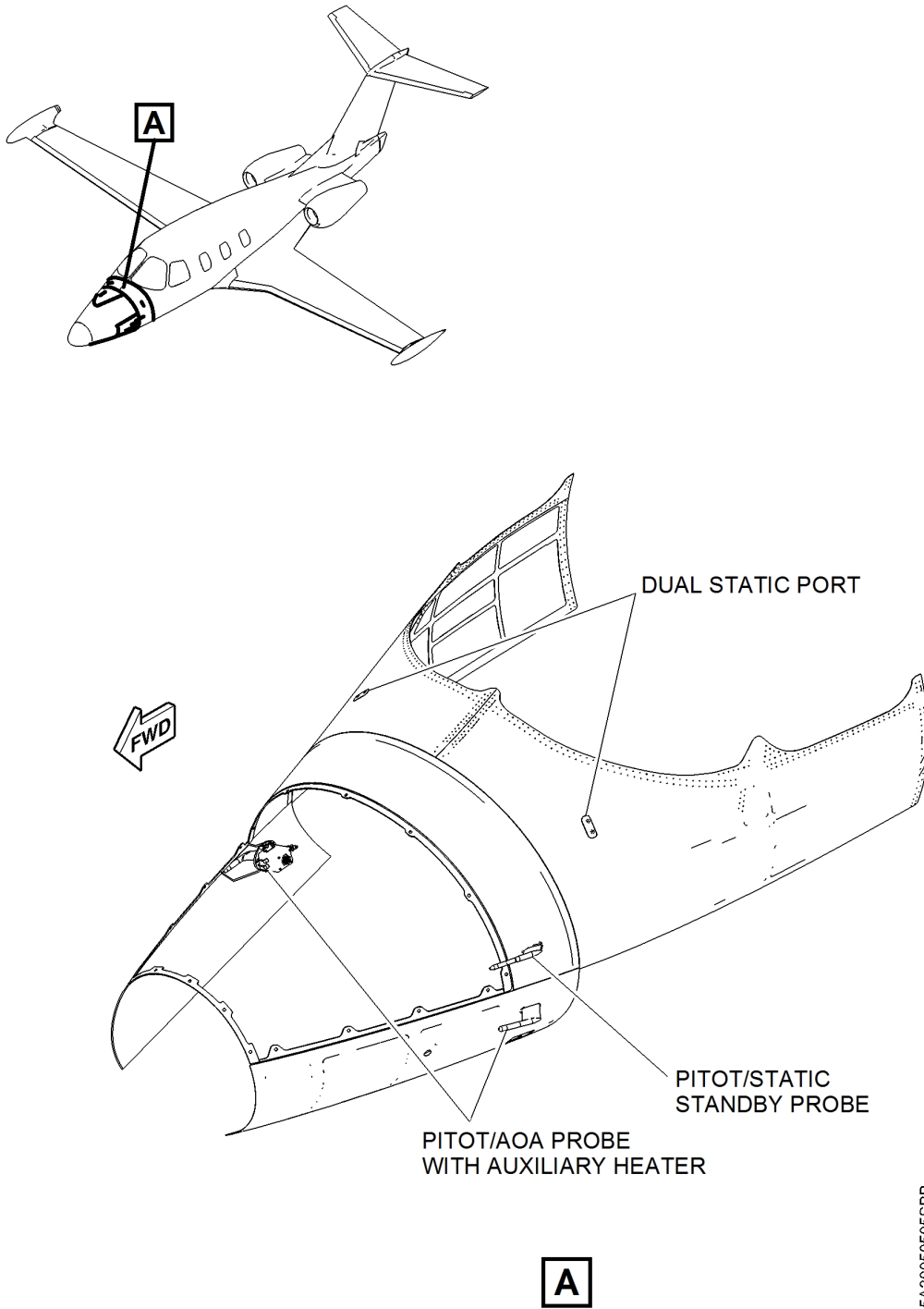
The ground 15 second test is performed by the ACS automatically as soon as both generators are online to ensure proper operation of the heaters prior to flight.

- (6) **Independent** — The Pitot/AOA Auxiliary Heater Switch and Fail Indicator serves the following purposes:

Refer to [Fig. 4](#).

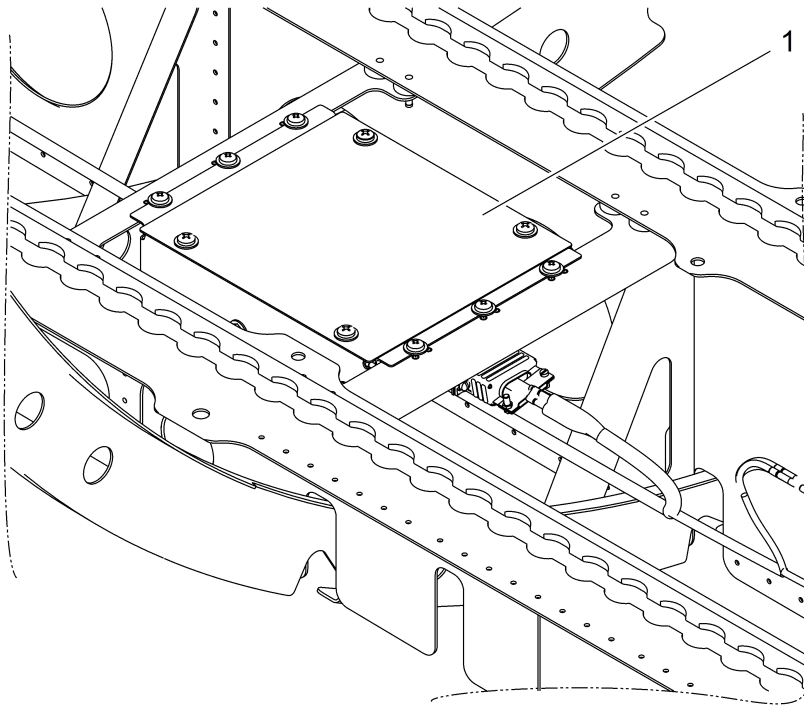
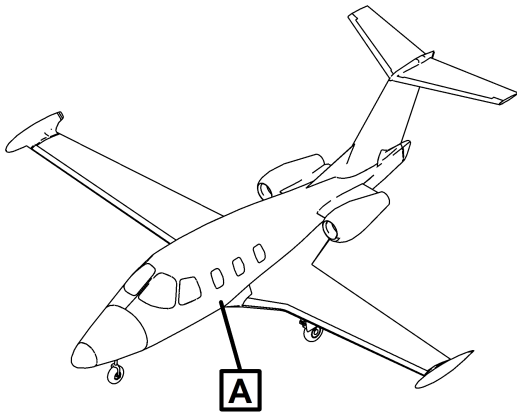
- When not operating, the Pitot/AOA Auxiliary Heater Switch and Fail Indicator will be dark and indicate no text.
- When operating, the Pitot/AOA Auxiliary Heater Switch and Fail Indicator will indicate “AUX PROBE HEAT” and “ON” in green text.

- The Pitot/AOA Auxiliary Heater Switch acts as an on/off switch when the auxiliary heaters are temperature enabled. When pushed during operation, the Pitot/AOA Auxiliary Heater Switch and Fail Indicator will indicate “INOP” in white text in addition to the “AUX PROBE HEAT” in green text. The “ON” in green text will be off.
- When the TAT is below -32°C, and the control module senses no current to the heater(s), the “INOP” in white text will be indicated. Failure of the ARINC 429 bus will also cause the “INOP” to be indicated.
- Pushing the Pitot/AOA Auxiliary Heater Switch and Fail Indicator while the system is not operating will test the annunciation segments: PITOT AUX HEAT, ON, and INOP.



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Pitot and Static Anti-Ice System - Description and Operation
Figure 1 (Sheet 1 of 1)

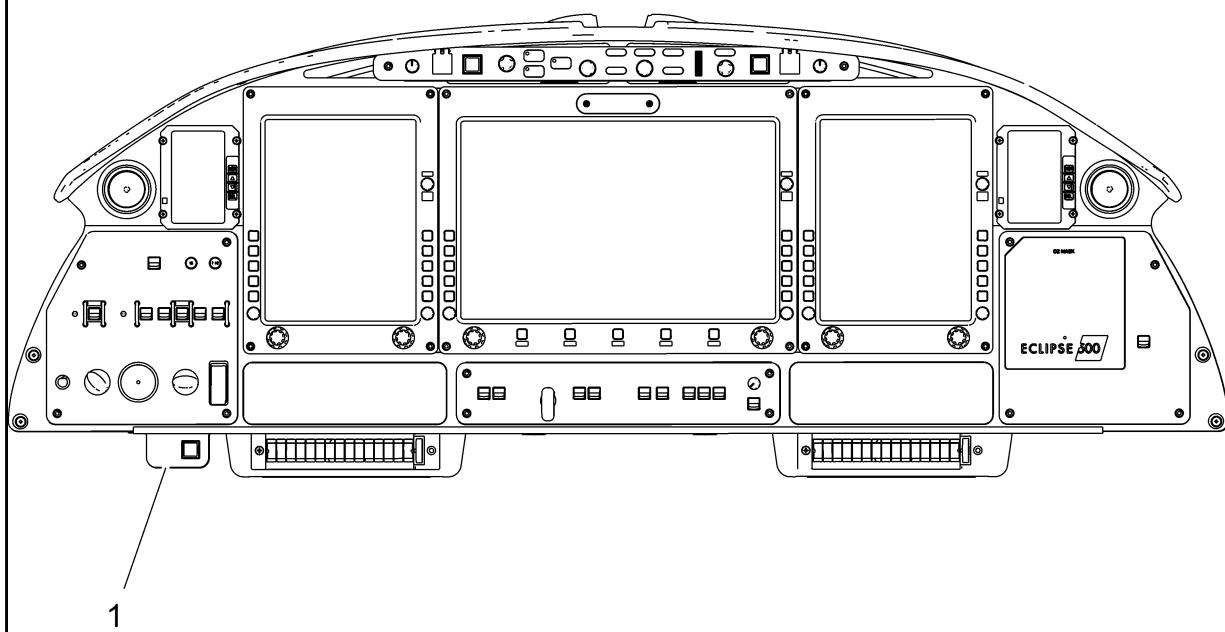


3D VIEW
FOR REFERENCE ONLY
SOME COMPONENTS REMOVED
FOR CLARITY



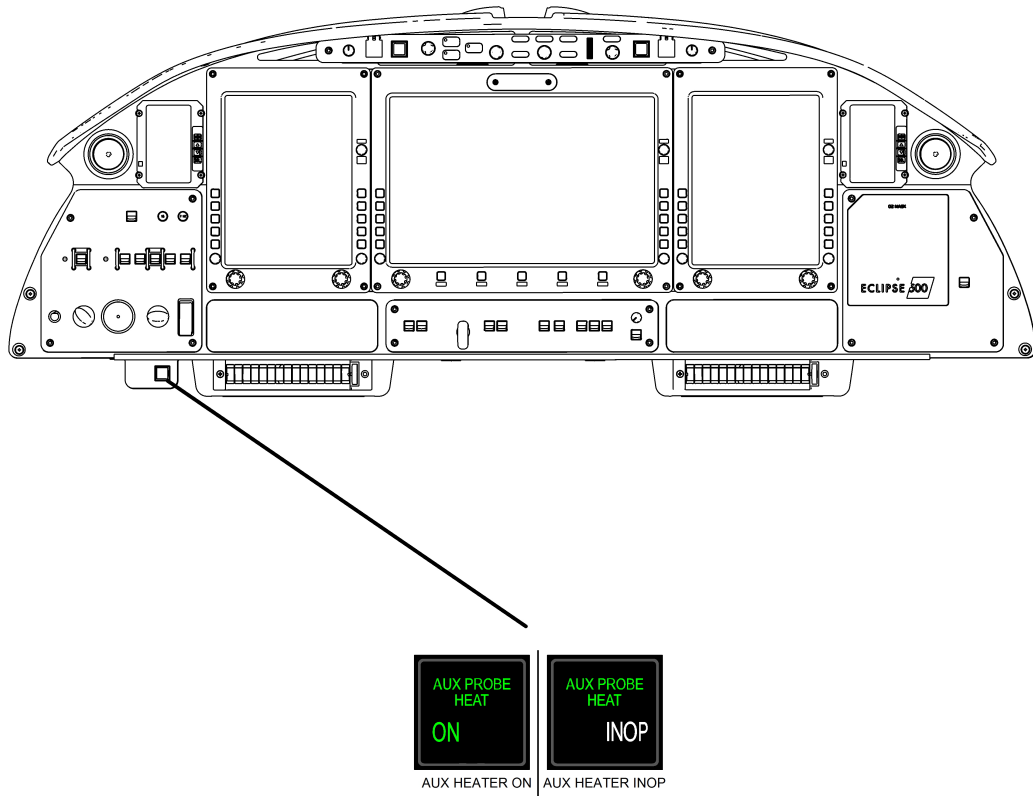
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Independent Pitot/AOA Auxiliary Heater Controller
Figure 2 (Sheet 1 of 1)



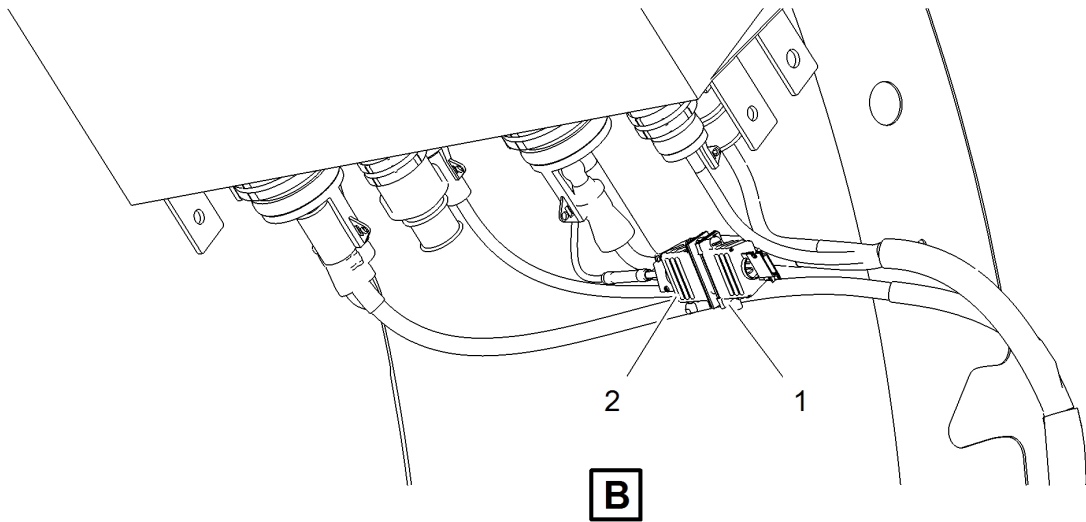
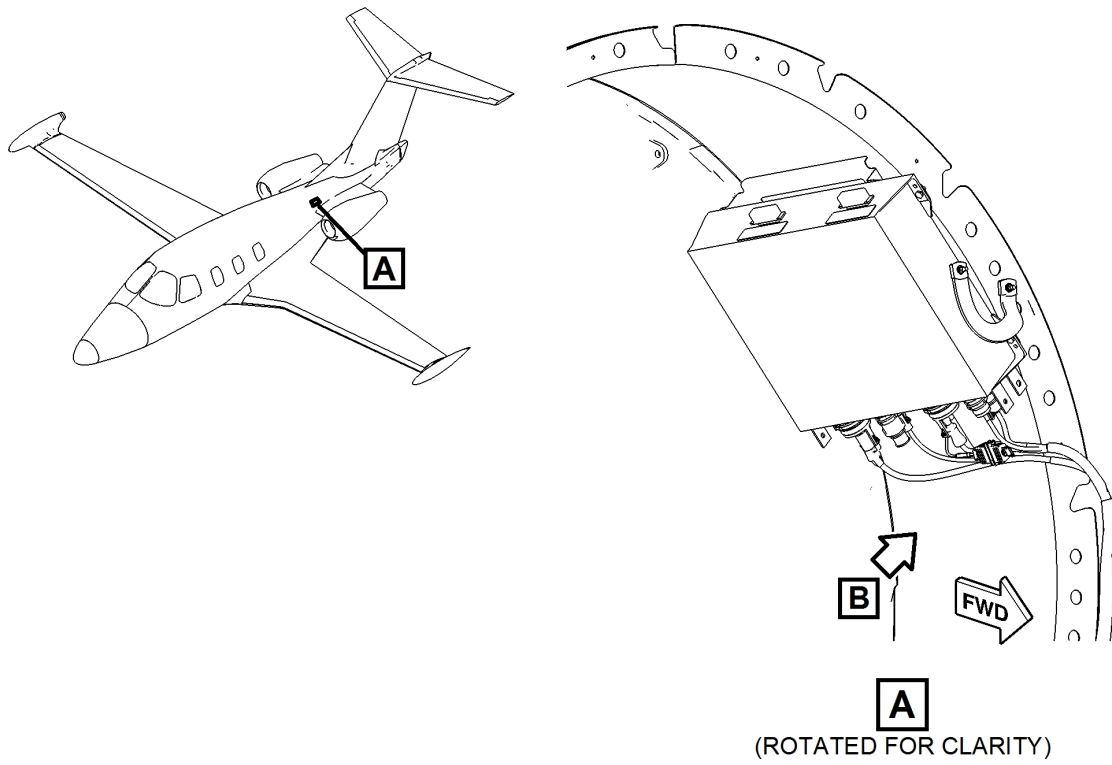
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Independent Pitot/AOA Auxiliary Heater Switch and Fail Indicator
Figure 3 (Sheet 1 of 1)



**Independent AUX HEATER Annunciation
Figure 4 (Sheet 1 of 1)**

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Pitot/AOA Probe Auxiliary Heater Fuse Assembly
Figure 5 (Sheet 1 of 1)

PITOT AND STATIC ANTI-ICE SYSTEM - ADJUSTMENT/TEST

AMM-30-30-00-071-C-801

1. General

- A. This task gives the steps to test the Static Ports, Pitot/AOA Probes, and the Standby Pitot/Static Probe anti-ice system.
- (1) Refer to [Table 501](#) for testing procedures.

Table 501. Test Matrix

System Test	Procedures
Static Port Tests	Left Static Port Test Test: SUBTASK AMM-30-30-00-071-C-701-001 Right Static Port Test Test: SUBTASK AMM-30-30-00-071-C-701-002 .
Pitot/AOA Probe Tests	LH Pitot/AOA Probe Test: SUBTASK AMM-30-30-00-071-C-701-003 RH Pitot/AOA Probe Test: SUBTASK AMM-30-30-00-071-C-701-004 .
Pitot/Static Probe Test	Pitot/Static Probe Test: SUBTASK AMM-30-30-00-071-C-701-005
Integrated Pitot/AOA Probe Auxiliary Heater Test	Integrated Pitot/AOA Probe Auxiliary Heater Test SUBTASK AMM-30-30-00-071-C-701-006
Independent Pitot/AOA Probe Auxiliary Heater Test	Independent Pitot/AOA Probe Auxiliary Heater Test SUBTASK AMM-30-30-00-071-C-701-007

2. Equipment and Materials

Table 502. Special Tools and Equipment

Name and Part Number
Extech EX470 with Type K Adapter, or equivalent
Thermocouple: <ul style="list-style-type: none"> • SCASS-020G-12-SHX, • KMQSS-062G-6, or • SCAIN-062G-6-SHX, or • SCASS-062G-6-SHX, or • SCA321SS-062G-6-SHX

3. Job Set Up

SUBTASK AMM-30-30-00-071-C-921-001

*** ALL

- A. Make aircraft safe for maintenance. Refer to [AMM-20-00-01-051-801 – Make Safe For Maintenance](#).
- B. Connect external power. Refer to [AMM-24-40-00-051-801 – External Power - Maintenance Practices](#).

NOTE: STALL PROTECTION FAIL CAS messages are displayed throughout test due to ECBs being pulled. Respective system CAS messages are displayed when their ECBs are pulled.

NOTE: This test is easier to perform with two Extech EX470, but can be done using just one. Instructions are provided for either method.

- C. Power up the aircraft by setting the SYS BATT and START BATT switches to ON and the BUS TIE to AUTO. (Clear any MASTER WARNINGS/CAUTIONS as needed.)
- D. Ensure aircraft's WOW state is weight on wheels while performing the Anti-ice System Test. If the aircraft is on jacks utilize the [AMM-20-00-04-051-801 – Weight On Wheels \(WOW\) Box - Connect/Disconnect](#) procedure to set the aircraft to weight on wheels.
- E. Using left/right lower knob on MFD, scroll to the ECB synoptic page.

Press the ECB BY SYSTEM Line Select Key (LSK) and using outer knob scroll to ICE PROT, press the inner knob to select.

Using outer knob scroll to select ECB and press the PULL LSK for the following ECBs:

- ECB - DEICE MANIFOLD HTR (R AFT Bus)
- ECB - L PITOT HEAT (L FWD Bus)
- ECB - R PITOT HEAT (R FWD Bus)
- ECB - L STATIC HEAT (BATT Bus)
- ECB - L STATIC HEAT (R FWD Bus)
- ECB - R STATIC HEAT (L FWD Bus)
- ECB - R STATIC HEAT (R FWD Bus)
- ECB - STBY PITOT HEAT (BATT Bus)
- ECB - L WINDSHIELD HEAT (L AFT Bus)
- ECB - R WINDSHIELD HEAT (R AFT Bus)

CAUTION: DURING THIS TEST, THE HEATERS WILL BE COMMANDED ON BY THE SYSTEM. RH AND LH PITOT/AOA PROBES WILL HEAT UP TO APPROXIMATELY 550°C AND THE STANDBY PITOT/STATIC PROBE WILL HEAT UP TO APPROXIMATELY 400°C. HARM TO PERSONNEL OR EQUIPMENT CAN OCCUR IF TOUCHING THE PROBES. DO NOT LEAVE ON FOR EXTENDED TIME. ALLOW 10 MINUTES AFTER TEST FOR PROBES TO COOL.

- F. Record the current ambient temperature within a 5 ft. radius of the nose of the aircraft using a Extech EX470, or equivalent, in conjunction with a SCASS-062G-6-SHX or SCASS-020G-12-SHX thermocouple.

4. **Left Static Port Test**

SUBTASK AMM-30-30-00-071-C-701-001

*** ALL

A. Left Static Port Test:

- (1) On MFD, scroll to the ICE synoptic page using the lower left/right knob.
Press the PITOT/STATIC LSK to select ON.
- (2) ECB - L STATIC HEAT (BATT Bus)
 - (a) Using left/right lower knob on MFD, scroll to the ECB synoptic page.
Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select.
Using outer knob, scroll to ECB - L STATIC HEAT (BATT Bus) and press the RESET LSK.
 - (b) Using a SCASS-062G-6-SHX Thermocouple Thermometer, measure the temperature in center hole of top static port of the left static port. (Insert thermocouple until resistance is felt against back wall of hole.)
 - Verify the static port temperature is 12°C greater than ambient and rising within a four minute period.
 - (c) Using left/right lower knob on MFD, scroll to the ECB synoptic page.
Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select.
Using outer knob, scroll to ECB - L STATIC HEAT (BATT Bus) and press the PULL LSK.
- (3) Allow time for the static port to cool before testing the next ECB (approximately 10 minutes).
- (4) ECB - L STATIC HEAT (R FWD Bus)
 - (a) Using left/right lower knob on MFD, scroll to the ECB synoptic page.
Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select.
Using outer knob, scroll to ECB - L STATIC HEAT (R FWD Bus) and press the RESET LSK.

- (b) Using a SCASS-062G-6-SHX Thermocouple Thermometer, measure the temperature in center hole of top static port of the left static port. (Insert thermocouple until resistance is felt against back wall of hole.)
 - Verify the static port temperature is 12°C greater than ambient and rising within a four minute period.
- (c) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select. Using outer knob, scroll to ECB - L STATIC HEAT (R FWD Bus) and press the PULL LSK.

5. Right Static Port Test

SUBTASK AMM-30-30-00-071-C-701-002

*** ALL

A. Right Static Port Test:

- (1) On MFD, scroll to the ICE synoptic page using the lower left/right knob. Press the PITOT/STATIC LSK to select ON.
- (2) ECB - R STATIC HEAT (L FWD Bus)
 - (a) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select. Using outer knob, scroll to ECB - R STATIC HEAT (L FWD Bus) and press the RESET LSK.
 - (b) Using a SCASS-062G-6-SHX Thermocouple Thermometer, measure the temperature in center hole of top static port of the left static port. (Insert thermocouple until resistance is felt against back wall of hole.)
 - Verify the static port temperature is 12°C greater than ambient and rising within a four minute period.
 - (c) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select. Using outer knob, scroll to ECB - R STATIC HEAT (L FWD Bus) and press the PULL LSK.
- (3) Allow time for the static port to cool before testing the next ECB (approximately 10 minutes).
- (4) ECB - R STATIC HEAT (R FWD Bus)
 - (a) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select. Using outer knob, scroll to ECB - R STATIC HEAT (R FWD Bus) and press the RESET LSK.

- (b) Using a SCASS-062G-6-SHX Thermocouple Thermometer, measure the temperature in center hole of top static port of the left static port. (Insert thermocouple until resistance is felt against back wall of hole.)
 - Verify the static port temperature is 12°C greater than ambient and rising within a four minute period.
- (c) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press the ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT, press the inner knob to select. Using outer knob, scroll to ECB - R STATIC HEAT (R FWD Bus) and press the PULL LSK.

6. LH Pitot/AOA Probe Test

SUBTASK AMM-30-30-00-071-C-701-003

*** ALL

A. LH Pitot/AOA Probe Test:

(Refer to [Fig. 501](#) when recording test results.)

- (1) Insert the SCASS-020G-12-SHX thermocouple 5.1 ± 0.1 inch into the upper AOA port (small hole on the upper surface of the tip) of the LH Pitot/AOA Probe.
- (2) Insert the SCASS-062G-6-SHX thermocouple 0.5 ± 0.1 inch into the ram air port (larger port) of the LH Pitot/AOA Probe.
- (3) On the MFD:
 - (a) Scroll to the ICE synoptic page using the lower left/right knob and press the PITOT/STATIC LSK to select ON.
 - (b) Scroll to the ECB synoptic page using the left/right lower knob and press ECB BY SYSTEM LSK.
 - (c) Scroll to ICE PROT using the inner knob and press the inner knob to select.
 - (d) Scroll to the ECB — L PITOT HEAT (L FWD Bus) using the outer knob and press the RESET LSK.
- (4) Using two Extech EX470 or equivalent to measure the temperature as follows:

NOTE: Probe tip heat should be on for at least 5 minutes before power is removed, unless temperature exceeds 550°C.

 - (a) Start timer and monitor the SCASS-020G-12-SHX and the SCASS-062G-6-SHX.
 1. Record peak temperature for the upper AOA (SCASS-020G-12-SHX). This should take no longer than two minutes and be a minimum of 100°C.
 2. Record peak temperature of the probe tip (SCASS-062G-6-SHX). This should take no longer than 5 minutes. If the probe heat should exceed 550°C within 5 minutes, PULL ECB – L PITOT HEAT (L FWD Bus).
 3. The probe tip temperature must reach a minimum of 370°C and not exceed 550°C within the 5 minutes.

- (5) Using one Extech EX470 or equivalent, measure the ambient temperature in conjunction with a SCASS-020G-12-SHX thermocouple as follows:
 - (a) Start the timer and monitor the upper AOA port using the Extech EX470 and SCASS-020G-12-SHX thermocouple.
 1. Record peak temperature. This should take no longer than two minutes and be a minimum of 100°C.

NOTE: Probe tip heat should be on for at least 5 minutes before power is removed, unless temperature exceeds 550°C.
 - (b) Once the upper AOA port peak temperature has been reached and recorded, unplug the SCASS-020G-12-SHX and immediately plug in SCASS-062G-6-SHX thermocouple.
 1. Record peak temperature of the probe tip (SCASS-062G-6-SHX). This should take no longer than 5 minutes. If the probe heat should exceeds 550°C within 5 minutes, PULL ECB – L PITOT HEAT (L FWD Bus).
 2. The probe tip temperature must reach a minimum of 370°C and not exceed 550°C within the 5 minutes.
- (6) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press ECB BY SYSTEM LSK and using inner knob scroll to ICE PROT. Press inner knob to select. Using outer knob, scroll to ECB - L PITOT HEAT (L FWD Bus) and press the PULL LSK.
 - (a) Verify the “L PITOT HEAT FAIL” CAS message illuminates.

7. RH Pitot/AOA Probe Test

SUBTASK AMM-30-30-00-071-C-701-004

*** ALL

A. RH Pitot/AOA Probe Test:

(Refer to [Fig. 501](#) when recording test results.)

- (1) Insert the SCASS-020G-12-SHX thermocouple 5.1 ± 0.1 inch into the upper AOA port (small hole on the upper surface of the tip) of the RH Pitot/AOA Probe.
- (2) Insert the SCASS-062G-6-SHX thermocouple 0.5 ± 0.1 inch into the ram air port (larger port) of the RH Pitot/AOA Probe.
- (3) On the MFD:
 - (a) Scroll to the ECB synoptic page using the left/right lower knob and press ECB BY SYSTEM LSK.
 - (b) Scroll to ICE PROT using the inner knob and press the inner knob to select.
 - (c) Scroll to the ECB — R PITOT HEAT (R FWD Bus) using the outer knob and press the RESET LSK.
- (4) Using two Extech EX470 or equivalent to measure the temperature as follows:

NOTE: Probe tip heat should be on for at least 5 minutes before power is removed, unless temperature exceeds 550°C.

- (a) Start timer and monitor the SCASS-020G-12-SHX and the SCASS-062G-6-SHX.
 1. Record peak temperature for the upper AOA (SCASS-020G-12-SHX). This should take no longer than two minutes and be a minimum of 100°C.
 2. Record peak temperature of the probe tip (SCASS-062G-6-SHX). This should take no longer than 5 minutes. If the probe heat should exceed 550°C within 5 minutes, PULL ECB – R PITOT HEAT (R FWD Bus).
 3. The probe tip temperature must reach a minimum of 370°C and not exceed 550°C within the 5 minutes.
- (5) Using one Extech EX470 or equivalent, measure the ambient temperature in conjunction with a SCASS-020G-12-SHX thermocouple as follows:
 - (a) Start the timer and monitor the upper AOA port using the Extech EX470 and SCASS-020G-12-SHX thermocouple.
 1. Record peak temperature. This should take no longer than two minutes and be a minimum of 100°C.

NOTE: Probe tip heat should be on for at least 5 minutes before power is removed, unless temperature exceeds 550°C.
 - (b) Once the upper AOA port peak temperature has been reached and recorded, unplug the SCASS-020G-12-SHX and immediately plug in SCASS-062G-6-SHX thermocouple.
 1. Record peak temperature of the probe tip (SCASS-062G-6-SHX). This should take no longer than 5 minutes. If the probe heat should exceed 550°C within 5 minutes, PULL ECB – R PITOT HEAT (R FWD Bus).
 2. The probe tip temperature must reach a minimum of 370°C and not exceed 550°C within the 5 minutes.
- (6) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press ECB BY SYSTEM LSK and using inner knob scroll to ICE PROT. Press inner knob to select. Using outer knob, scroll to ECB - R PITOT HEAT (R FWD Bus) and press the PULL LSK.
 - (a) Verify the “R PITOT HEAT FAIL” CAS message illuminates.

8. Pitot/Static Probe Test

SUBTASK AMM-30-30-00-071-C-701-005

*** ALL

A. Pitot/Static Probe Test:

(Refer to [Fig. 501](#) when recording test results.)

- (1) Insert the SCASS-062G-6-SHX thermocouple 0.8 +/-0.1 inch into the ram air port of the Standby Pitot/Static probe.
- (2) On the MFD:
 - (a) Scroll to the ECB synoptic page using the left/right lower knob and press ECB BY SYSTEM LSK.

- (b) Scroll to ICE PROT using the inner knob and press the inner knob to select.
 - (c) Scroll to the ECB – STBY PITOT HEAT (BATT Bus) using the outer knob and press the RESET LSK.
- (3) Start timer and monitor the probe tip temperature.
- NOTE:** Probe tip heat should be on for at least five minutes before power is removed, unless temperature exceed 400°C
- (a) Record peak temperature of the probe tip (SCASS-062G-6-SHX). This should take no longer than 5 minutes. If the probe heat should exceeds 400°C within 5 minutes, PULL ECB – STBY PITOT HEAT (BATT Bus).
 - (b) The probe tip temperature must reach a minimum of 230°C and not exceed 400°C within the 5 minutes.
- (4) Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press ECB BY SYSTEM LSK and using inner knob scroll to ICE PROT. Press inner knob to select. Using outer knob scroll to ECB - STBY PITOT HEAT (BATT Bus) and press the PULL LSK.
- Verify the “STBY PITOT HEAT FAIL” CAS message illuminates.
- (5) On MFD scroll to ICE synoptic page by using the lower left/right knob, press the PITOT/STATIC LSK to select AUTO.

9. Integrated — Pitot/AOA Probe Auxiliary Heater

SUBTASK AMM-30-30-00-071-C-701-006

*** ALL, POST MB 500-34-027

A. Pitot/AOA Probe Auxiliary Heater:

NOTE: Three to four persons are necessary for this procedure, one person to monitor the cockpit displays, one person to apply freeze spray to the OAT probe, and one or two persons to measure the Auxiliary Heater temperatures.

NOTE: Both auxiliary heaters turn on at the same time.

CAUTION: A WOW SIMULATOR BOX WILL BE INSTALLED WHICH OVERRIDES THE INTERLOCK TO THE LANDING GEAR HANDLE. THE HANDLE MUST BE DOWN FOR THIS ENTIRE TEST OR DAMAGE TO THE AIRCRAFT AND INJURY TO PERSONNEL CAN OCCUR.

CAUTION: WHEN USING THE WOW BOX, AMC (WOW FUNCTION) OR JACKING WITH ELECTRICAL POWER APPLIED, SET TRANSPONDER TO STBY ON THE PFD AFTER SELECTING W-OFF-W OR WHEN AIRCRAFT IS IN WEIGHT OFF WHEELS CONDITION. IF TRANSPONDER IS NOT SET TO STBY THE AIRCRAFT WILL CAUSE NUISANCE TRANSPONDER TRANSMISSIONS TO THE LOCAL AIRFIELD AND OTHER AIRCRAFT.

- (1) To simulate Weight-off-Wheels, connect either AMC or WOW Box to aircraft. Refer to [AMM-20-00-04-051-801 – Weight On Wheels \(WOW\) Box - Connect/Disconnect](#) . Set the WOW Box or AMC to W Off W.

- (2) Apply Freeze Spray to LH OAT Probe.
- (3) Apply Freeze Spray to RH OAT Probe and repeat step (3).
- (4) With OAT temperature at -30° C and below, measure auxiliary heater temperatures, apply thermocouple on the aircraft skin next to the Pitot/AOA probe skin cut out, 0.25 inch from edge of skin cut out.
 - (a) Within one minute, temperature is $>12^{\circ}$ C above ambient temperature as recorded in job set-up.
 - (b) Repeat temperature measurement for the opposite side auxiliary heater.

NOTE: Disregard this step if both Pitot/AOA temperature measurements were taken concurrently.
- (5) Check that no Aux Probe Heat CAS messages are present.
- (6) Set the WOW Box or AMC to W On W.

10. Independent — Pitot/AOA Probe Auxiliary Heater

SUBTASK AMM-30-30-00-071-C-701-007

*** ALL, POST MB 500-34-028

A. Pitot/AOA Probe Auxiliary Heater:

NOTE: Three to four persons are necessary for this procedure, one person to monitor the cockpit displays, one person to apply freeze spray to the OAT probe, and one or two persons to measure the Auxiliary Heater temperatures.

NOTE: Both auxiliary heaters turn on at the same time.

CAUTION: A WOW SIMULATOR BOX WILL BE INSTALLED WHICH OVERRIDES THE INTERLOCK TO THE LANDING GEAR HANDLE. THE HANDLE MUST BE DOWN FOR THIS ENTIRE TEST OR DAMAGE TO THE AIRCRAFT AND INJURY TO PERSONNEL CAN OCCUR.

CAUTION: WHEN USING THE WOW BOX, AMC (WOW FUNCTION) OR JACKING WITH ELECTRICAL POWER APPLIED, SET TRANSPONDER TO STBY ON THE PFD AFTER SELECTING W-OFF-W OR WHEN AIRCRAFT IS IN WEIGHT OFF WHEELS CONDITION. IF TRANSPONDER IS NOT SET TO STBY THE AIRCRAFT WILL CAUSE NUISANCE TRANSPONDER TRANSMISSIONS TO THE LOCAL AIRFIELD AND OTHER AIRCRAFT.

- (1) Lamp Test - Press and hold Pitot/AOA Probe Auxiliary Heat Indicator/Switch.
 - Pitot/AOA Probe Auxiliary Heat Indicator/Switch PITOT HEAT, ON, and INOP segments illuminates
- (2) Apply Freeze Spray to the left OAT Probe.
- (3) Monitor left TAT temperature on the ICE synoptic page.

NOTE: TAT disagree CAS messages will appear due to a single side OAT simulation.

 - (a) "AUX PROBE HEAT" and "ON" green Indicator turns on at -33° C and below.

- (b) "AUX PROBE HEAT" and "ON" green Indicator turns off at -32° C and above.
- (4) Check that the brightness of the indicator, when on, can be adjusted with the Master Dim switch on the Center Switch Panel (CSP).
- (5) With OAT temperature at -33° C and below, check operation of the Pitot/AOA Probe Auxiliary Heater Switch as follows:
 - (a) Push the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator once.
 - Verify that the AUX PROBE HEAT green "ON" Indicator turns off.
 - Verify that the AUX PROBE HEAT white "INOP" Indicator turns on.
 - (b) Push the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator once.
 - Verify that the AUX PROBE HEAT green "ON" Indicator turns on.
 - Verify that the AUX PROBE HEAT white "INOP" Indicator turns off.
- (6) With TAT temperature at -33° C and below, measure auxiliary heater temperatures, apply thermocouple on the aircraft skin next to the Pitot/AOA probe skin cut out, 0.25 inch from edge of skin cut out.
 - (a) Within one minute, temperature is $>12^{\circ}$ C above ambient temperature as recorded in job set-up.
 - (b) Repeat temperature measurement for the opposite side auxiliary heater.

NOTE: Disregard this step if both Pitot/AOA temperature measurements were taken concurrently.

11. Job Close Up

SUBTASK AMM-30-30-00-071-C-921-002

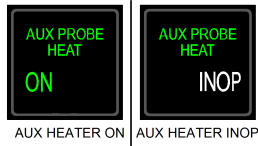
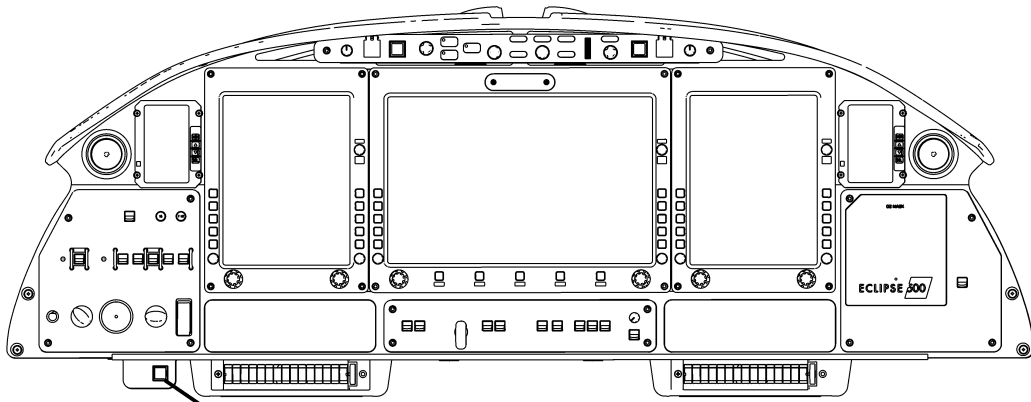
*** ALL

- A. Using left/right lower knob on MFD, scroll to the ECB synoptic page. Press ECB BY SYSTEM LSK and using outer knob scroll to ICE PROT. Press inner knob to select. Using outer knob, scroll to select ECB and press the RESET LSK for the following ECBs:
 - ECB - DEICE MANIFOLD HTR (R AFT Bus)
 - ECB - L PITOT HEAT (L FWD Bus)
 - ECB - R PITOT HEAT (R FWD Bus)
 - ECB - L STATIC HEAT (BATT Bus)
 - ECB - L STATIC HEAT (R FWD Bus)
 - ECB - R STATIC HEAT (L FWD Bus)
 - ECB - R STATIC HEAT (R FWD Bus)
 - ECB - STBY PITOT HEAT (BATT Bus)
 - ECB - L WINDSHIELD HEAT (L AFT Bus)
 - ECB - R WINDSHIELD HEAT (R AFT Bus)

- B. Power down the aircraft by setting the SYS BATT and START BATT switches to OFF and the BUS TIE to OPEN.
- C. If used, disconnect the AMC or WOW Box from the aircraft. Refer to AMM-20-00-04-051-801 – Weight On Wheels (WOW) Box - Connect/Disconnect.
- D. Remove all tools, equipment, and unwanted material, from work area.
- E. If all other maintenance is complete, return aircraft to service. Refer to [AMM-20-00-02-051-801 – Return To Service \(After Maintenance\)](#).

Aircraft Registration Number / Serial Number		/
Date of Probe Test		
Ambient Temperature °C		
LH Pitot Probe	Probe Part Number	
	Probe Software Version	
	Date of Manufacture	
	SCASS-062G-6SHX Peak Temperature °C – <i>Time Required to Reach Peak Temperature</i>	
	SCASS-020G-12-SHX Peak Temperature °C	
RH Pitot Probe	Probe Part Number	
	Probe Software Version	
	Date of Manufacture	
	SCASS-062G-6SHX Peak Temperature °C – <i>Time Required to Reach Peak Temperature</i>	
	SCASS-020G-12-SHX Peak Temperature °C	
Standby Pitot/Static Probe	Probe Part Number	
	Probe Software Version	
	Date of Manufacture	
	SCASS-062G-6SHX Peak Temperature °C – <i>Time Required to Reach Peak Temperature</i>	

Probe Test Table
Figure 501 (Sheet 1 of 1)



**AUX HEATER Annunciation
Figure 502 (Sheet 1 of 1)**

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PITOT/AOA PROBE AUXILIARY HEATER - REMOVAL

AMM-30-30-10-001-801

1. General

- A. This task gives the procedures to remove the Auxiliary Heater from the Pitot/Angle of Attack (AOA) probes.

2. Job Set-Up

SUBTASK AMM-30-30-10-001-921-001

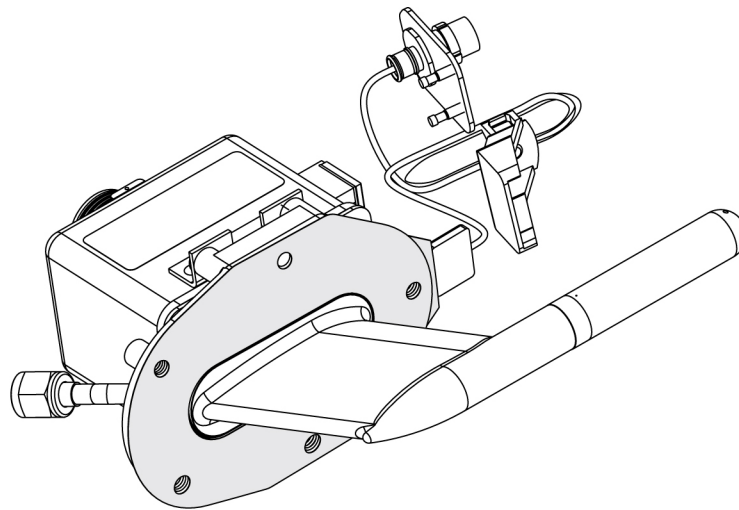
- A. This task assumes the Pitot/AOA probe has been removed. For Pitot/AOA probe removal instructions, refer to [AMM-34-10-10-001-801 – Pitot/AOA Probes - Removal](#) .

3. Procedure

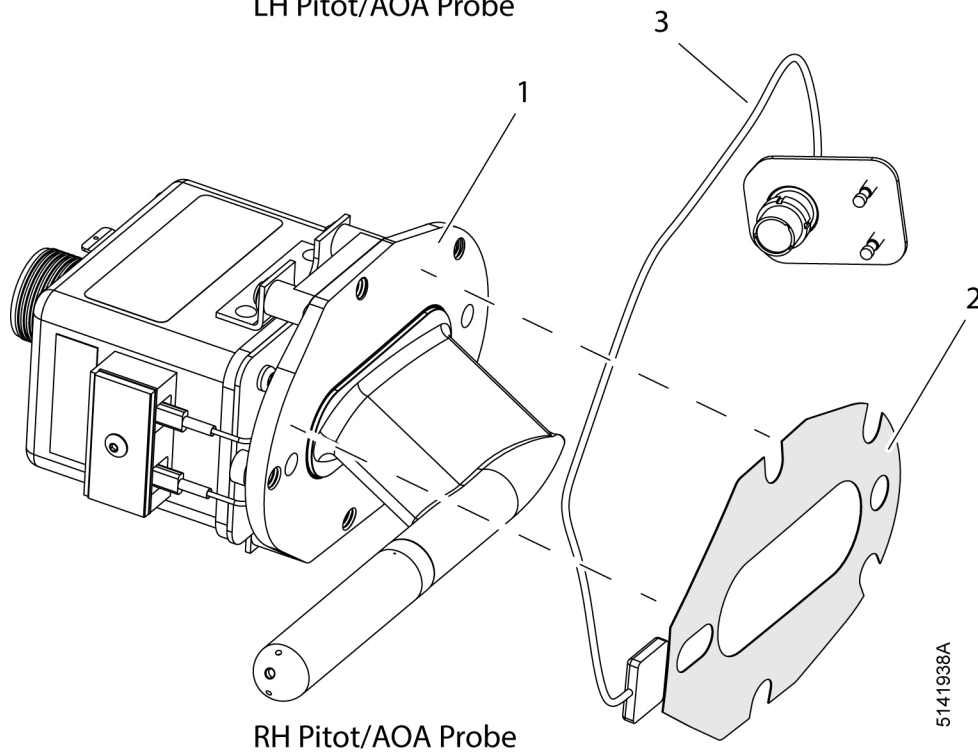
SUBTASK AMM-30-30-10-001-011-001

(Refer to [Fig. 401.](#))

- A. Remove the auxiliary heater (2) from Pitot/AOA probe (1) by peeling the auxiliary heater off of the Pitot/AOA probe.



LH Pitot/AOA Probe



RH Pitot/AOA Probe

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Pitot/AOA Probe Auxiliary Heater - Removal/Installation
Figure 401 (Sheet 1 of 1)

PITOT/AOA PROBE AUXILIARY HEATER - INSTALLATION

AMM-30-30-10-041-801

1. General

- A. This task gives the procedures to install the Auxiliary Heater on the Pitot/Angle of Attack (AOA) probes.

2. Job Set-Up

SUBTASK AMM-30-30-10-041-921-001

- A. Make sure aircraft is in the same configuration as it was when the removal task was completed. Refer to [AMM-30-30-10-001-801 – Pitot/AOA Probe Auxiliary Heater - Removal](#).

3. Procedure

SUBTASK AMM-30-30-10-041-411-001

(Refer to [Fig. 401](#).)

- A. Clean probe flange (8) on skin-side surface only. Refer to [AMM-20-08-00-051-801 – Sealants and Adhesives - Maintenance Practices](#).

NOTE: Make sure surface is clean, dry, and free of contamination.

- B. Remove protective adhesive liner from heater (7).
- C. Apply heater (7) to prepared flange of probe (8).

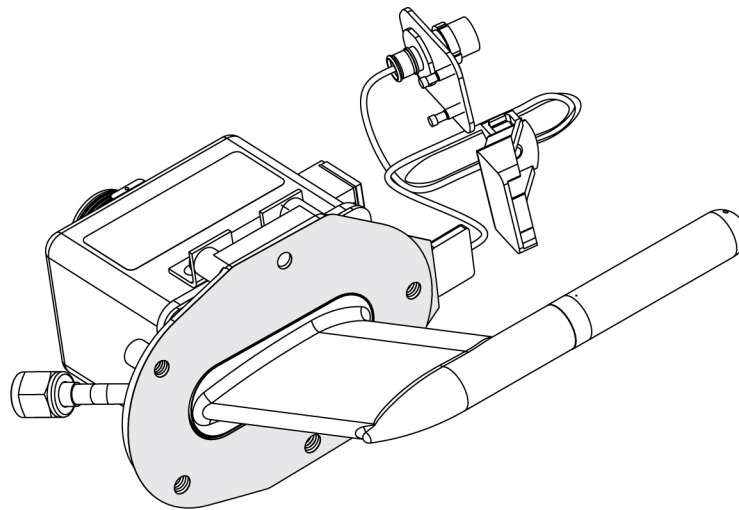
NOTE: When locating heater on face of flange, ensure the heater entirely covers (overlaps) edges of probe flange and does not contact or foul mounting hardware.

- D. Make sure no air bubbles or wrinkles are present on the heater after installation.

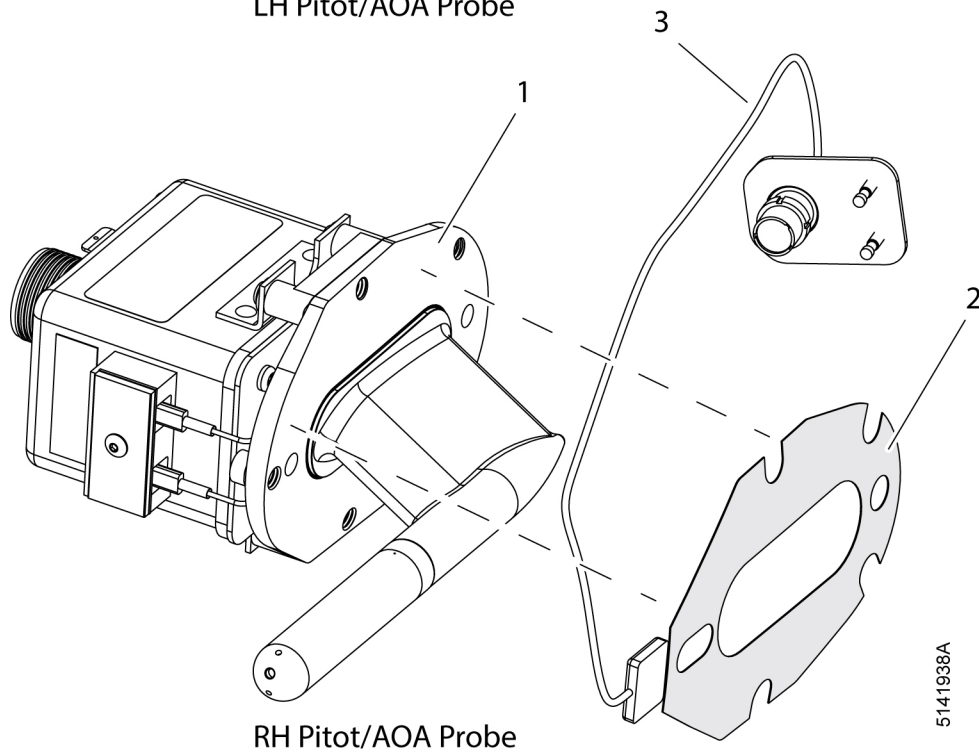
4. Job Close-Up

SUBTASK AMM-30-30-10-041-921-002

- A. This task does not install the Pitot/AOA probe. For Pitot/AOA probe installation instructions refer to [AMM-34-10-10-041-801 – Pitot/AOA Probes - Installation](#)



LH Pitot/AOA Probe



RH Pitot/AOA Probe

Pitot/AOA Probe Auxiliary Heater - Removal/Installation
Figure 401 (Sheet 1 of 1)

PITOT/AOA PROBE AUXILIARY HEATER CONTROL - REMOVAL

AMM-30-30-20-001-801

1. General

- A. This task gives the procedures to remove the Auxiliary Heater Control.

2. Job Set-Up

SUBTASK AMM-30-30-20-001-921-001

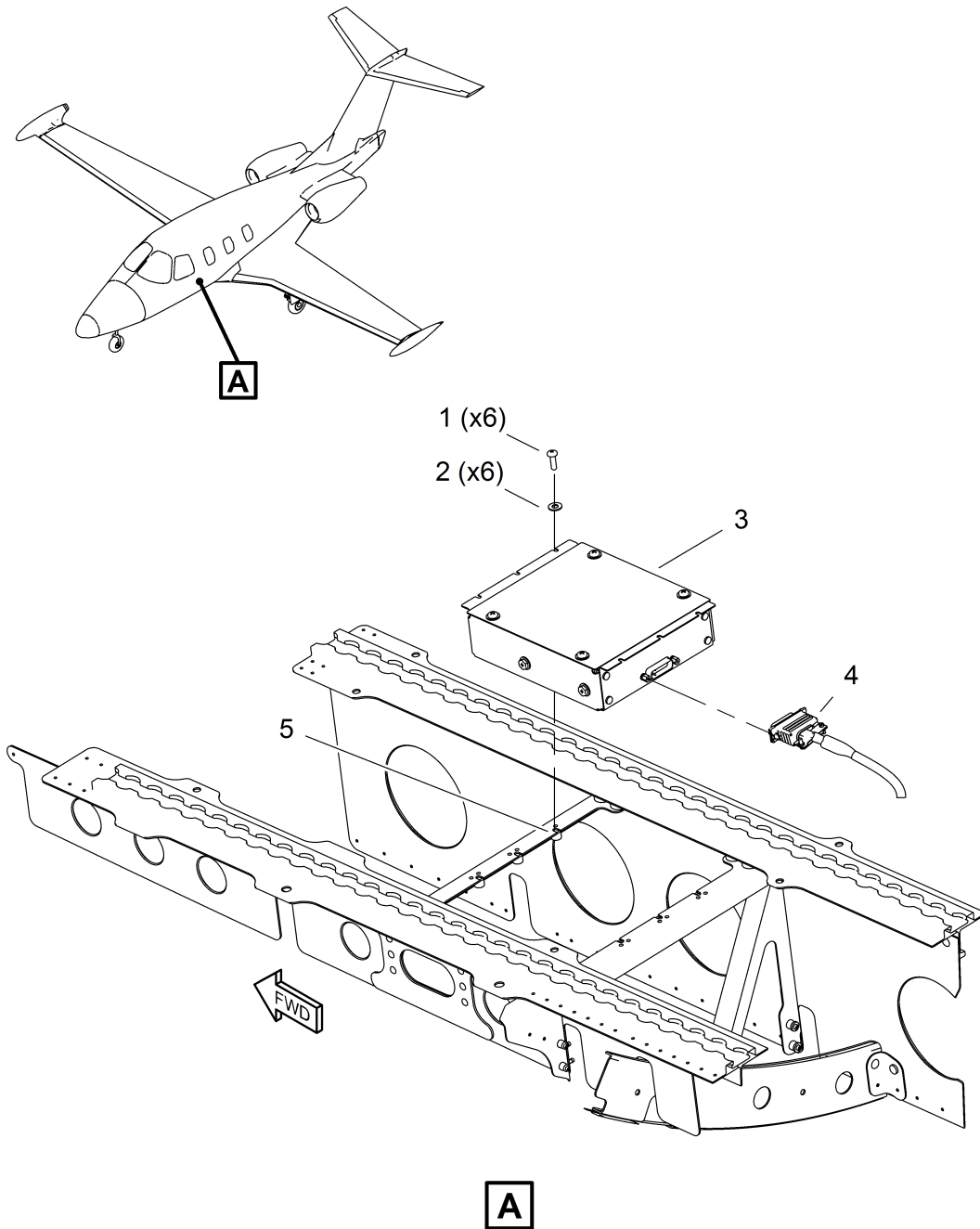
- A. Make aircraft safe for maintenance. Refer to [AMM-20-00-01-051-801 – Make Safe For Maintenance](#).
- B. Remove electrical power from aircraft.
- C. Remove pilot's seat. Refer to [AMM-25-12-01-001-801 – Cockpit Seat Component - Removal](#).
- D. Remove 131 AZ - Floor Panel, Forward Left Cabin. Refer to [AMM-06-50-00-051-801 – Aircraft Access Panels](#).

3. Procedure

SUBTASK AMM-30-30-20-001-011-001

(Refer to [Fig. 401](#).)

- A. Remove six bolts (1) and washers (2) that attach Auxiliary Heater Control (3) to rails (5).
- B. Disconnect electrical connector 30P01 (4) from Auxiliary Heater Control (3).
- C. Remove Auxiliary Heater Control (3) from rails (5).
- D. Install protective cap on electrical connector 30P01 (4).



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Pitot/AOA Probe Auxiliary Heater Control - Removal/Installation
Figure 401 (Sheet 1 of 1)

PITOT/AOA PROBE AUXILIARY HEATER CONTROL - INSTALLATION

AMM-30-30-20-041-801

1. General

- A. This task gives the procedures to install the Auxiliary Heater Control.

2. Job Set-Up

SUBTASK AMM-30-30-20-041-921-001

- A. Make sure aircraft is in the same configuration as it was when the removal task was completed. Refer to [AMM-30-30-20-001-801 – Pitot/AOA Probe Auxiliary Heater Control - Removal](#) .

3. Procedure

SUBTASK AMM-30-30-20-041-411-001

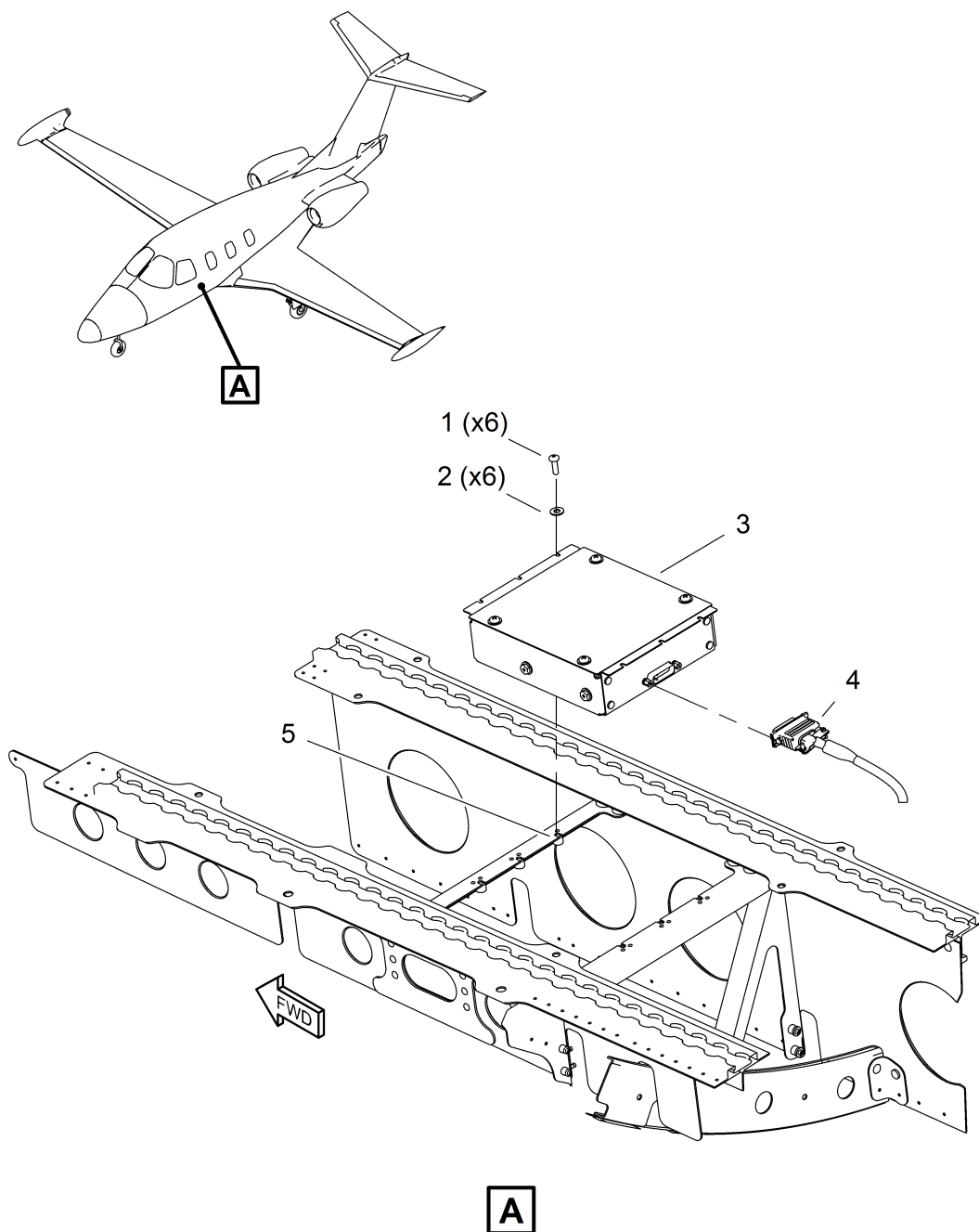
(Refer to [Fig. 401](#))

- A. Remove protective cap from electrical connector 30P1 [\(4\)](#) .
- B. Connect electrical connector 30P01 [\(4\)](#) to Auxiliary Heater Control [\(3\)](#) .
- C. Put Auxiliary Heater Control on rails and align holes.
- D. Attach Auxiliary Heater Control [\(3\)](#) to rails [\(5\)](#) with six bolts [\(1\)](#) and washers [\(2\)](#) . Torque six bolts [\(1\)](#) to 30–40 lbf.in (3.4–4.5 Nm).
- E. Using a Extech Milli-Ohmmeter, bond the Auxiliary Heater Control [\(3\)](#) to rails [\(5\)](#) . Refer to [AMM-20-03-00-051-801 – Electrical Bonding - Maintenance Practices](#) . Resistance must be 2.5 milliohms or less.

4. Job Close-Up

SUBTASK AMM-30-30-20-041-921-002

- A. Install the 131 AZ - Floor Panel, Forward Left Cabin. Refer to [AMM-06-50-00-051-801 – Aircraft Access Panels](#) .
- B. Install the pilot's seat. Refer to [AMM-25-12-01-041-801 – Cockpit Seat Component - Installation](#) .
- C. Do adjustment/test of the Pitot/AOA Auxiliary Heaters. Refer to [SUBTASK AMM-30-30-00-071-C-701-007](#) .
- D. Remove all tools, equipment and unwanted material from the work area.
- E. If all other maintenance is complete, return the aircraft to service. Refer to [AMM-20-00-02-051-801 – Return To Service \(After Maintenance\)](#) .



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Pitot/AOA Probe Auxiliary Heater Controller - Removal/Installation
Figure 401 (Sheet 1 of 1)

PITOT/AOA PROBE AUXILIARY HEATER SWITCH AND FAIL INDICATOR - REMOVAL

AMM-30-30-30-001-801

1. General

- A. This task gives procedures to remove the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator.
- B. There is one Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator installed on the lower left instrument panel.

2. Equipment and Materials

- A. Special Tools and Equipment:

Name & Part Number
Extraction Tool (Aerospace Optics 18–234)
Cap Extractor Tool (Aerospace Optics 17–150)

3. Job Set-Up

SUBTASK AMM-30-30-30-001-921-001

- A. Make aircraft safe for maintenance. Refer to [AMM-20-00-01-051-801 – Make Safe For Maintenance](#).
- B. Remove electrical power.

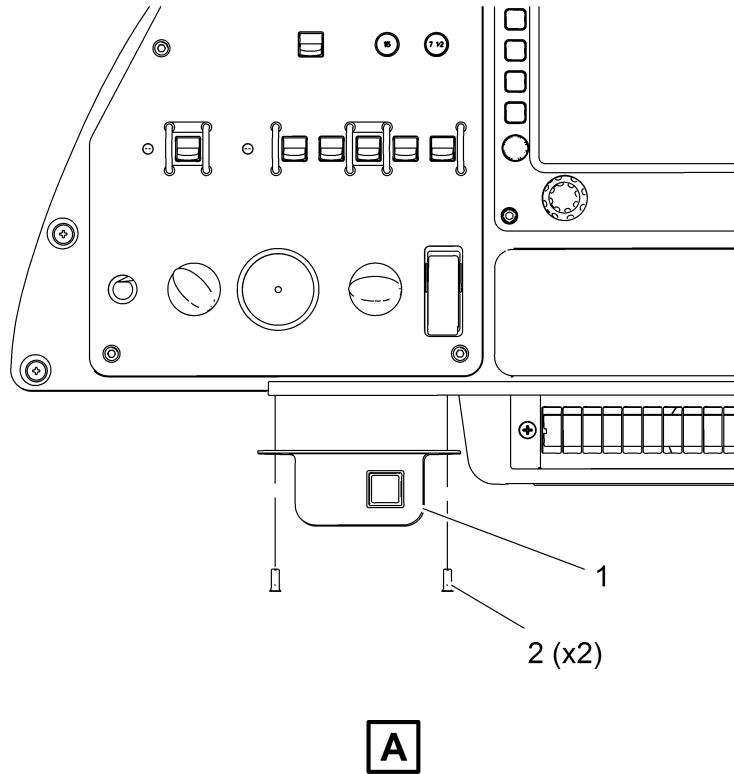
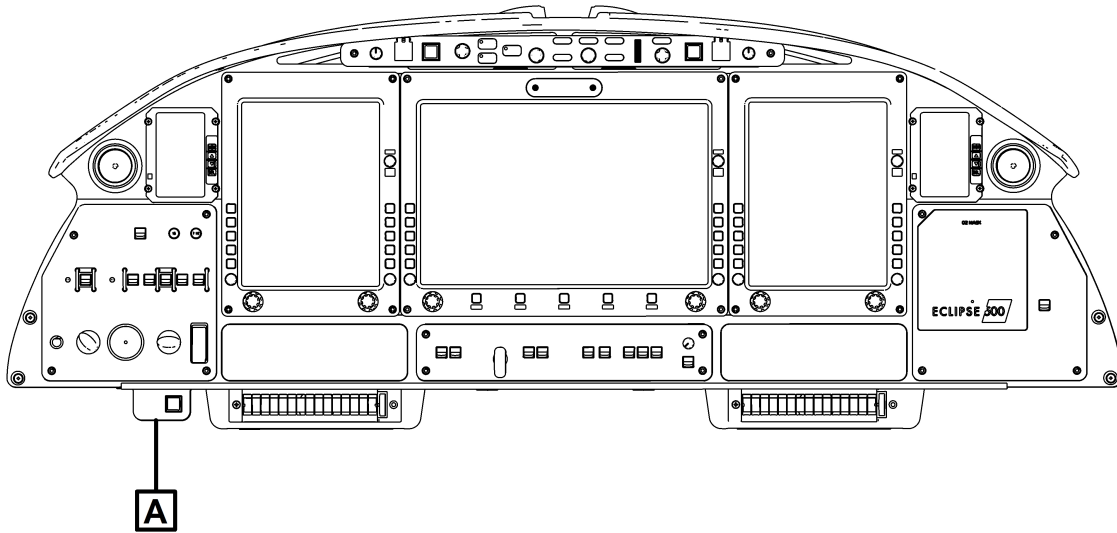
4. Procedure

SUBTASK AMM-30-30-30-001-011-001

(Refer to [Fig. 401](#).)

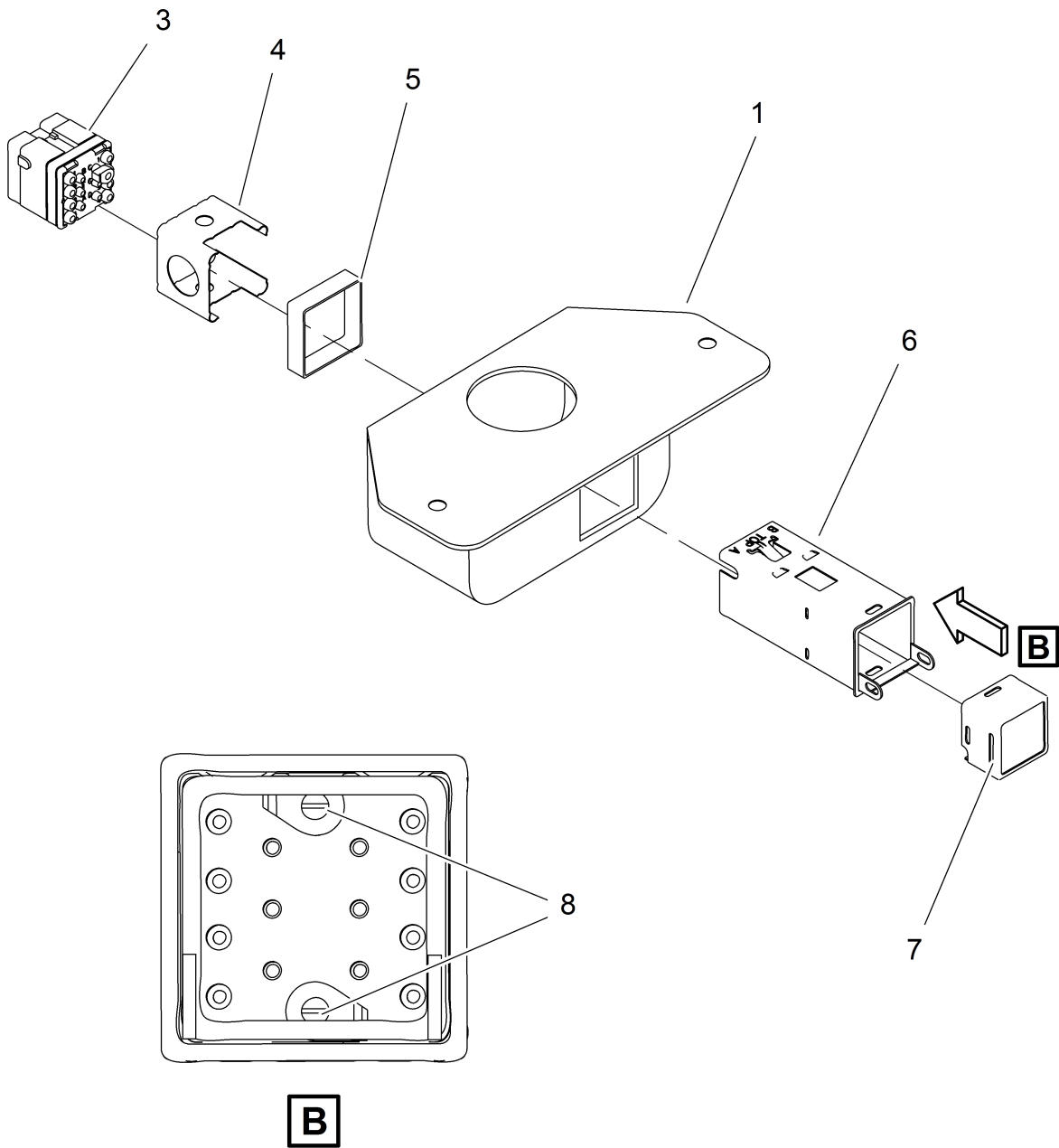
- A. Remove the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator as follows:
 - (1) Remove two screws (2) that secure bracket (1) to the Instrument panel.
 - (2) Disconnect electrical connector (3) from switch body (6) with extraction tool 18–234.
 - (3) Identify the two extraction slots positioned on either side of the cap (7). Extract the switch cap (7) by using the Cap Extractor Tool (Part Number: 17-150) or by applying finger pressure on two sides of the switch cap pulling the switch cap from the switch body.
 - (4) Remove switch cap (7) from the switch body (6) by gently removing the cap pins from the hinged slide retainer.
 - (5) From the front of the switch body (6) locate the two slot head integral mounting screws (8) in the base of the body. Loosen the two screws until the Integral Mounting Hardware releases the mounting sleeve from the mounting panel.

- (6) From behind the bracket (1) , remove the locking sleeve (4) and spacer (5) from the switch body by sliding aft from the bracket (1) .
- (7) Remove switch body (6) from the bracket (1) .



Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator - Removal/Installation
Figure 401 (Sheet 1 of 2)

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Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator - Removal/Installation
Figure 401 (Sheet 2 of 2)

PITOT/AOA PROBE AUXILIARY HEATER SWITCH AND FAIL INDICATOR - INSTALLATION

AMM-30-30-30-041-801

1. General

- A. This task gives procedures to install the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator.
- B. There is one Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator installed on the lower left instrument panel.

2. Job Set-Up

SUBTASK AMM-30-30-30-041-921-001

- A. Make sure the aircraft and Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator (disassembled) are in the same configuration as it was when the removal task was completed. Refer to [AMM-30-30-30-001-801 – Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator - Removal](#).

3. Procedure

SUBTASK AMM-30-30-30-041-411-1

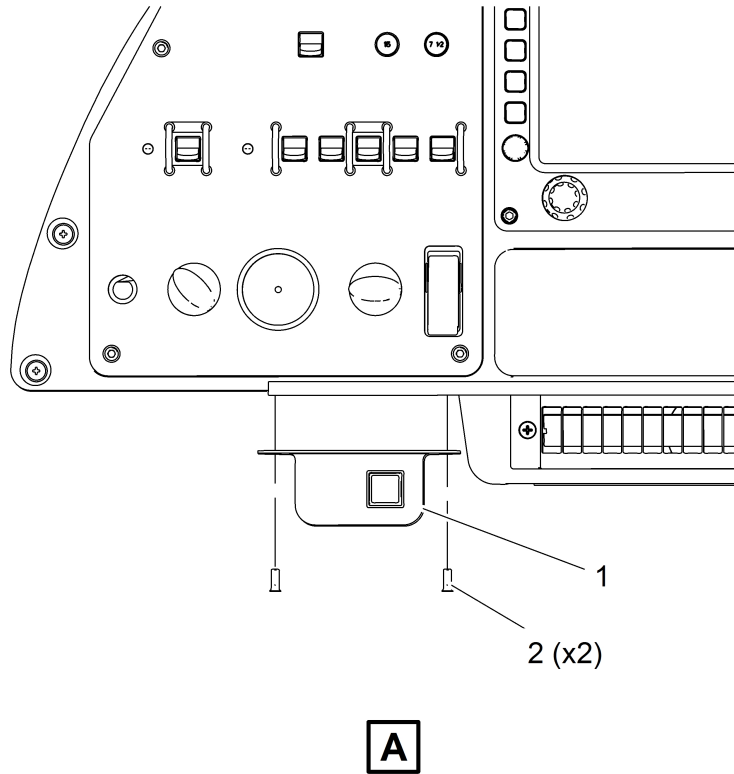
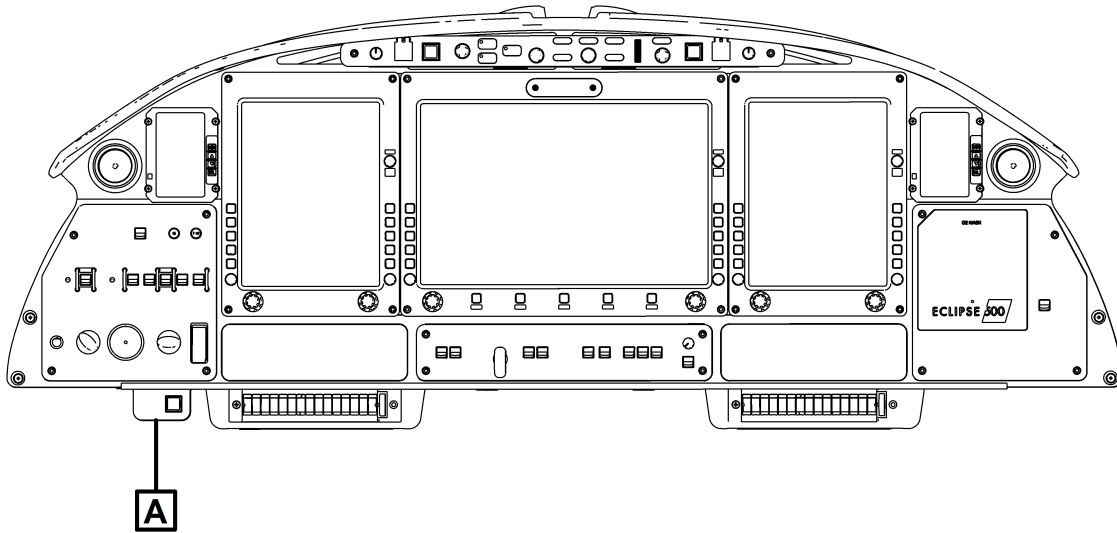
(Refer to [Fig. 401](#).)

- A. Install the Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator as follows:
 - (1) Insert the back of the switch body (6) into the mounting bracket (1) by sliding it through the bracket (1) from the front. Ensure the switch body label “TOP” is positioned up.
 - (2) From behind the mounting bracket (1), place the locking sleeve (4) onto the switch body (6) and sliding it forward against the mounting bracket (1).
 - (3) From the front of the switch body (6) locate the two slot head integral mounting screws (8) in the base of the body. Tighten the two screws (8) until the Integral Mounting Hardware pulls the mounting sleeve (4) against the mounting bracket (1). Torque screws to 18-25 ounce.in.
 - (4) Replace the switch cap (7) by inserting the cap pins into the slide retainer (6) and push the cap (7) into the switch body (6).
 - (5) Align keyways and push electrical connector (3) on to the back of the switch body (6) until it clicks.
- B. Position bracket (1) with assembled Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator on to the left lower instrument panel and align screw holes.
- C. Attach bracket (1) with Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator with two screws (2). Torque screws (2) to 18-23 lbf.in.

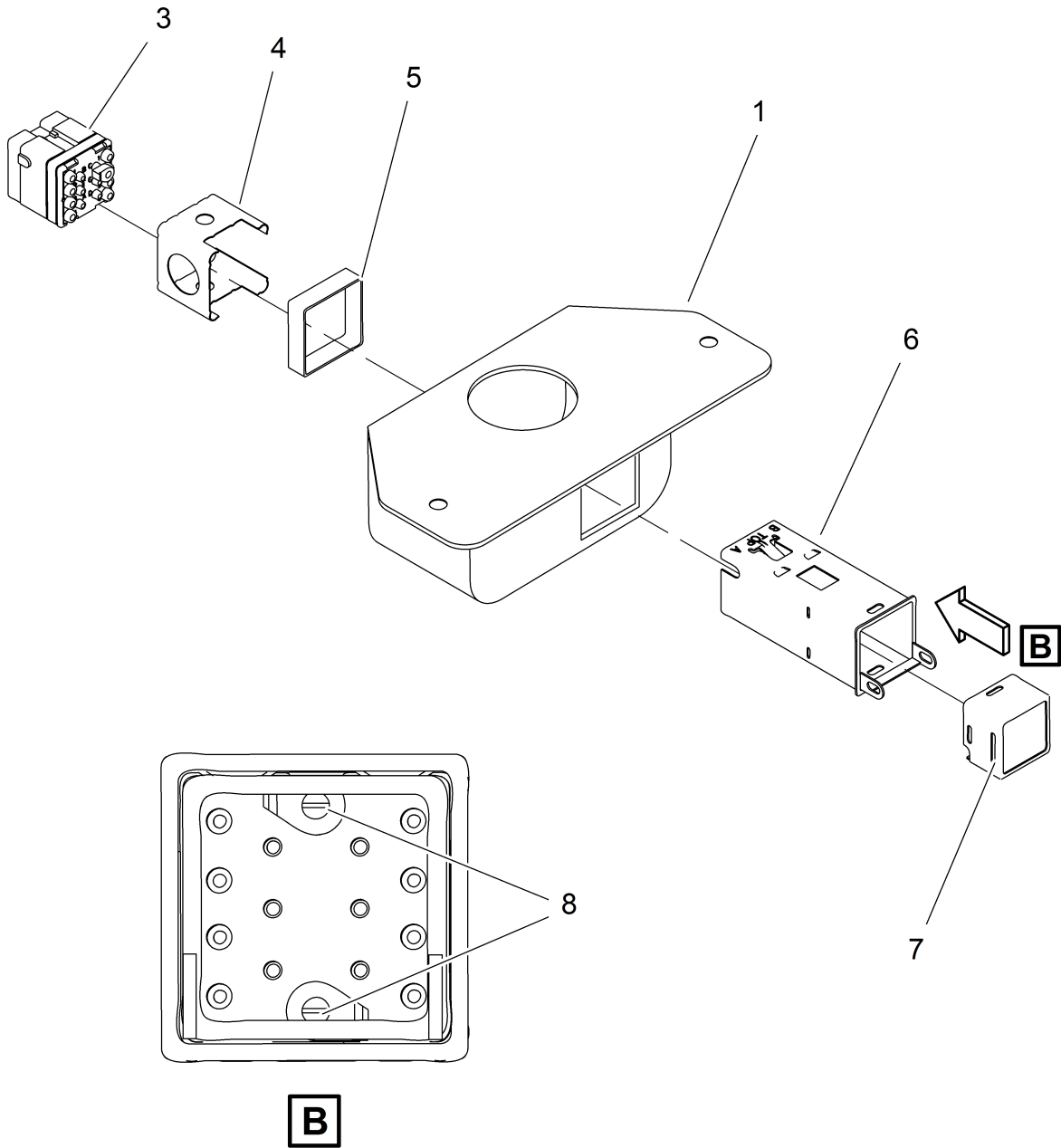
4. Job Close-Up

SUBTASK AMM-30-30-30-041-921-2

- A. Remove all tools, equipment, and unwanted material from the work area.
- B. Do adjustment/test of the Pitot/AOA Auxiliary Heaters. Refer to [SUBTASK AMM-30-30-00-071-C-701-007](#).
- C. If all other maintenance is complete, return the aircraft to service. Refer to [AMM-20-00-02-051-801 – Return To Service \(After Maintenance\)](#).



Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator - Removal/Installation
Figure 401 (Sheet 1 of 2)



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Pitot/AOA Probe Auxiliary Heater Switch and Fail Indicator - Removal/Installation
Figure 401 (Sheet 2 of 2)