



SERVICE BULLETIN

NUMBER: SB 500-34-005 rev B
MODEL: Eclipse EA500
SUBJECT: Pitot/Angle-of-Attack (AOA) System Upgrade

1. PLANNING INFORMATION

A. Effectivity

(1) Aircraft

Aircraft Serial Numbers 000001 through 000064.

(2) Spares

- Pitot/Angle-of-Attack (AOA) probe spares part numbers 100435-23 and 100435-24 must be purged from stock.
- Pitot/AOA tubing assembly spares part numbers 34-114372-1002, 34-114373-1002, 34-114374-1002, 34-114375-1002 must be purged from stock.

B. Reason

The current Pitot/AOA probes and tubing assembly do not effectively eliminate the formation of ice in the Pitot/AOA system for all combinations of moisture and temperature. This condition can occasionally lead to erroneous angle-of-attack and airspeed information.

C. Description

This service bulletin (SB) upgrades the Pitot/AOA probes and modifies the related tubing assembly, adding a water trap. The new Pitot/AOA probes and tubing assembly eliminate the possibility of icing in the Pitot/AOA system.

D. Relevant Publications

Aircraft Maintenance Manual (AMM), P/N 06-117751, latest Rev.

Aircraft Flight Manual (AFM), P/N 06-100106, latest Rev.

E. Compliance

Eclipse Aviation Corporation considers this to be a mandatory modification that *must* be accomplished within 60 days to remove the operational restrictions referenced in the Temporary Revisions (TR) Number 7 or Number 9 of the Airplane Flight Manual (AFM) P/N 06-100106, Revision 3.



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F. Approval

This Service Bulletin is FAA Approved by the Manager, Airplane Certification Office, ASW-150, by letter dated July 10, 2007, as an Alternative Method Compliance with AD 2007-13-11, effective date June 27, 2007. Airplanes can be operated in accordance with Airplane Flight Manual Revision 3 or later FAA approved revision after the airplane has been modified in accordance with the information in this Service Bulletin.

G. Weight and Balance Change

None.

H. Electrical Load Data Change

None.

I. Software Accomplishment Summary

Not Applicable.

J. References

Aircraft Maintenance Manual (AMM), P/N 06-117751, latest Rev.

Illustrated Parts Catalog (IPC), P/N 06-117752, latest Rev.

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2. MATERIAL INFORMATION

A. Materials

The following parts and/or kits are required for this SB.

Part Number	Description	Qty Required
34-121975-1001	Mod Kit, Installation Pitot System, Cabin Assy	1
Kit contents:	Kit contents:	
34-114372-1003	Tube Assy – Pitot No. 2 Right	1
34-114373-1003	Tube Assy – Pitot No. 1 Left	1
34-121967-1002	Pitot/AOA, Probe to Bulkhead	2
34-121969-1001	Tube Assy – Trap, Pitot/AOA, Nose LH	1
34-121971-1002	Tube Assy – Trap, Pitot/AOA, Nose RH	1
34-121979-1001	Tube Assy – Bulkhead to Tee, Pitot	4
WSI-4-5	Flange, Support	2
AS1035D040404	Fitting, Tee, Standard and Reducer, Flared	4
AS5168D04	Fitting, Plug, Tube End, Flared	4
CB3001AA3-6P750	Standoff, Locking Thread, Adhesive Bonded	4
CCR274CS-3-021PR	Cherry Pull-Thru Rivet, Universal Head	4
MS21919WDG4	Clamp, Loop Type, Cushioned Support	8
MS51859-21	Washer, Flat – Plastic (Nylon)	4
NAS1149D0332J	Washer, Flat	8
NAS1801-3-5	Screw, Hex Head, Cruciform Recess, Full Thread, Alloy Steel, 160,000 PSI	4
NAS1801-3-6	Screw, Hex Head, Cruciform Recess, Full Thread, Alloy Steel, 160,000 PSI	2
NAS1801-3-8	Screw, Hex Head, Cruciform Recess, Full Thread, Alloy Steel, 160,000 PSI	2
34-121983-1001	Mod Kit, Pitot/AOA Probes, Nose, Instl:	1
Kit contents:	Kit contents:	
100435-39	Sensor, Pitot AOA, W-Drain and Female AN Fitting, Left	1
100435-40	Sensor, Pitot AOA, W-Drain and Female AN Fitting, Right	1
PFE50-1501	Drawing for Blankets, Fwd Bulkhead	1

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B. Tooling

The following special tooling/support equipment is required to accomplish this SB.

Nomenclature	Part Number	Use
Ground Power Unit (GPU)	Allstar 450, AllStar G.S.E., Hobart GPU-400, Hobart GPU-600, Bycan PS-28100, or equivalent	Supplies electrical power to airplane.
Thermocouple Thermometer	Fluke 52 II or equivalent	Checks Pitot/AOA probe temperature.
Air Data Test Set	Barfield DPS450 or Barfield DPS500	Checks integrity of Pitot/AOA system.
Air Data Accessories Kit	ADA500945	Contains parts necessary to interface air data test set with aircraft Pitot/AOA system.
Avio Maintenance Computer (AMC)	EAC 20-120576-1001	Simulates Weight-on-Wheels (WOW) and adjusts Vapor Cycle System (VCS) doors.
USB to Ethernet adapter	SMC2209	Serves as interface to connect Ethernet cable to copilot's arm rest
Ethernet Crossover Cable	EAC 87-120877-1001	Connects AMC to aircraft.

C. Interchangeability/Intermixability of Parts

None. Both Pitot/AOA probes must be replaced when performing this SB.

D. Part Re-identification

None.

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3. ACCOMPLISHMENT INSTRUCTIONS

A. Procedure

- (1) Make aircraft safe for maintenance. Refer to AMM 20-00-01-051-921-001.
- (2) Apply power to aircraft. Refer to AMM 24-40-00-051-921-001.
- (3) Prepare the aircraft for removal and installation of Pitot/AOA assembly as follows (Refer to Figure 1):
 - (a) On the MFD ENVIR synoptic page, select and check the display for:
 - AIR COND: OFF (6)
 - DEFOG: OFF (7)
 - FWD Fan: OFF (5)
 - AFT Fan: OFF (4)
 - (b) On the MFD ENVIR synoptic page, select and check AIR COND: AUTO, then establish the following conditions:
 - AFT Fans: AUTO
 - FWD Fans: AUTO
 - Cockpit Temp: MAX COOL
 - Cabin Temp: MAX COOL
 - (c) Make sure the Vapor Cycle System (VCS) forward door (16) and aft door (10) are fully open.
 - (d) Power down the aircraft by setting the SYS BATT switch (3) and START BATT switch (1) to OFF, and the BUS TIE switch (2) to OPEN.

WARNING: MAKE SURE FOLLOWING STEP IS DONE. IF ELECTRICAL CONNECTOR STAYS CONNECTED AND POWER IS APPLIED, AFT VCS DOOR WILL CLOSE AND MAY CAUSE INJURY.

- (e) Disconnect electrical connector (15) from aft VCS actuator (9).
- (f) Remove bolt (14), washer (13), nut (12), and cotter pin (11) to disconnect VCS actuator (9) from aft VCS (outlet) door (10).
- (g) Remove nose access panel 211 CT (22). Refer to AMM 06-50-00-051-A-871-001.
- (h) Remove pilot seat (18) and copilot seat (17). Refer to AMM 25-11-10-001-011-001.
- (i) Remove right center console kick panel 222 FZ (19) and left center console kick panel 221 FZ (20). Refer to AMM 06-50-00-051-A-871-001.
- (j) Remove insulation blankets from forward bulkhead. Refer to AMM 25-80-10-001-011-001.

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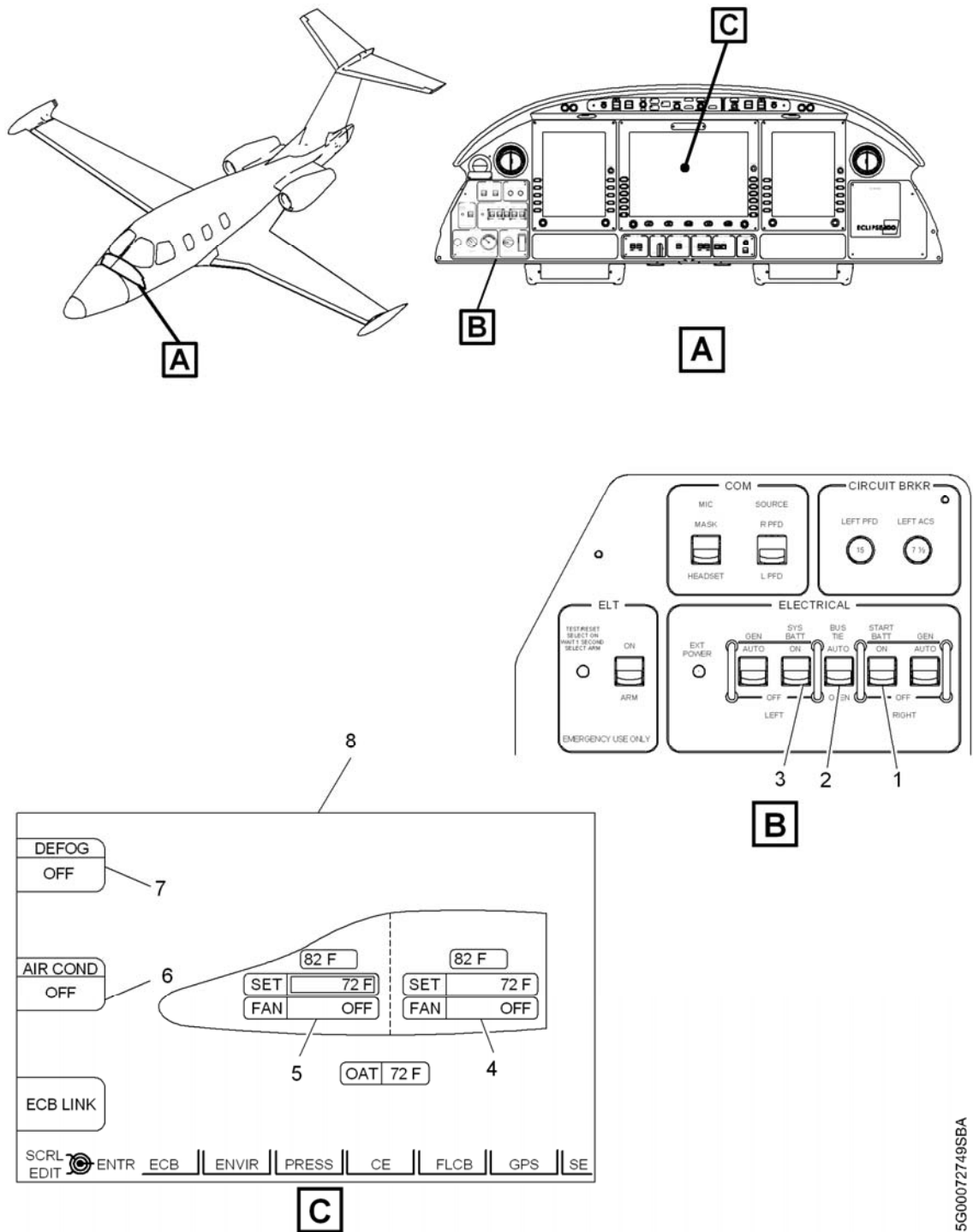


Figure 1. Initial Set-Up Before Removal and Installation of Pitot/AOA Assembly (Sheet 1 of 4)

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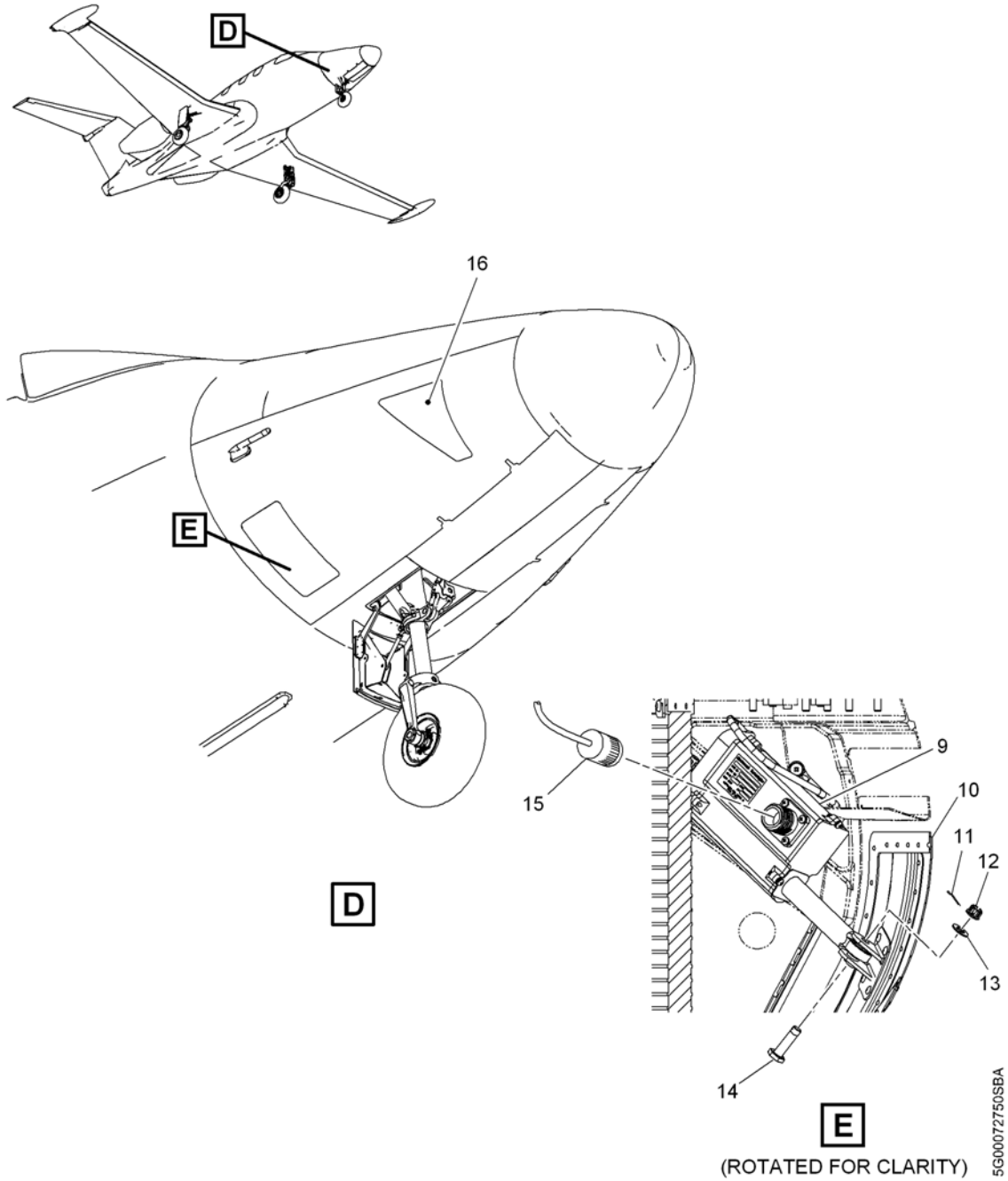


Figure 2. Initial Set-Up Before Removal and Installation of Pitot/AOA Assembly (Sheet 2 of 4)

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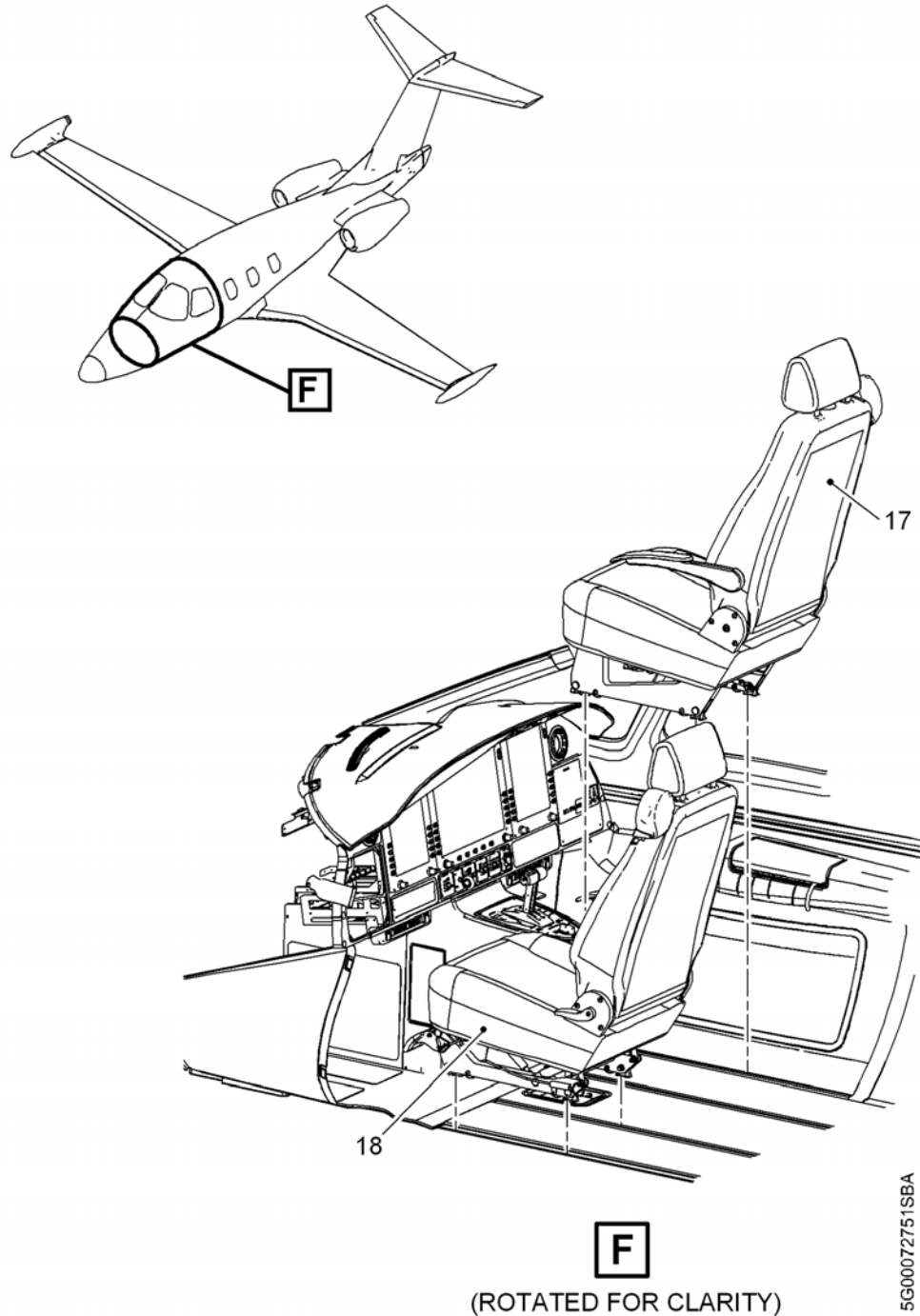


Figure 3. Initial Set-Up Before Removal and Installation of Pitot/AOA Assembly (Sheet 3 of 4)

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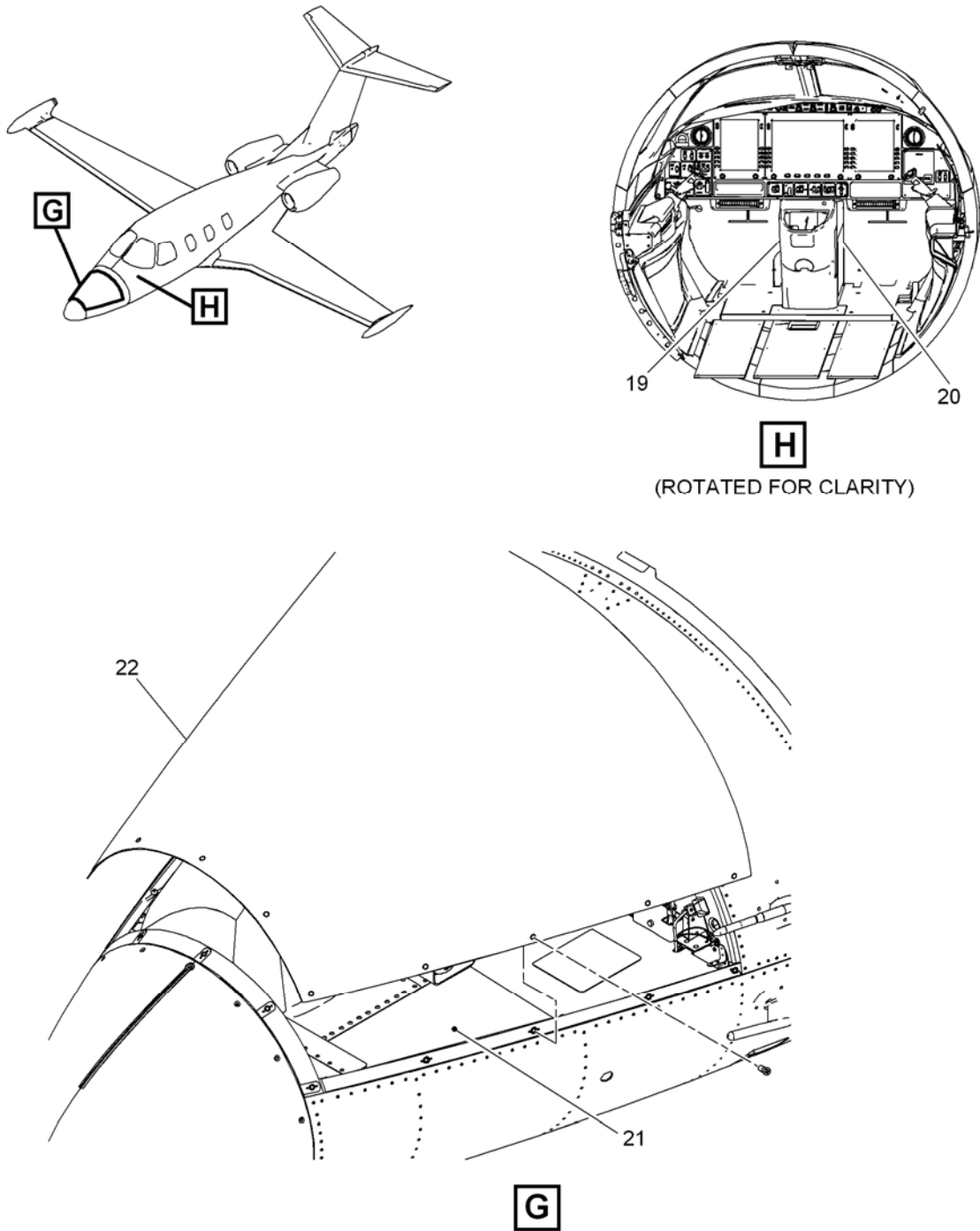


Figure 4. Initial Set-Up Before Removal and Installation of Pitot/AOA Assembly (Sheet 4 of 4)

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Note: Removal of the Pitot/AOA assembly is the same for both sides with the exception of accessibility. Access to the right AOA/Pitot probe assembly is obtained through the aft VCS (outlet) door (10). Access to the left Pitot/AOA probe is obtained through Oxygen Bottle cover 211 JZ (21).

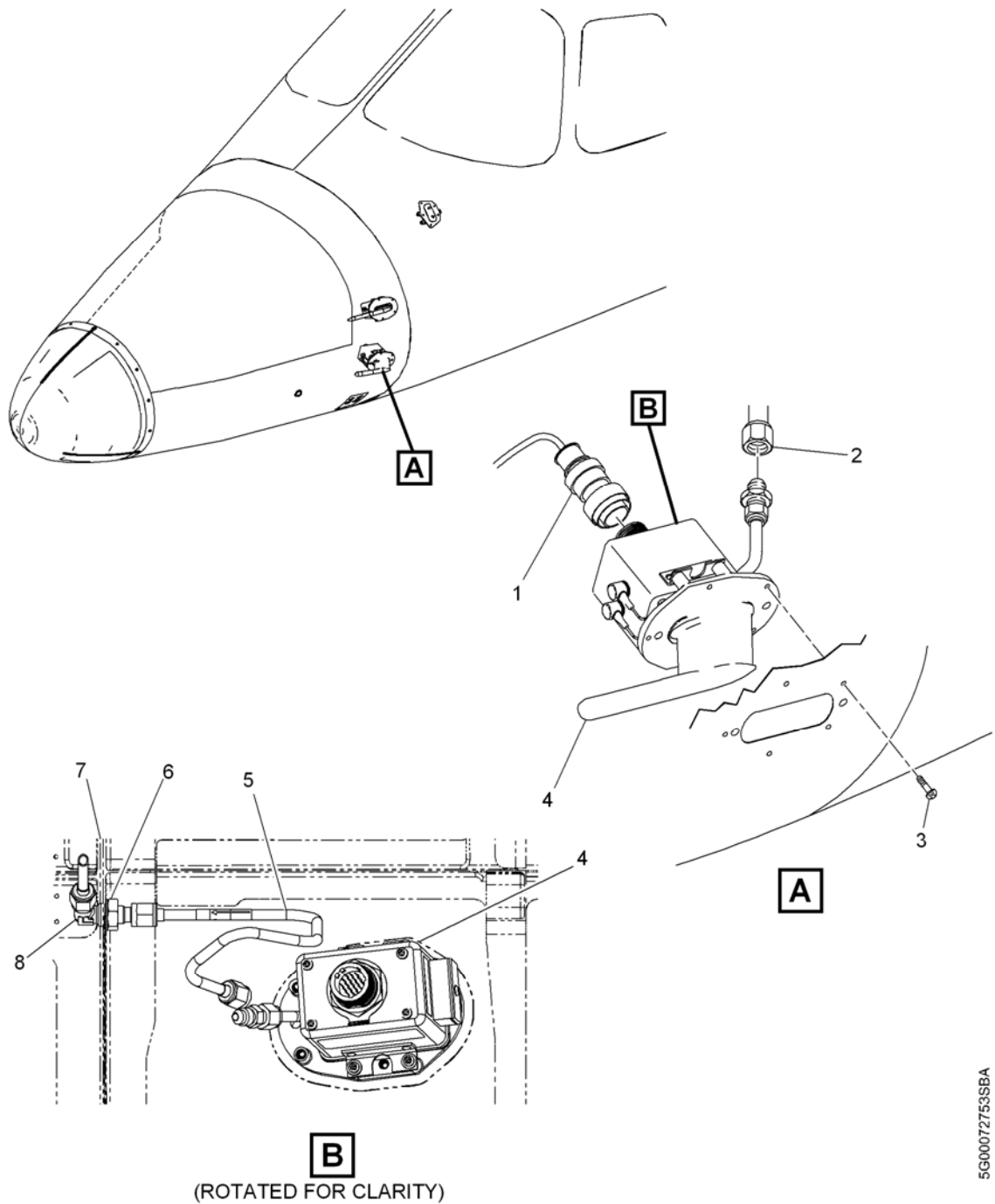
- (4) Remove left Pitot/AOA probe and tubing assembly as follows (Refer to Figure 2):
 - (a) Disconnect electrical connector (1) from Pitot/AOA probe P/N 100435-23 (4).
 - (b) Disconnect tubing assembly P/N 34-114375-1002 (5) from Pitot/AOA probe (4).

CAUTION: MAKE SURE TO USE CARE WHEN REMOVING TUBING FROM BULKHEAD ELBOW FITTING P/N AS1038D0404 (8). FAILURE TO USE CARE CAN RESULT IN DAMAGE TO FITTING.
 - (c) Disconnect and remove tubing assembly P/N 34-114375-1002 (5) from bulkhead elbow fitting P/N AS1038D0404 (8).
 - (d) Remove screw P/N NAS1801-3-8 (12), washer P/N NAS1149D0732J, and clamp P/N MS21919WDG4 (11) from rudder pedal mount.
 - (e) Disconnect tubing assembly P/N 34-114373-1002 (10) from Air Data Computer (ADC) 1 (9).

CAUTION: MAKE SURE TO USE CARE WHEN REMOVING TUBING FROM BULKHEAD ELBOW FITTING P/N AS1038D0404 (8). FAILURE TO USE CARE CAN RESULT IN DAMAGE TO FITTING.
 - (f) Disconnect and remove tubing assembly P/N 34-114373-1002 (10) from bulkhead elbow fitting P/N AS1038D0404 (8).

CAUTION: MAKE SURE TO USE CARE WHEN REMOVING BULKHEAD ELBOW FITTING P/N AS1038D0404 (8) AND BULKHEAD NUT FITTING P/N AS5178D04 (6). FAILURE TO USE CARE CAN RESULT IN DAMAGE TO FITTINGS.
 - (g) Remove bulkhead nut fitting P/N AS5178D04 (6) and bulkhead elbow fitting P/N AS1038D0404 (8) from forward bulkhead (7). Keep bulkhead nut and elbow fittings.
 - (h) Remove screws P/N NAS8702-2 (3) and Pitot/AOA probe P/N 100435-23 (4).
- (5) Repeat step 4 to remove right Pitot/AOA probe and tubing assembly. Refer to drawings 34-121975-1001 and 34-121983-1001 for correct P/N removal.

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Figure 2. Pitot/AOA Assembly Removal (Sheet 1 of 2)



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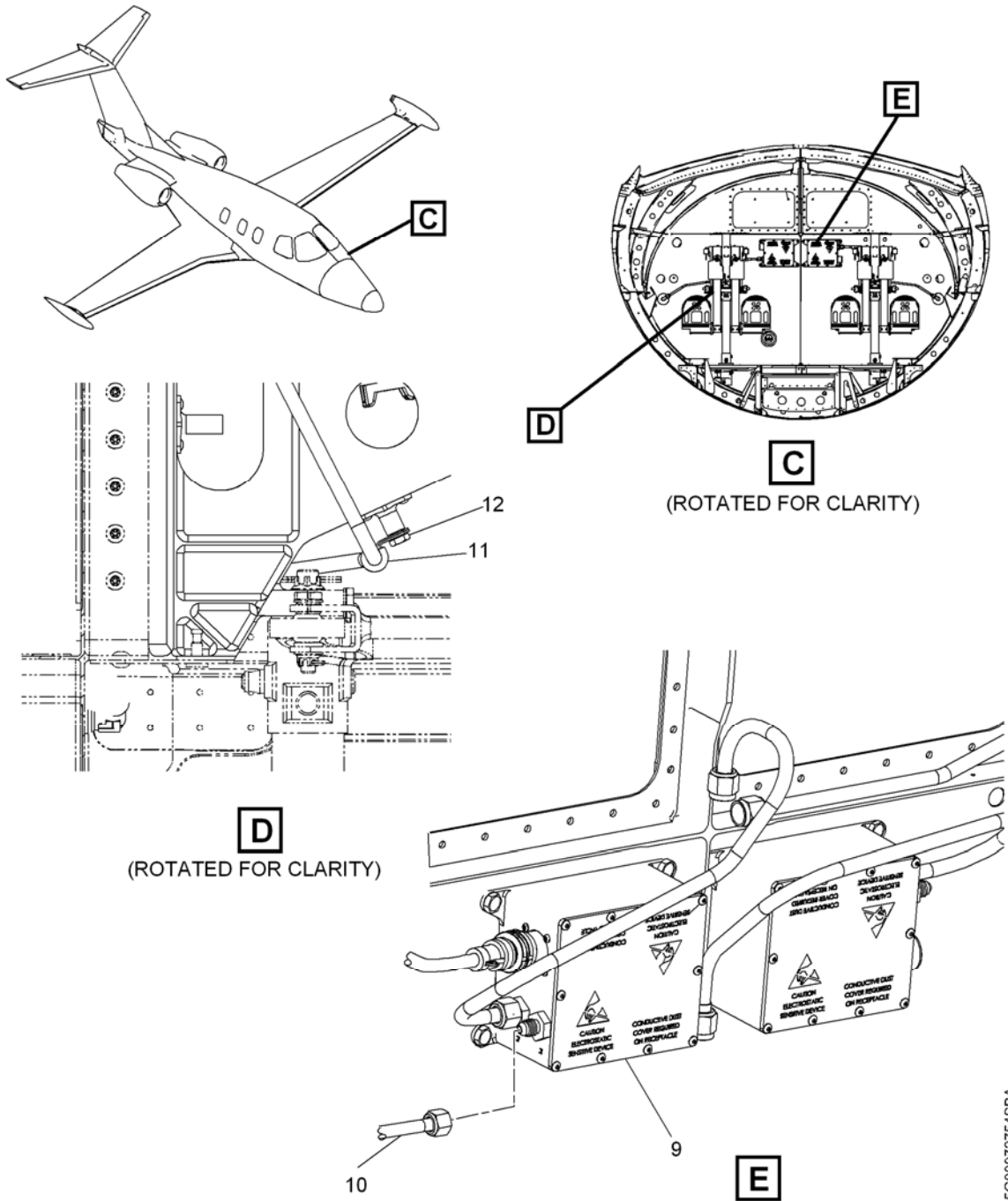


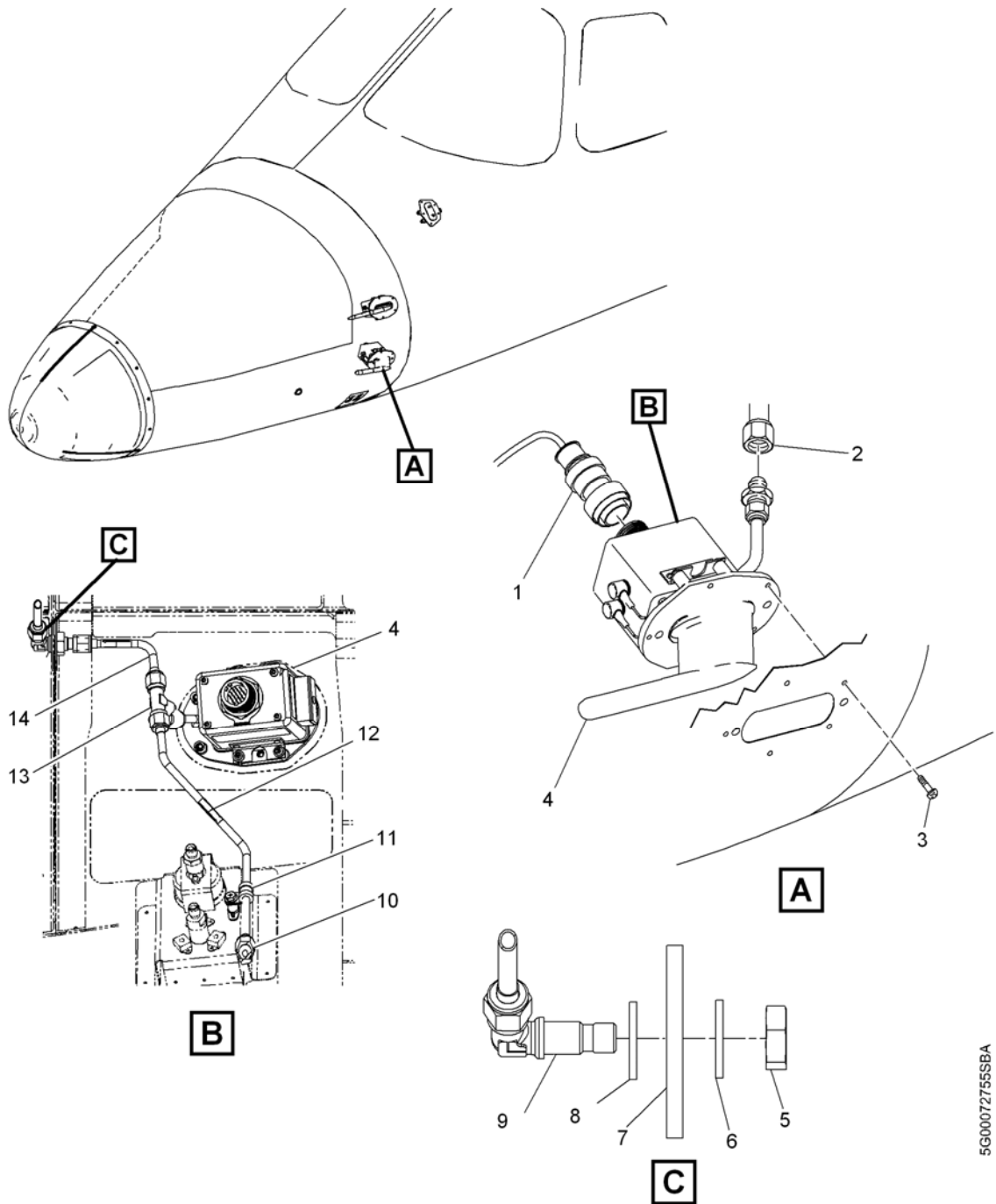
Figure 2. Pitot/AOA Assembly Removal (Sheet 2 of 2)

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- (6) Install left Pitot/AOA probe and tubing assembly as follows (Refer to Figure 3):
- (a) Loosely install bulkhead nut fitting P/N AS5178D04 (5), two nylon washers P/N MS51859-21 (6, 8), and bulkhead elbow fitting P/N AS1038D0404 (9).

Note: Make sure arrow displayed on tubing P/N 34-121967-1002 (14) points towards the ADC and the arrow displayed on tubing P/N 34-121969-1001 (12) points toward the drain.
 - (b) Loosely connect tubing P/N 34-121967-1002 (14) and tubing P/N 34-121969-1001 (12) to tee P/N AS1035D040404 (13).
 - (c) Connect and secure tubing P/N 34-121967-1002 (14) to bulkhead elbow fitting P/N AS1038D0404 (9).
 - (d) Install Pitot/AOA probe P/N 100435-39 (4) with screws P/N NAS3702-2 (3).
 - (e) Do electrical bonding of Pitot/AOA probe (4) to aircraft. Refer to AMM 20-03-00. Resistance must be 2.5 milliohms or less.
 - (f) Connect electrical connector (1) to Pitot/AOA probe P/N 100435-39 (4).
 - (g) Connect tee P/N AS1035D040404 (13) to Pitot/AOA probe P/N 100435-39 (4).
 - (h) Torque the following connections. Refer to EAC P1020.
 - 1. Tubing P/N 34-121967-1002 (14) and tubing P/N 34-121969-1001 (12) to tee P/N AS1035D040404 (13).
 - 2. Tee P/N AS1035D040404 (13) to Pitot/AOA probe P/N 100435-39 (4).
 - (i) Install standoff P/N CB3001AA3-6P for clamp MS21919WDG4 (11). Refer to sheet 2, section H-H of drawing 34-121975-1001.
 - (j) Install clamp P/N MS21919WDG4 (11). Refer to sheet 2, section H-H of drawing 34-121975-1001.
 - (k) Secure tubing P/N 34-121969-1001 (12) to clamp P/N MS21919WDG4 (11).
 - (l) Install plug fitting P/N AS516D04 (10) into tubing P/N 34-121969-1001 (12).
 - (m) Loosely connect tubing P/N 34-121979-1001 (16) to bulkhead elbow fitting P/N AS13038D0404 (11).
 - (n) Loosely connect tubing P/N 34-114373-1003 (18) and tubing P/N 34-121979-1001 (20) to tee P/N AS1035D040404.
 - (o) Loosely connect tubing P/N 34-114373-1003 (18) to ADC 1 (15).
 - (p) Torque the following connections. Refer to EAC P1020.
 - 1. Tubing P/N 34-121979-1001 (20) and tubing P/N 34-114373-1003 (18) to tee P/N AS1035D040404 (19).
 - 2. Tubing P/N 34-114373-1003 (18) to ADC 1.
 - 3. Bulkhead elbow fitting P/N AS13038D0404 (9) and bulkhead nut fitting P/N AS5178D04 (5).
 - (q) Install standoffs P/N CB3001AA3-6P for clamps MS21919WDG4 (15, 17). Refer to sheet 2, section A-A and section B-B of drawing 34-121975-1001.

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Figure 3. Pitot/AOA Assembly Installation (Sheet 1 of 2)



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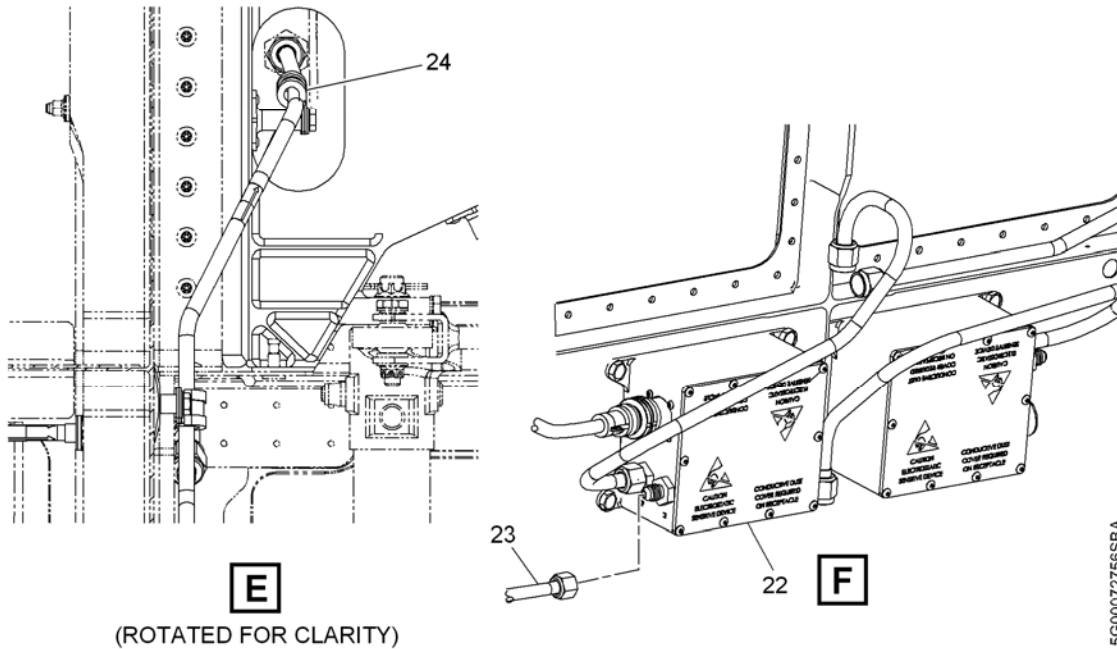
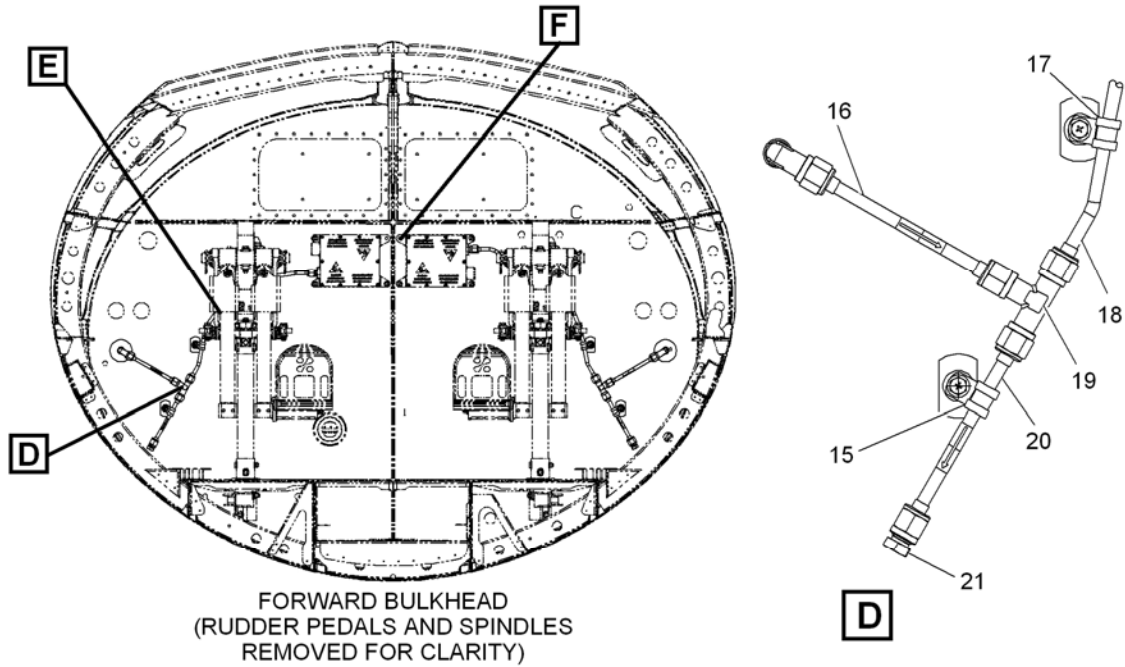


Figure 3. Pitot/AOA Assembly Installation (Sheet 2 of 2)

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Note: Existing standoff P/N CB3001AA3-6P for clamp P/N MS21919WDG4 (24) may have to be moved in order to clamp tubing correctly. Refer to sheet 2, section B-B of drawing 34-121975-1001.

- (r) Install clamps P/N MS21919WDG4 (15, 17, 24). Refer to sheet 2, section A-A and section B-B of drawing 34-121975-1001.
 - (s) Secure tubing P/N 34-114373-1003 (12) to clamps P/N MS21919WDG4 (17, 24).
 - (t) Secure tubing P/N 34-121979-1001 (20) to clamp P/N MS21919WDG4 (15).
 - (u) Install plug fitting P/N AS516D04 (21) into tubing P/N 34-121979-1001 (20).
- (7) Repeat step 6 to install right Pitot/AOA probe and tubing assembly. Refer to drawings 34-121975-1001 and 34-121983-1001 for correct P/N installation.
- (8) Do a Pitot and Static System Leak Test for Un-pressurized Airplanes. Refer to AMM 34-10-00-071-701-001.
- (9) Do an Angle-of-Attack Test. Refer to AMM 34-10-00-071-701-004.
- (10) Do a Pitot and Static Anti-ice System test. Refer to AMM 30-30-00-071-701-001.

WARNING: MAKE SURE ELECTRICAL POWER IS NOT APPLIED BEFORE DOING NEXT STEP. IF ELECTRICAL CONNECTOR IS CONNECTED WHILE POWER IS APPLIED, AFT VCS DOOR WILL CLOSE AND MAY CAUSE INJURY.

- (11) Connect VCS actuator (9, Figure1) to door (10, Figure 1).
- (12) Connect electrical connector (15, Figure 1) to VCS actuator (9, Figure 1).
- (13) Do a VCS doors adjustment/test. Refer to AMM 21-10-10-071-921-001.
- (14) Modify insulation blankets. Refer to drawing PRE50-1501.
- (15) Attach insulation blankets. Refer to AMM 25-80-10-041-411-001.
- (16) Install right center console kick panel 222 FZ and left center console kick panel 221 FZ. Refer to AMM 06-50-00-051-A-871-001.
- (17) Install pilot and copilot seats. Refer to AMM 25-11-10-041-411-001.
- (18) Install oxygen bottle cover 211 JZ and nose access panel 211CT. Refer to AMM 06-50-00-051-A-871-001.
- (19) Remove all tools, equipment, and unwanted material from work area.
- (20) If all other maintenance is complete, return aircraft to service. Refer to AMM 20-00-02-051-921-001.



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B. Limitations and Procedures

Both Pitot/AOA probes P/N 100435-39 and P/N 100435-40 must be installed with new tubing assembly referenced in this service bulletin (SB).

Replace the existing LOG OF TEMPORARY REVISIONS (Page LOTR-1) of the AFM with the new one supplied as Attachment A of this SB.

Eclipse Aviation Corporation considers this to be a mandatory modification that *must* be accomplished within 60 days to remove the operational restrictions referenced in the Temporary Revisions (TR) Number 7 or Number 9 of the Airplane Flight Manual (AFM) P/N 06-100106, Revision 3.

C. Cost

Cost of Parts and Labor will be the responsibility of Eclipse Aviation Corporation after obtaining concurrence from Eclipse Aviation Product Support for Scheduling.

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4. RECORD OF COMPLIANCE

Upon completion of this SB, make an appropriate maintenance-record entry specifying the SB number (including kit part number and serial number, if applicable). Eclipse Aviation Corporation recommends that parts lists associated with any of the following installed as part of this SB also be filed for future reference:

- kits,
- wiring diagrams, or
- Instructions for Continued Airworthiness (ICA)

5. NOTIFYING ECLIPSE AVIATION

On completing this SB, the operator/maintainer shall complete the attached *Compliance Record* and send it to Eclipse Aviation via regular mail, fax, or e-mail.

Mailing Address: Eclipse Aviation Corporation
ATTN: Customer Care
2503 Clark Carr Loop SE
Albuquerque, NM 87106

Fax: 1-505-241-8802

E-mail: customercare@EclipseAviation.com

SERVICE BULLETIN COMPLIANCE RECORD

SB 500-34-005 rev B: Pitot/Angle-of-Attack(AOA) System Upgrade

MODEL _____ AIRPLANE S/N _____ REG. NO. _____ TOTAL TIME _____ (HOURS)

OWNER NAME: _____

ADDRESS: _____

TELEPHONE NO. (XXX) _____ FAX NO. (XXX) _____

COMPLIANCE WITH SB 500-34-005 REV B

Description of Work Performed

(Inspection | Modification | Repair | Option Installation | Defect or Damage Found, if applicable)

DATE _____

WORK PERFORMED BY _____ (PRINTED)

_____ (SIGNATURE)

COMPANY _____

ADDRESS _____

TELEPHONE _____ FAX _____