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SB-GA8-2014-113
Issue 2

OPTIONAL

Service Bulletin

Subject:

Relocation of Aspen Remote Sensor Module (RSM) from Tailcone to RH Wing

Applicability:

All GA8 & GA8-TC 320 Aircrafts

Amendments:

Issue 1: Initial issue. GippsAero Reference GAE11#1401

Issue 2: Location of 4" hole on wing moved forward by 0.938". GippsAero Reference GAE11#1407

Background:

When systems such as Auto Pilot or Air-Conditioning are to be installed in a GA8 aircraft that already has the Aspen EFD 1000 system installed, it is necessary to relocate the RSM from the tailcone to the RH wing to eliminate the electromagnetic interference that would be caused by the additional electronic equipment installed in the tailcone. This Service Bulletin outlines the procedure to relocate the RSM which would be internally mounted.

Compliance:

This optional Service Bulletin may be incorporated at the owner's discretion. The installer should ensure the suitability of this option in conjunction with existing modifications/repairs to the aircraft. Contact GippsAero if clarification is required.

Weight and Balance:

The relocation of the RSM alters the arm of the 0.65 kg (1.43lbs) RSM which is now located at 1420mm (55.9in) of datum.

Approval:

This Service Bulletin has been approved pursuant to Regulation 21.095 of CASR (1998).

Parts:

The following parts are necessary to accomplish the requirements of this Service Bulletin.

PART No.	DESCRIPTION	QTY
GA-000461-023	ACCESS HOLE STIFFENER FWD	1
GA-000461-025	ACCESS HOLE STIFFENER AFT	1
GA8-112023-021	FLUX DETECTOR PLACARD	1
GA8-342030-021	RSM INTERNAL FLAT PLATE	1
GA8-342051-021	RSM INTERNAL BRACKET	2
GA8-571021-091	4" INSPECTION PANEL	1
GA8-955322-023	RSM DOUBLER PATCH	1
MS20470AD3-3	RIVET, UNIV HD	52
MS20470AD4-4	RIVET, UNIV HD	14
MS20600B4W1	RIVET, BLIND, STR, PROT-HD	7
NAS1097AD3-3	RIVET, CSK, SHEAR HD	22

PART No.	DESCRIPTION	QTY
MS21048L08	ANCHORNUT, 2-LUG, LOW HGT, CRES	6
MS25036-102	CONN, CRMP, TERM, RING, 22-18, RED	1
MS35214-25	SCREW, MACH, PAN HD, BR	2
MS35214-44	SCREW, MACH, PAN HD, BR	6
MS35649-265T	NUT, PLAIN, HEX, BR	2
NAS1149DN416H	WASHER, FLAT	2
M24308/2-1F	CONN, CRMP, SOCKET, 9 WAY	1
M24308/4-1F	CONN, CRMP, PIN, 9 WAY	1
M39029/64-369	CONT, ELEC, CONN, PIN, CRMP, REMOVABLE	7
M817061A6D	COATING, CHEMICAL CONVERSION (HENKEL TOUCH N PREP PEN)	1
2170 (850G00021)	TUBULAR BRAID, TINNED COPPER	15”
SIKAFLEX 227 (160G00001)	SEALANT, POLYURETHANE, WHITE	5ml
RTU5.5-4 (841G00033)	CONN, TERMINAL, RING, NON-INSULATED	2
LOCTITE 243 (101G00009)	ADHESIVE, MEDIUM STRENGTH, THREAD LOCKER	5ml
412-0005-001	ASPEN RSM CABLE 30’	1

Parts Availability:

Parts can be obtained directly as Kit No. SB-GA8-2014-113-01 from GippsAero

Tel: +61 03 5172 1200

Fax: +61 03 5172 1201

Email: spares@gippsaero.com

Labour:

Approximately 5 man hours should be allocated for completing the work detailed in this Service Bulletin.

Accomplishment Instructions:

NOTE:

Ensure the aircraft is adequately stabilised and that appropriate safety precautions are taken when performing work outlined in this Service Bulletin.

Unless otherwise specified, reference to the GA8 or GA8 TC-320 Service Manual as well as FAA AC43.13-1B & FAA AC43.13-2B should be made when carrying out the procedure prescribed in this Service Bulletin. In case of discrepancy between the Service Manual and the AC, the Service Manual takes precedence.

Ensure non-magnetic tools are used when performing any work prescribed in this Service Bulletin

WARNING:

DO NOT CARRY OUT ANY SORT OF WORK ON THE ELECTRICAL SYSTEM IN CONJUNCTION WITH MAINTENANCE ON THE FUEL SYSTEM. THE ESCAPE OF FUEL FUMES UNDER THE FLOOR AND/OR IN THE AIRCRAFT MAY CAUSE AN EXPLOSION.

1. Modification of the starboard wing

1.1. Cut a 4” hole on the starboard wing lower skin surface in accordance with Figure 1 below.

NOTE:

Ensure all edges are de-burred and any swarf vacuum cleaned from the aircraft work area. Treat the bare edges of the wing skin by applying appropriate aircraft grade epoxy primer and paint.

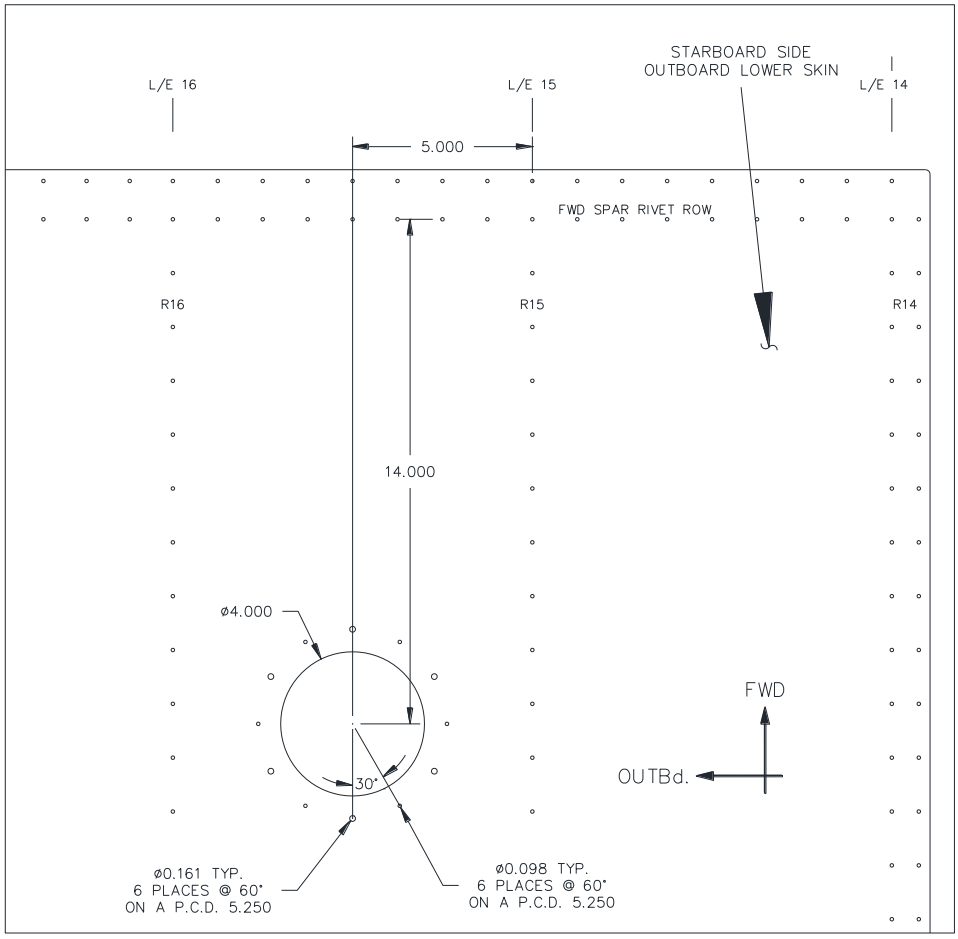
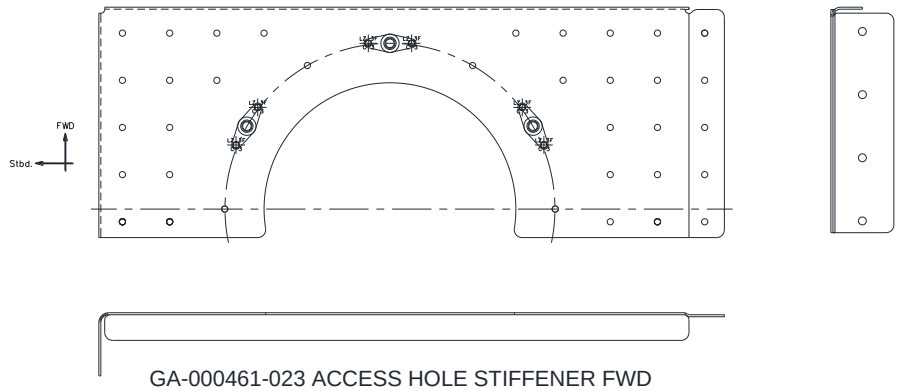
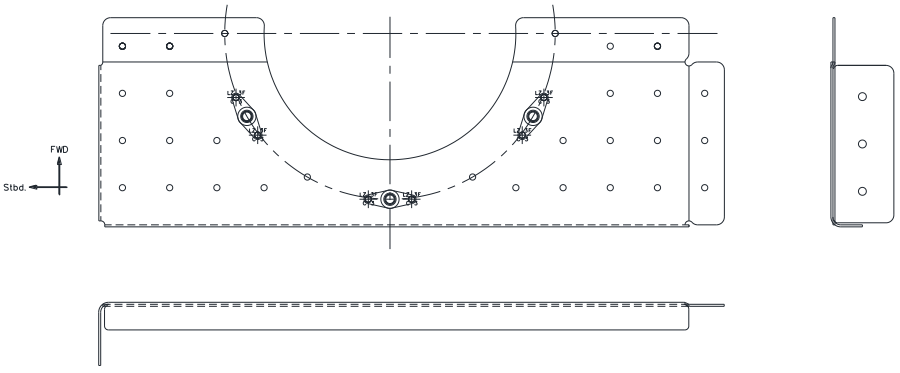


Figure 1: View looking up on Starboard Side Outboard Lower Skin

1.2. Install three MS21048L08 anchor nuts to each of the two stiffeners (GA-000461-023 & GA-000461-025) using 12 NAS1097AD3-3 rivets as shown in Figure 2 below.



GA-000461-023 ACCESS HOLE STIFFENER FWD



GA-000461-025 ACCESS HOLE STIFFENER AFT

Figure 2: Installation of anchor nuts onto access hole stiffeners

1.3. Install the two modified stiffeners (GA-000461-023 & GA-000461-025) in accordance with Figure 3 below.

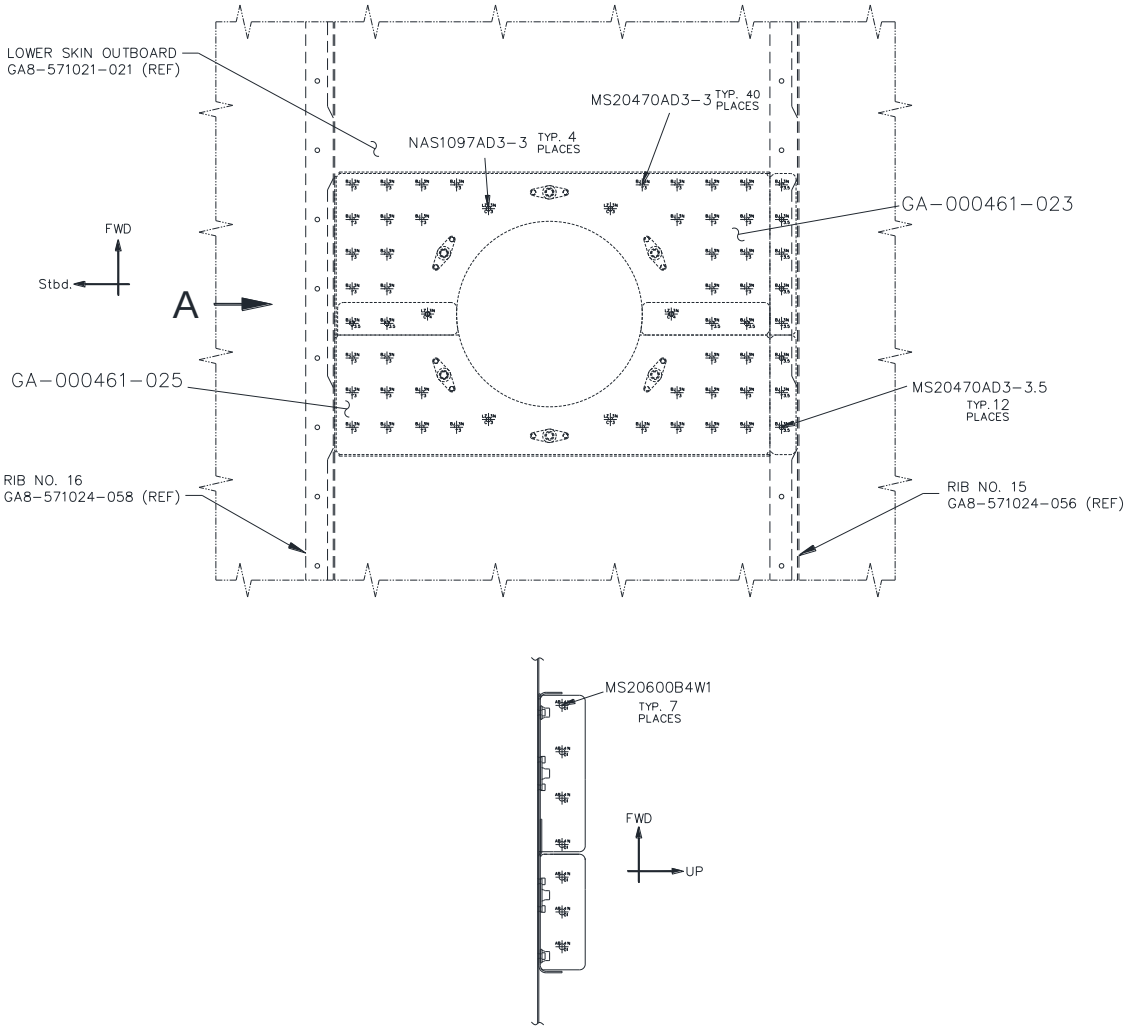


Figure 3: Installation of access hole stiffeners

2. Removal of RSM from tailcone

2.1. Remove the dorsal fin from the aircraft.

2.2. Access the interior of the tailcone through the bottom by removing the tailcone access panel assembly (GA8-553013-015) near the ventral fin.

2.3. Disconnect the cable attached to the RSM.

2.4. Carefully remove the 4 nuts securing the RSM in place and stow for use in part 3.

2.5. Remove the RSM doubler by carefully drilling out the MS20470AD4 rivets holding it in place.

2.6. Clear all swarf in the area and patch the holes left behind by the removal of the RSM and the RSM doubler by installing the RSM doubler patch (GA8-955322-023) on the exterior surface of the tailcone using 14, MS20470AD4-4 rivets.

2.7. Apply white polyurethane sealant (Sikaflex 227) around the edges of the patch to create a water tight seal between the patch and tailcone skin.

2.8. Re-install the dorsal fin back onto the aircraft using the original fasteners.

2.9. On the inside of the tailcone, treat the bare metal surface where the RSM doubler was installed using an appropriate aircraft grade epoxy primer. Ensure manufacturer's instructions are adhered to.

2.10. Disconnect the RSM cable at the Aspen EFD end by unplugging the back shell connector. De-pin the connector to remove the RSM cable from it. Refer to Figure 8

2.11. Remove and discard the entire cable from the aircraft.

3. Installation of RSM onto the wing

3.1. Orient the RSM Internal Flat Plate (GA8-342030-021) as shown in Figure 4 below and strip off the paint from the top surface of plate. Treat the affected surface with MIL-DTL-81706 type I, class 1A solution (e.g. Henkel Alodine 1132) in accordance with the manufacturer's instructions.

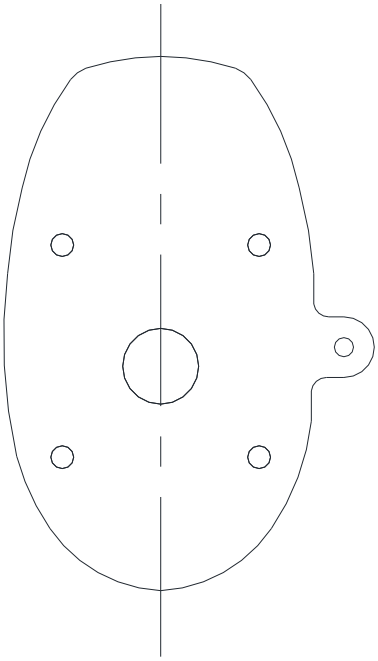


Figure 4: RSM Internal Flat Plate

3.2. Install the two RSM Internal Brackets (GA8-342051-021) to the Inspection Panel (GA8-571021-091) ensuring that the brackets are at 90˚±1˚ to the centre line as shown in Figure **5** below. Use six NAS1097AD3-3 rivets. Ensure that the rivet heads are on the far side. Once installed, paint the rivets to match the existing paint scheme on the wing.

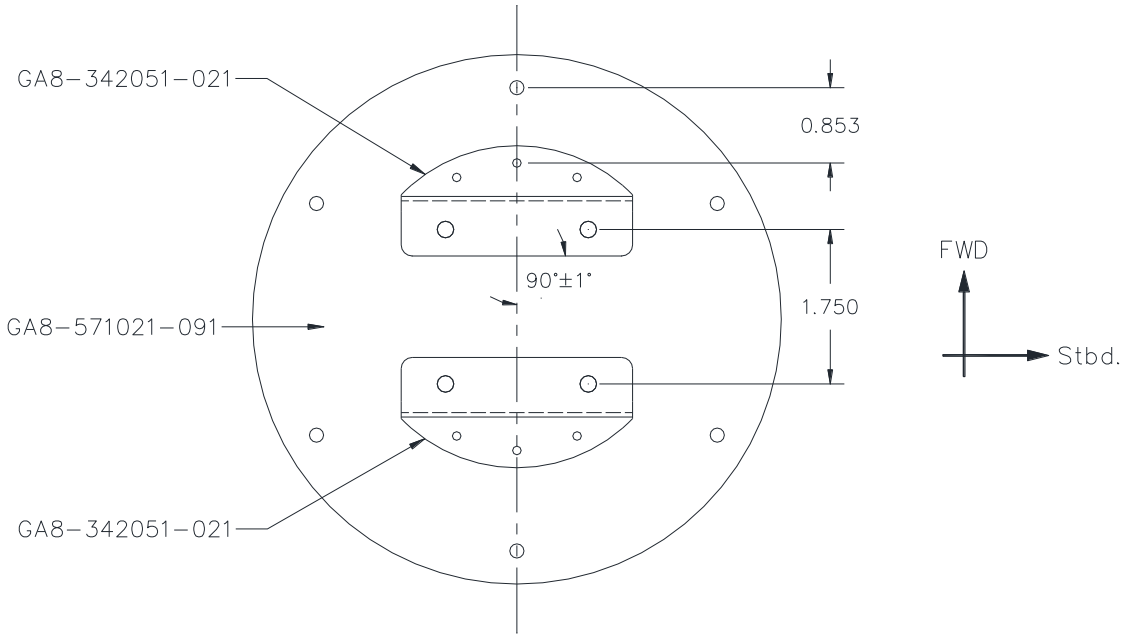


Figure 5: Inspection Panel Assembly

3.3. Attach the RSM Internal Flat Plate (GA8-342030-021) and the RSM to the Inspection Panel Assembly created at step 3.2 using the original brass screws and nuts removed in part 2. Ensure the unpainted surface is in contact with the RSM.

3.4. Install the Placard Flux Detector (GA8-112023-021) shown in Figure 6 to the Inspection Panel Assembly such that the placard will be visible externally to the wing when installed. Ensure that the forward arrow points in the same direction as the forward direction noted in Figure 5.

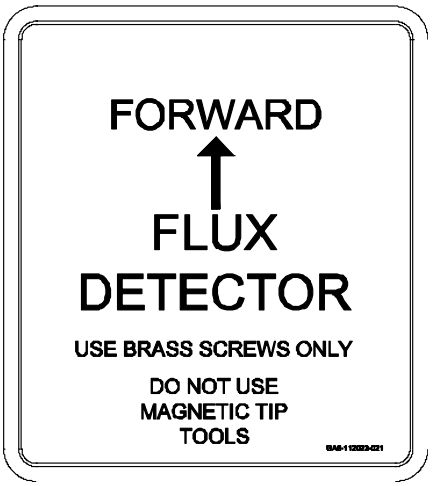


Figure 6: Placard Flux Detector

3.5. Remove the redundant compass system wiring from the starboard wing and main spar, and route the 30 feet RSM cable (412-0005-001) in its place. Refer to Figure 7. The grommets used for the compass wiring are to be reused for the RSM cable.

NOTE:

The RSM cable should be routed starting at the wing moving towards the wing root.

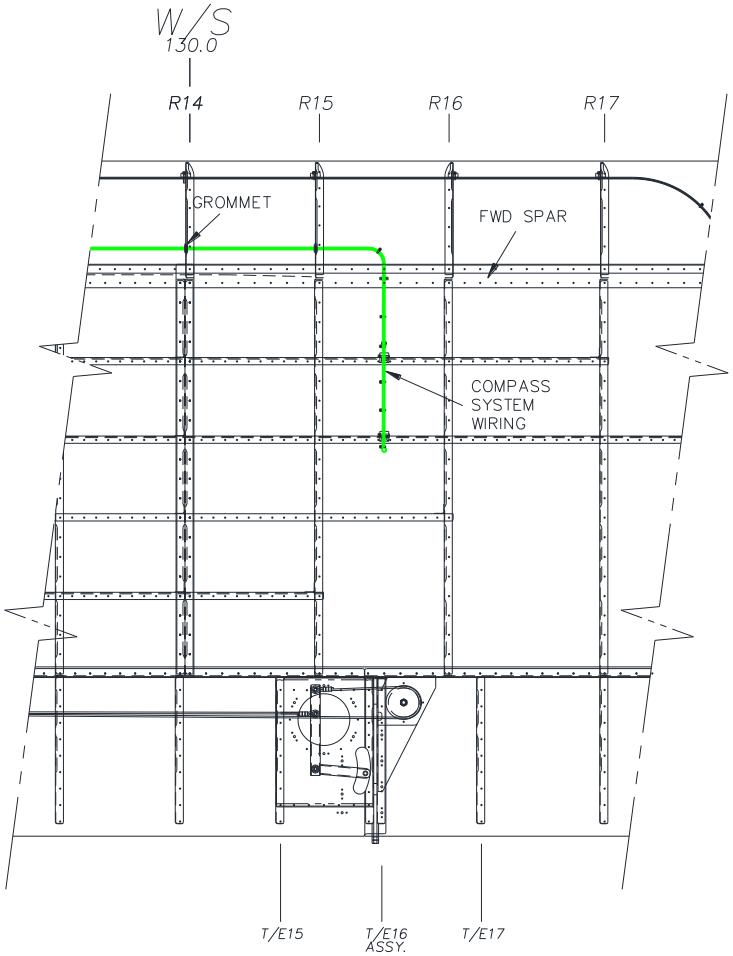


Figure 7: RSM Cable Routing – RH Wing

3.6. Cut the RSM cable (412-0005-001) at the wing root near the approximate location of connector J102. The remaining portion of the 7 core RSM cable cut off is to be used within the fuselage and will connect to the Aspen EFD 1000.

3.7. Terminate the two ends of the cut RSM cable in accordance with Figure 8 using the M24308/2-1F & M24308/4-1F 9-way connectors and mark the connectors as J-RSMX1 and P-RSMX1 respectively.

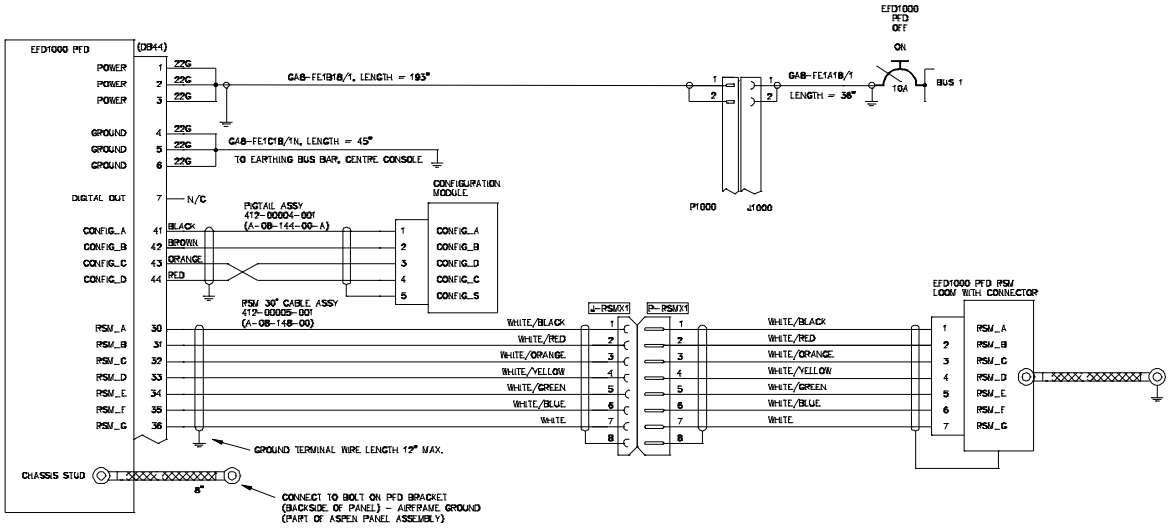


Figure 8: Aspen EFD 1000 PFD Wiring Diagram

3.8. Route the fuselage portion of the RSM cable along with the main fuselage loom on the port side of the aircraft as shown in Figure 9. Run cable across to the starboard side through existing holes in the roof ribs.

NOTE:

The RSM cable should be routed starting at the wing root moving towards the port side wall and finally to the cockpit. The roof and port side interior trim is required to be removed prior to carrying out this step and re-installed once completed.

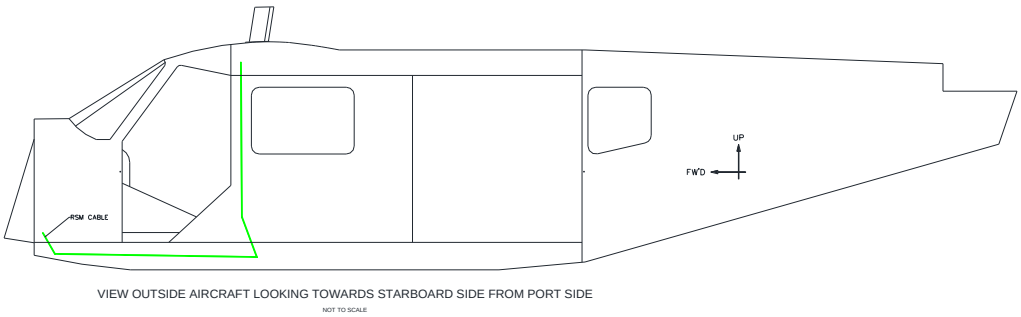


Figure 9: RSM Cable Routing - Fuselage

3.9. Terminate the Aspen EFD 1000 end of the RSM Cable (412-0005-001) using a M39029/64-369 pin for each of the 7 wire cores.

3.10. Attach the RSM cable to the back shell connector similar to the original connection that existed before step 2.10 was carried out. Refer to Figure 8.

3.11. Re-connect the back shell connector to the Aspen EFD 1000 unit.

3.12. Connect the J-RSMX1 and P-RSMX1 connectors at the wing root.

3.13. Crimp the white earth wire from the RSM using the red MS25036-102 insulated terminal.

3.14. Crimp each end of the braided tin-copper wire (2170) using a non-insulated ring terminal (RTU5.5-4).

3.15. Connect the braided tin-copper wire (2170) to the RSM Internal Flat Plate (GA8-342030-021) using one each of, NAS1149DN416H washer, MS35214-25 screw and MS35649-265T Nut

3.16. Bond the RSM to the aircraft by connecting the other end of the braided tin-copper wire and the earth wire from the RSM to Rib No. 16 as shown in Figure 10 using one each of, NAS1149DN416H washer, MS35214-25 screw and MS35649-265T Nut. Ensure that the resistance across the connection to does not exceed 0.003 ohm.

NOTE:

Ensure the surface in contact with the ring terminals has paint removed and the bare metal treated using MIL-DTL-18706 type I, class 1A solution.

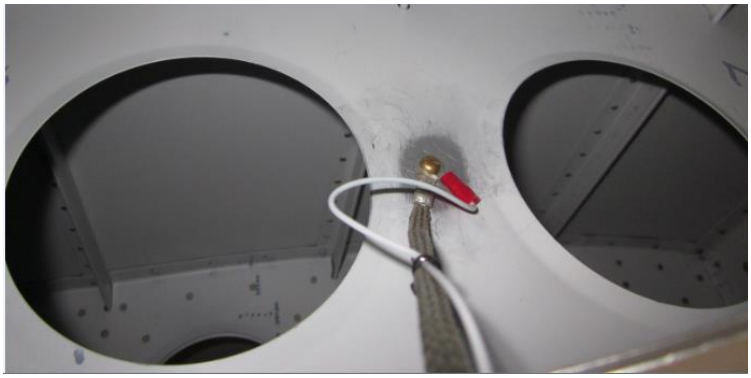


Figure 10: Bonding strap and earth lead of connector attached to Rib no. 16.

3.17. Install the RSM Inspection Panel Assembly on to the wing by securing it with six MS35214-44 screws. Apply a sufficient quantity of medium strength thread locker adhesive (Loctite 243) to secure the screws in place.

4. RSM Programming configuration

4.1. Unless an ACU2 is being used with a temperature probe, ensure that the OAT Source is selected to NONE. Refer to Figure 11.

INSTALLATION MENU PAGE – MISC CONFIG D		SW v2.4 and above
Feature	Options	Actual Setting
OAT SOURCE	NONE, RSM, PROBE, INTERCOM	
OAT BIAS	0 to -8 degrees	

Figure 11: OAT Source Settings

4.2. Ensure that the RSM GPS Enable option is set to DISABLE. Refer to Figure 12.

INSTALLATION MENU PAGE – MISC CONFIG A		SW 2.3 and above
Feature	Options	Actual Setting
RSM Orientation	Does not apply to EFD500	
RSM GPS Enable	DISABLE, ENABLE, INTERCOM[1]	
RSM GPS USAGE	EMER ONLY/ MODE 2 (read Caution above)	
RAD ALT CONFIG	Does not apply to EFD500	
WIND DISPLAY	DISABLE, ENABLE>=30KIAS, ENABLE>=40KIAS, ENABLE>=50KIAS, ENABLE>=60KIAS, ENABLE>=70KIAS, ENABLE>=80KIAS, ENABLE>=90KIAS	
[1]Notes: The EFD500 MFD does not include a RSM. Set to INTERCOM so the MFD can use the PFD or MFD1000 RSM GPS.		

Figure 12: RSM GPS Enable settings

4.3. Record these selections in Aspen document number 900-00003-001, Section 10.4.

Documentation:

Update aircraft log book to reflect incorporation of this Service Bulletin.

Continuing Airworthiness:

There are no additional requirements for continuing airworthiness. Instructions specified in the applicable aircraft Service Manual continue to be applicable.

Compliance Notice:

Complete the Document Compliance Notice and return to GippsAero by mail, fax or email.

DOCUMENT COMPLIANCE NOTICE

GIPPSAERO A Mahindra Aerospace Company	**Document:** **SB-GA8-2014-113** **Issue 2**

Aircraft Serial Number: GA8-_____

Service Bulletin SB-GA8-2014-113 Issue 2 has been incorporated in the above aircraft.

Date of Incorporation:_____

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Signed

Print Name: _____

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