



A Mahindra Aerospace Company

PO Box 881, Morwell, Victoria 3840, Australia

Ph + 61 (0) 3 5172 1200

Fax + 61 (0) 3 5172 1201

www.gippsaero.com

SB-GA8-2012-88

Issue 1

OPTIONAL

Service Bulletin

Subject:

Installation of avionics and instruments into a GA8-TC 320 Airvan.

Applicability:

Serial number GA8-TC 320-12-173.

Amendments:

1: Initial Issue.

Background:

This Service Bulletin provides the operator with the option of installing an avionic suite which includes:

- Garmin GMA 35 remote Audio Panel
- Garmin GTN 750 GPS Nav/Comm
- Garmin GTN 650 GPS Nav/Comm
- Garmin GTX 33 Remote Mode "S" Transponder with SAE 5-35 encoder
- Aspen EFD1000 Pro Evolution Flight Display system
- Airspeed Indicator (ASI)
- Altimeter
- Vertical Speed Indicator (VSI)
- Turn Co-ordinator
- Mid-Continent MD4100-411 electric attitude indicator
- Kannad 406 AF-Compact
- Mitchell analogue clock

Compliance:

For applicable aircraft this optional Service Bulletin may be incorporated at the owner's discretion.

Labour:

48 hours should be allocated to the incorporation of this Service Bulletin.

Warranty:

Aircraft within the warranty period may claim from GA-warranty@gippsaero.com

Approval:

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

Weight and Balance:

Description	Model	Qty	Weight		Arm		Moment	
			kg	lb	mm	in.	kg.mm	lb.in
Audio Selector Panel	Garmin GMA 35	1	0.5	1.1	361	14.2	180.5	15.62
GPS Nav/Comm	Garmin GTN 650	1	2.5	5.5	330	13.0	825	71.5
GPS Nav/Comm	Garmin GTN 750	1	3.4	7.5	342	13.5	1162.8	101.25
Transponder	Garmin GTX 33	1	1.4	3.1	30	1.2	42	3.72
Altitude Encoder	Sandia SAE 5-35	1	0.3	0.7	92	3.6	27.6	2.52
Primary Flight Display	Aspen EFD1000	1	1.4	3.0	975	38.4	1755	153.6
ASI	GA8-341012-15	1	0.4	0.9	350	13.8	140	12.42
Altimeter	United 5934PD-3	1	0.4	0.9	350	13.8	140	12.42
VSI	United 7000	1	0.3	0.7	350	13.8	105	9.66
Turn Co-ord.	Mid-Continent 1394T100-7Z	1	1.1	2.4	350	13.8	385	33.12
Electric Attitude Indicator	Mid-Continent 4300-411	1	1.7	3.7	294	11.6	499.8	42.92
ELT	Kannad 406 AF-Compact	1	0.9	1.9	4746	186.9	4271.4	355.11
Clock (Analogue)	Mitchell DI-312-5036	1	0.2	0.5	381	15.0	76.2	7.5
TOTAL			14.5	31.9	636	24.54	9220.3	782.96

The Load Data sheet will require re-issuing and the Equipment list in the Weight & Balance data will need updating by the appropriately authorised person depending on local regulations.

Parts:

Parts required are specified in the listed drawing Bill of Materials.

Parts Availability:

New parts can be purchased directly from GippsAero.

Tel: +61 (0)3 5172 1200

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Fax: +61 (0)3 5172 1201

Email: spares@gippsaero.com

Installation:

Part 1. Installation of central avionics suite

The Avionics package is to be installed in accordance with the following drawings:

Drawing No.	Sheet	Issue
GA8-9623172	1	1
GA8-9623172	2	1
GA8-9623172	3	1
GA8-9623172	4	1
GA8-9623172	5	1

NB A marker beacon antenna, Comant CI 102 has been installed into the aircraft prior to the issuing of the aircraft's Certificate of Airworthiness.

NB Garmin GA 35 GPS antennas and doublers have already been installed into the aircraft prior to the issuing of the aircraft's Certificate of Airworthiness.

NB a Comant CI 158C navigation antenna has been installed into the aircraft prior to the issuing of the aircraft's Certificate of Airworthiness.

Part 2: Transponder rack

Position the Avionics Mounting Tray GA8-342018-21 (1) on the Firewall in between the Hot Air Duct GA8-713026-27 (2) and the Horizontal Channel GA8-713021-25 (3). Both Figure 1 and Figure 2 shall be used as reference.

Back drill the four holes; two to the Hot Air Duct (2) and two to the Horizontal Channel (3);

Remove the Avionics Mounting Tray and install two Rivnuts NAS1329A08-75 (4) to the Hot Air Duct;

Reposition the Avionics Mounting Tray (1) and secure it with four Screws AN525-832R6 (5) and two Nuts MS21042-08 (6);

Install four Mounting Brackets GA8-342028-33 (7) to the Transponder Stand Alone Rack 115-00629-00 (8) and secure with eight Screws MS24693-S50 (9), Washers AN960L-08 (10) and Nuts MS21047-08 (11);

Slide in and lock the GTX 33 Transponder (12) to the Stand Alone Rack (8);

Position the Stand Alone Rack (8) on the Avionics Mounting Tray (1) and secure it with eight Screws AN525-10R6.

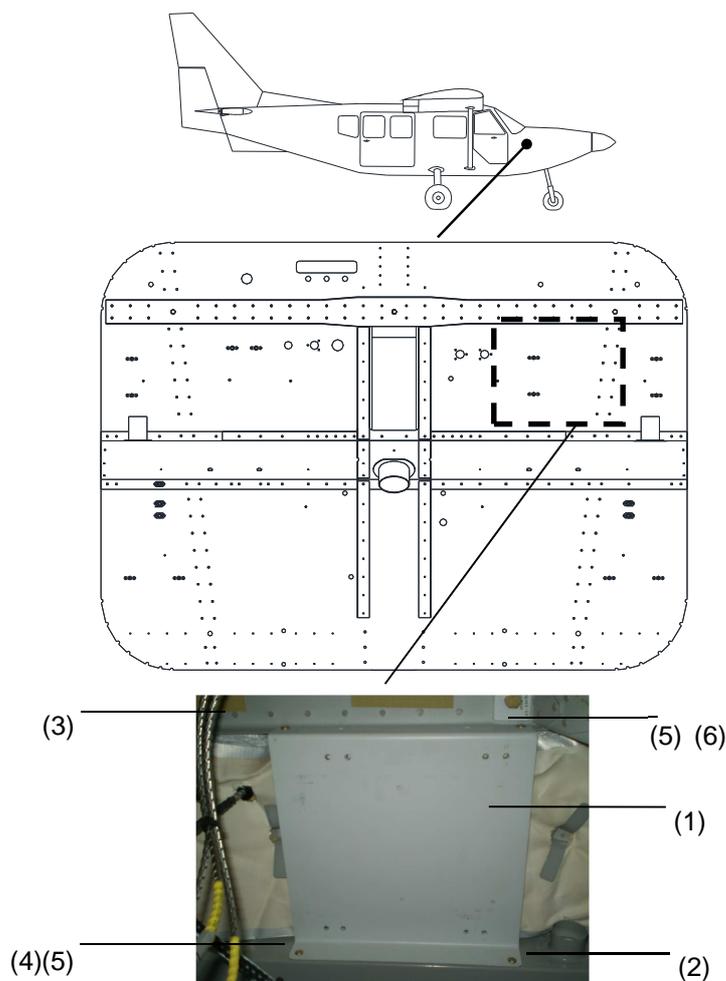


Figure 1 – Mounting Tray Installation



Figure 2 – Stand Alone Rack Installation

Part 3. Installation of the Aspen EFD1000 System

This SB authorises the installation of the Aspen EFD1000 PFD with or without the optional ACU in accordance with FAA approved STC number SA10822SC. Note the GA8 and GA8-TC 320 models are included in Aspen EFD1000 FAA Approved Model List (AML), document A-01-183-00 Revision H / 039-00009-001 Rev ().

Installation of the Aspen EFD1000 PFD is described in the EFD1000 and EFD500 Software Version 2.X Installation Manual, document #900-00003-001 Revision Z or later issue, hereinafter referred to as "EFD1000 IM".

All parts required are listed in this manual with exceptions as noted in this Service Bulletin. Departure from these instructions and parts listed is required to improve interaction with the aircraft. Alterations to the aircraft may be required as the aircraft could have previously installed items, such as radios or antennas, in locations conflicting with the locations set aside for the EFD1000 PFD installation.

Drawing series GA8-342007 provides electrical schematics and the location of the RSM doubler.

Installation GA8-342007-3 relates to the installation of a single Aspen EFD1000 Pro PFD interfaced to dual ARINC 429 GPS/NAV.

For IFR aircraft a co-requisite of this installation is the installation of a standby attitude indicator. This is covered within this Service Bulletin.

Installation of RSM

Undertake a magnetic survey in accordance with EFD1000 IM, Section 6.9. Drawing series GA8-342007 provides details of the typical location able to be used. It is based upon modifications around the dorsal fin as described in the text following.

Remove the dorsal fin from the aircraft. Disconnect the tail cone strobe power supply from the top skin to allow for changes required of fasteners to be used.

In accordance with drawing series GA8-342007, relocate the earth return for the tail cone strobe power supply, replace strobe power supply anchor nuts and screws with specified rivnuts and screws, replace identified Tinnerman nuts and associated screws with specified rivets, rivnuts and screws, secure RSM doubler plate with the specified rivets, and secure the RSM to the aircraft IAW Aspen EFD1000 IM.

Refit the dorsal fin and placard the locations where Tinnerman nuts have been removed with the specified placard.

Digital Communication to Avionics

Undertake data communication wiring to the Aspen EFD1000 PFD display in accordance with EFD1000 IM, Section 9. Refer also to drawing series GA8-342007 which provide schematics for integration with a GTN 650 and GTN 750.

Electrical Power Wiring

Modify the electrical overhead panel to incorporate a 10A switch breaker. Refer to drawing series GA8-342007. Fit the required placard next to the breaker in accordance with EFD1000 IM, Section 9. This Engineering Release authorises the use of a 10A switch breaker.

Note 1: The EFD1000 PFD switch breaker may be installed elsewhere in the overhead electrical panel however it must be connected to Bus 1 (not Bus 2, and not Avionics Bus 1 or 2).

Note 2: Where the optional ACU is being installed, the preferred connection of the ACU circuit breaker is to the Avionics Bus 1 however, it may be connected to Bus 1 if there is no spare capacity on the Avionics Bus 1.

Installation of Flight Instrument Panel

The installation of the EFD1000 PFD shall be in accordance with EFD1000 IM, Section 6.8.

The flight instrument assembly p/n GA8-311019-11 as shown in Figure 3 shall be fitted to the aircraft. This panel includes the required stand by indicators with the exception of the electric attitude indicator. The attitude indicator is fitted in Part 3 of this Service Bulletin.

A calibration record of the EFD1000 PFD altimeter, EFD1000 PFD airspeed indicator, and standby altimeter and airspeed indicators shall be completed.



Figure 3 Single Aspen Panel Assembly

Other

As the vacuum pump system is not required as part of this installation, the pump and associated fittings and indicators are to be removed.

Complete the configuration and post installation testing IAW with EFD1000 IM, Sections 10 and 11.

Installation limitations are specified in EFD1000 IM, Section 5 of the EFD1000 IM.

The installation of the EFD1000 PFD will increase the current consumption of a 14V aircraft as follows:

Component	Current Draw @ 14V
EFD1000 PFD	4.8 Amps nominal
ACU (Analog Converter Unit)	1.0 Amp
RSM (Remote Sensor Module)	Current draw included in EFD1000 PFD
CM (Configuration Module)	Current draw included in EFD1000 PFD

Part 4 Electric Attitude Indicator

The attitude indicator is to be installed in accordance with the following drawings:

Drawing	Sheet	Issue
GA8-311005	1	4

Part 5. Installation of the Kannad Compact ELT

The Kannad Compact ELT is to be installed in accordance with the following drawings listed below.

Drawing	Sheet	Issue
GA8-256009	1	1
GA8-256009	2	1
GA8-256009	3	1
GA8-256009	4	1
GA8-256009	5	1
GA8-942509	1	1

The personnel involved with the installation of the Kannad ELT are to fully familiarise themselves with details as covered in Kannad Doc 06006E (Ref 014922E) Installation Manual Operation Manual, Revision 4 or later. This includes installation and testing. Attention is drawn to the following sections with in Doc 06006E: 1. *Registration, A. General* : "The ELT must be registered prior to installation onboard." ; 3. *ELT transmitter installation procedure*; 5. *First power up & CHECK*.

Part 6. Installation of the analogue clock

The clock installation number is GA8-312002-5. It is to be installed in accordance with the following drawings:

Drawing	Sheet	Issue
GA8-312002	1	8
GA8-312002	3	4

Documentation:

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

Ensure the following serial numbers are recorded in the aircraft logbook:

- standby Airspeed Indicator
- standby Altimeter
- standby Vertical Speed Indicator
- standby Turn Coordinator
- EFD1000 Primary Flight Display
- Garmin GMA 35 remote Audio Panel
- Garmin GTN 750 GPS Nav/Comm with TAWS-B
- Garmin GTN 650 GPS Nav/Comm
- Garmin GTX 33 Remote
- Sandia SAE5-35 encoder
- Mid-Continent MD4100-411 electric attitude indicator
- Kannad 406 AF-Compact

Insert the calibration charts for the PFD, ASI, and Altimeter into the aircraft logbook.

The following flight manual supplements must be inserted in the flight manual.

Item	Supplement	Amendment Date
Garmin GTN 6XX/7XX	C01-04-112	7 Dec 2011
MID-CONTINENT 4300-411	C01-04-53	26 Oct 2005
Kannad 406 AF-Compact ELT	C01-04-82	29 Oct 2008
Aspen EFD1000 PFD	C01-04-95	21 Jun 2011

The Aspen EFD1000 PFD Flight Manual Supplement specifies additional documents relating to the Aspen EFD1000 installation that must be carried in the aircraft.

Continuing Airworthiness:

Inspection of the installed avionic equipment as per periodic radio checks and instrument checks as applicable in accordance with the maintenance schedule applicable to the aircraft, and perform a compass swing calibration.

Refer to Appendix D of EFD1000 IM for instructions for continued airworthiness of the Aspen EFD1000.

Refer to INSTALLATION MANUAL AND OPERATING INSTRUCTIONS, 4300-4XX Series Electric Attitude Indicator, manual number 9015762 for continued airworthiness instructions for the 4300-411.

Maintenance of the installed ELT shall be carried out in accordance with the GippsAero GA8-TC 320 Service Manual (FAA or CASA) and the maintenance schedule as specified in Kannad document DOC08038D.

Specific maintenance requirements of the National Airworthiness Authority in the country of registration must be adhered to. For Australia this is AD/INST/9 at latest amendment.

Compliance Notice:

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

DOCUMENT COMPLIANCE NOTICE



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Document:

SB-GA8-2012-88

Issue 1

Aircraft Serial Number: GA8-_____

Service Bulletin SB-GA8-2012-88 Issue 1 has been incorporated in the above aircraft.

Date: _____

Signed

Print Name: _____

Please post or fax this compliance notice to:

GippsAero
Attn: Technical Services
P.O. Box 881
Morwell Victoria 3840
Australia
Fax.: +61 03 5172 1201