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1. INTRODUCTION

1.1 Purpose

This document is designed for use by the installing agency of the Garmin G500 PFD/MFD System as Instructions for Continued Airworthiness in response to Federal Aviation regulation (FAR) Part 23.1529, and Part 23 Appendix G. This ICA includes information required by the operator to adequately maintain the Garmin G500 system installed under Approved Model List (AML) STC.

1.2 Scope

This document identifies the Instruction for Continued Airworthiness for the modification of the aircraft for installation of the Garmin G500 PFD/MFD System installed under Approved Model List (AML) STC.

1.3 Document Control

This document shall be released, archived, and controlled in accordance with the Garmin document control system. When this document is revised, refer to Section 2.15 for information on how to gain FAA acceptance or approval and how to notify customers of changes.

1.4 Airworthiness Limitations Section

There are no additional Airworthiness Limitations as defined in 14 CFR § 23, Appendix G. G23.4 that result from this modification. The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

1.5 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Garmin G500 system to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. This permission does not construe suitability of the documents. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.6 Definitions

The following terminology is used within this document:

- 1) **AC:** Advisory Circular
- 2) **ACO:** Aircraft Certification Office
- 3) **ADC:** Air Data Computer
- 4) **AE:** Aircraft Evaluation Group
- 5) **AHRS:** Attitude Heading Reference System
- 6) **CFR:** Code of Federal Regulations
- 7) **FAA:** Federal Aviation Administration
- 8) **ICA:** Instructions for Continued Airworthiness
- 9) **MFD:** Multi-Function Display

- 10) **PFD:** Primary Flight Display
- 11) **PMI:** Primary Manufacturing Inspector
- 12) **STC:** Supplemental Type Certificate
- 13) **TSO:** Technical Standard Order
- 14) **TVS:** Transient Voltage Suppressor

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instructions for Continued Airworthiness for the modification of the aircraft by installation of the Garmin G500 PFD/MFD System.
Applicability:	Applies to aircraft altered by installation of the Garmin G500 PFD/MFD System.
Definition of Abbreviations:	See Section 1.6
Precautions:	None
Units of measurement:	None
Referenced publications:	Garmin 190-01102-06 Rev. 2 <i>"G500 AML STC Installation Manual"</i> or later FAA Approved Revisions Garmin 190-01102-02 Rev. B <i>"G500 Pilot's Guide"</i> or later FAA Approved Revisions Mid Continent Instruments 9015762 Rev. G <i>"4300-4XX Series Installation Manual"</i> Mid Continent Instruments 9016391 Rev. G <i>"MD420 Installation Manual"</i>
Retention:	This document, or the information contained within, will be included in the aircraft's permanent records.

2.2 Description of Alteration

The Garmin G500 PFD/MFD System is a combination of Garmin LRUs designed to provide both a PFD and MFD in the primary field of view. The system consists of a GDU 620 display, GRS 77 AHRS, GDC 74A ADC, GMU 44 magnetometer, and GTP 59 outside air temperature probe. This modification may also include a Garmin GAD 43 Adapter and/or Mid Continent Instruments attitude indicator (models 4300-4(), or 4200-() with MD420). Installation of the Garmin G500 system, specific for the aircraft installation, is documented in the G500 AML STC Installation Manual.

2.3 Control, Operating Information

See the G500 Pilot's Guide or the G500 AML STC Installation Manual, listed under the reference documentation in paragraph 2.1 of this document, for system operation and self-test information.

2.4 Servicing Information

None. In the event of system failure, troubleshoot the G500 system in accordance with Section 2.6 Troubleshooting Information.

2.5 Periodic Maintenance Instructions

All G500 system LRUs are designed to detect internal failures. A thorough self-test is executed automatically upon application of power to the units, and built-in tests are continuously executed. Detected errors are indicated on the GDU 620 display via failure annunciations.

Operation of the G500 system is not permitted unless an inspection as described in this section has been completed within the preceding 12 calendar months. Conduct a visual inspection (look for signs of wear, deterioration, or damage to wires, backshells, or connectors) of the G500 system LRUs and wiring harnesses to ensure installation integrity:

1. Inspect all units for security of attachment.
2. Inspect all knobs and buttons for legibility.
3. Visually inspect each unit's wiring for chafing or wear at each termination.

2.5.1 Transient Voltage Suppressors (non-metallic aircraft only)

The GDU 620 #1, GRS 77 #1, GDC 74A #1, and GAD 43 (if installed) will have a TVS located at each LRU. The optional electronic Mid Continent Instrument standby Attitude Indicator will have a TVS located at the indicator and at the attitude indicator power bus. These components must be inspected every 24 calendar months in accordance with section 8.3.1 of the G500 AML STC Installation Manual.

2.5.2 Aluminum Foil Tape (non-metallic aircraft only)

Any aluminum foil tape used in the G500 installation (see section 3.1 of this document) must be inspected every 24 calendar months in accordance with section 8.3.2 of the G500 AML STC Installation Manual.

2.5.3 GDU 620 – Display Unit

Maintenance of the GDU 620 is 'on condition' only.

2.5.4 GRS 77 – Attitude, Heading Reference System (AHRS)

The GRS 77 utilizes an Earth magnetic field model which is updated once every five years as part of the Aviation Database maintained by the owner/operator. If the magnetic model is not up to date, the unit will issue an alert upon startup indicating the model has expired. The model can be updated in accordance with the database update section of the G500 AML STC Installation Manual.

Otherwise maintenance of the GRS 77 is 'on condition' only.

2.5.5 GMU 44 – Magnetometer

Maintenance of the GMU 44 is 'on condition' only.

2.5.6 GDC 74A – Air Data Computer

Test according to Title 14 CFR §§ 91.411 and 91.413 as well as 14 CFR §§ 43 Appendix E. See the pitot-static checkout procedure in Section 5 of the G500 AML STC Installation Manual for the testing procedure.

2.5.7 GTP 59 – OAT Probe

Maintenance of the OAT Probe is 'on condition' only.

2.5.8 GAD 43 – Adapter

Maintenance of the GAD 43 is 'on condition' only.

2.5.9 Mid Continent Instruments Attitude Indicator Models 4300-4(), or 4200-() with MD420

If a Mid Continent Instruments Attitude Indicator is installed as part of the G500 AML STC, the battery pack must be tested by one of the following means:

1. Manual:
 - a. Disconnect the battery pack from the Attitude Indicator.
 - b. Ensure the battery pack is completely charged and at or near room temperature.
 - c. Connect the battery to a load of 90 ohms (rated for 10 watts) for 60 minutes while monitoring the battery voltage level.
 - i. If the battery voltage is at or above 15.0 volts while under load at the end of the 60 minute test, the battery may be recharged in accordance with the Mid Continent Instruments Installation Manual and re-installed in the aircraft.
 - ii. If the battery voltage is below 15.0 volts while under load at the end of the 60 minute test the battery must be replaced.
2. Automatic:
 - a. Use the Mid Continent Instruments Battery Charger/Tester P/N 36029 to test the battery.
 - i. If the time required for discharge is 60 minutes or greater, the battery may be recharged in accordance with the Mid Continent Instruments Installation Manual and re-installed in the aircraft.
 - ii. If the time required for discharge is less than 60 minutes, the battery must be replaced.

Proper operation of the attitude instrument must be verified with the following procedure:

1. Apply aircraft power to the unit and verify that the invalid flag is removed from view and the STBY PWR indicator is not illuminated.
2. Remove aircraft power from the unit and verify that the invalid flag is not visible and the STBY PWR indicator is flashing.
3. Press the STBY PWR button and verify that the invalid flag is not visible and the STBY PWR indicator is not flashing.
4. Press the STBY PWR button a second time and verify that the invalid flag is displayed.

Otherwise maintenance of the Mid Continent Instruments attitude indicator is 'on condition' only.

2.6 Troubleshooting Information

If error indications are displayed on the GDU 620 display unit, and/or the optional Mid Continent Instruments standby attitude indicator, consult the Troubleshooting section contained in the G500 AML STC Installation Manual. The 'G500 System Post-Installation Checkout Log' in the aircraft permanent records includes the configuration information for the installation. (See Section 5 in the G500 System Installation Manual for a sample Log).

2.7 Removal and Replacement Information

If any G500 LRUs are removed and reinstalled, verify that the LRU unit power-up self-test sequence is successfully completed and no failure messages are annunciated on the GDU 620 display. See the unit replacement procedure in Section 3 of the G500 AML STC Installation Manual.

If any work has been done on the aircraft that could affect the system wiring, antenna cable, or any interconnected equipment, verify the G500 system unit power-up self-test sequence is successfully completed and no failure messages are annunciated on the GDU 620 display.

Refer to the G500 AML STC Installation Manual (listed under reference documentation in Section 2.1 of this document) for particular LRU removal/installation procedures and special handling precautions.

2.8 Diagrams

Aircraft specific LRU locations and wire routing diagram are contained in Appendix A of this document. Refer to the G500 AML STC Series Installation Manual (listed under reference documentation in Section 2.1 of this document) for drawings applicable to this installation. Point to point wiring diagrams are in Appendix F of the G500 AML STC Installation Manual. Refer to the G500 Post-Installation Checkout Log retained in the aircraft permanent records for a list of the interfaced equipment and port configurations.

2.9 Special Inspection Requirements

After a suspected lightning strike, non-metallic aircraft must have all Transient Voltage Suppressors inspected or replaced in accordance with section 2.5.1 of this document. Tube and fabric aircraft must replace the OAT bond strap (if installed) in accordance with section 8.3.3 of the G500 AML STC Installation Manual.

2.10 Application of Protective Treatments

None, N/A.

2.11 Data Relative to Structural Fasteners

Data relative to structural fasteners, such as type, torque, and installation requirements can be found in Section 3 of the G500 AML STC Installation Manual.

2.12 Special Tools

No special tools are required for system checkout. See G500 AML STC Installation Manual listed in reference documentation in Section 2.1 of this document.

2.13 Additional Instructions

None

2.14 Overhaul Period

The system does not require overhaul at a specific time period. Power on self-test and continuous BIT will monitor the health of the G500 system. If any LRU indicates an internal failure, the unit may be removed and replaced. See the troubleshooting section contained in the G500 AML STC Installation Manual, listed under reference documentation in paragraph 2.1 of this document.

2.15 ICA Revision and Distribution

To revise this ICA, a letter must be submitted to the ACO along with the revised ICA. The ACO will obtain AEG acceptance, and approve any revision to the Airworthiness Limitations in Section 1.4. After FAA acceptance/approval, Garmin will release the revised ICA for customer use, and provide any required notification of the revision.

The latest revision of this document will be available on the Garmin website (www.garmin.com). A Garmin Service Bulletin, describing ICA revision, will be sent to dealers if revision is determined to be significant.

2.16 Assistance

Flight Standards Inspectors or the certificate holder's PMI have the required resources to respond to questions regarding this ICA. In addition, the customer may refer questions regarding this equipment and its installation to the manufacturer, Garmin. Garmin customer assistance may be contacted during normal business hours via telephone 913-397-8200 or email from the Garmin web site at www.garmin.com.

2.17 Implementation and Record Keeping

Modification of an aircraft by this Supplemental Type Certificate obligates the aircraft operator to include the maintenance information provided by this document in the operator's aircraft maintenance manual and/or the operator's aircraft scheduled maintenance program.

3. APPENDIX A

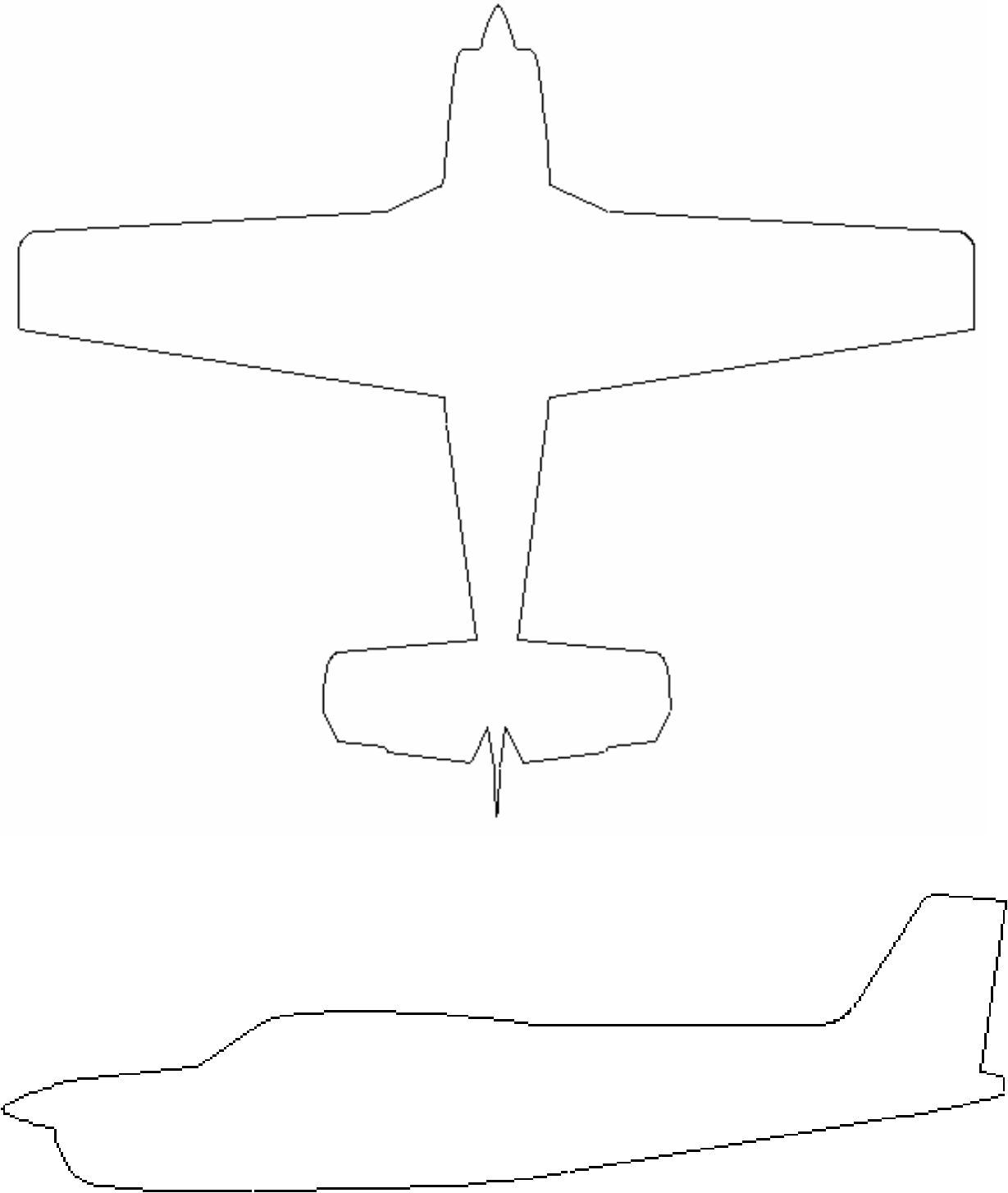
3.1 LRU Locations

The following table describes the locations of the G500 LRUs:

LRU	LRU included in this installation?	Aluminum foil tape used for grounding?	Description of Location
GDU 620 #1	<input checked="" type="checkbox"/> Yes	N/A	
GRS 77 #1	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Yes <input type="checkbox"/> No	
GDC 74A #1	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Yes <input type="checkbox"/> No	
GMU 44 #1	<input checked="" type="checkbox"/> Yes	N/A	
GTP 59 #1	<input checked="" type="checkbox"/> Yes	N/A	
GAD 43	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
MCI 4300-4 ()	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
MCI 4200-()	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
MCI MD420	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
GDU 620 #2 (dual installations only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
GRS 77 #2 (dual installations only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
GDC 74A #2 (dual installations only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
GMU 44 #2 (dual installations only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	
GTP 59 #2 (dual installations only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A	

3.2 Wire Routing – Single-Engine

The following diagram depicts the wire routing for the G500 LRUs throughout the aircraft structure for a single-engine aircraft:



3.3 Wire Routing – Twin-Engine

The following diagram depicts the wire routing for the G500 LRUs throughout the aircraft structure for a twin-engine aircraft:

