GARMIN

# GI 275 Part 23 AML STC Maintenance Manual

**Contains Instructions for Continued Airworthiness for STC SA02658SE**

Aircraft make, model, registration number, and serial number, along with the applicable STC configuration information, must be completed in Appendix A and saved with aircraft permanent records.

**190-02246-11** **January 2020** **Revision 1**

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## RECORD OF REVISIONS

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|---|---|---|
| 1 | 1/13/20 | Initial release. |

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**WARNING**
***Warnings*** *indicate that injury or death is possible if the instructions are disregarded.*

**CAUTION**
***Cautions*** *indicate that damage to the equipment is possible.*

**NOTE**
***Notes*** *provide additional information.*

**WARNING**
*This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This notice is being provided in accordance with California's Proposition 65. For questions or additional information, refer to www.garmin.com/prop65.*

**WARNING**
*Perchlorate Material – special handling may apply.*
*Refer to www.dtsc.ca.gov/hazardouswaste/perchlorate.*

**WARNING**
*Failure to properly configure the EIS gauges per the POH/AFM and other approved data could result in serious injury, damage to equipment, or death.*

**WARNING**
*This product contains a Lithium-ion battery that must be recycled or disposed of properly. Battery replacement and removal must be performed by a licensed A&P technician.*

**CAUTION**
*To avoid damage to the GI 275, take precautions to prevent electrostatic discharge (ESD) when handling the unit, connectors, and associated wiring. ESD damage can be prevented by touching an object of the same electrical potential as the unit before handling the unit itself.*

**CAUTION**
*Do not store any GI 275 component in or near water.*

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# 1 INTRODUCTION

## 1.1 Purpose

The purpose of this document is to provide Instructions for Continued Airworthiness (ICA) and maintenance information for Garmin GI 275 system as installed under STC SA02658SE. This document also satisfies the requirement for continued airworthiness as required by 14 CFR 23.1529 and Part 23 Appendix G.

## 1.2 Scope

This document provides maintenance instructions and identifies the Instructions for Continued Airworthiness for the installation and maintenance of the Garmin GI 275 system as installed under the AML STC.

## 1.3 Organization

The following outline briefly describes the organization of this manual:

### *Section 2.1: System Overview*

Provides a description of the GI 275 system equipment installed by this STC.

### *Section 2.2: LRU Description, Control, and Operation*

Provides basic control and operation information specifically tailored to maintenance practices.

### *Section 3: Instructions for Continued Airworthiness*

Provides Instructions for Continued Airworthiness of the GI 275 system LRUs.

### *Section 4: Troubleshooting*

Provides troubleshooting information, including connector information, pinouts, and flowcharts to aid in diagnosing and resolving problems with GI 275 system equipment.

### *Section 5: Equipment Maintenance and Checkout Procedures*

Provides instructions for the removal and replacement of GI 275 system LRUs, including system checkout procedures.

### *Appendix A: Installation-Specific Information*

Provides a template to record aircraft-specific installation and configuration data for the GI 275 system.

## 1.4 Applicability

This document applies to all aircraft with the GI 275 system installed in accordance with AML STC SA02658SE. Modification of an aircraft by this STC obligates the aircraft operator to include the maintenance information provided by this document in the operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program.

## 1.5 Publications

In addition to this manual, the following documents are recommended for performing maintenance on the GI 275 system. It is the responsibility of the owner/operator to ensure the latest applicable versions of these documents are used during operation, servicing, or maintenance of the GI 275 system.

**Table 1-1 Reference Documentation**

| Document | Garmin P/N |
|---|---|
| *GI 275 Part 23 AML STC Equipment List* | 005-01208-42 |
| *GI 275 Part 23 AML STC Airplane Flight Manual Supplement* | 190-02246-12 |
| *GI 275 Part 23 AML STC Installation Manual* | 190-02246-10 |
| *GI 275 STC EIS & MFD Installation Manual* | 190-02246-14 |

## 1.6 Revision and Distribution

This document is required for maintaining the continued airworthiness of the aircraft. Garmin dealers may obtain the latest revision of this document at the Garmin Dealer Resource Center website. Dealers are notified of manual revision changes via Garmin Service Bulletins posted to the Dealer Resource Center. Owners and operators may obtain the latest revision of this document at flyGarmin.com or by contacting a Garmin dealer. Garmin contact information is available at flyGarmin.com.

## 1.7 Terminology and Acronyms

### 1.7.1 Terminology

Except where specifically noted, references made to "GI 275" will apply to all variants of the GI 275 (i.e., GI 275 Base, GI 275 ADAHRS, and GI 275 ADAHRS+AP).

Except where specifically noted, references made to the "GI 275 system" will apply to an installed system with one or more GI 275 displays and all LRUs interfaced to the GI 275(s).

Throughout this document, references will be made to metallic aircraft. For the purposes of this manual, metallic aircraft will be those with an aluminum skin. Non-metallic aircraft refers to aircraft with an airframe constructed from wood or composite, including exterior skin, or aircraft with metal tubular truss airframe and fabric or composite exterior skin.

Unless otherwise stated, all units of measure are US standard units.

Throughout this manual references will be made to aircraft class. With regards to usage in this manual, the classes are defined as follows:

- Class I: Single reciprocating engine airplane with GTOW of 6,000 lbs or less
- Class II: Multi reciprocating engine or turbine engine airplane with GTOW of 6,000 lbs or less
- Class III: Airplane with GTOW of more than 6,000 lbs
- Class IV: Commuter category aircraft

Refer to AC 23.1309-1E for more information on airplane classes.

### 1.7.2 Acronyms

The following terminology is used within this document:

| | | | |
|---|---|---|---|
| **AC** | Alternating Current | **IAS** | Indicated Air Speed |
| **ADAHRS** | Air Data Attitude Heading Reference System | **ICA** | Instructions for Continued Airworthiness |
| **ADC** | Air Data Computer | **LOC** | Localizer |
| **ADI** | Attitude Direction Indicator | **LRU** | Line Replaceable Unit |
| **ADS-B** | Automatic Dependent Surveillance Broadcast | **MFD** | Multi-Function Display |
| **AFMS** | Aircraft Flight Manual Supplement | **OAT** | Outside Air Temperature |
| **AHRS** | Altitude and Heading Reference System | **ODA** | Organization Designation Authorization |
| **AML** | Approved Model List | **POH** | Pilot's Operating Handbook |
| **A/P** | Autopilot | **PPS** | Pulse Per Second |
| **ASI** | Airspeed Indicator | **RPM** | Revolutions Per Minute |
| **BIT** | Built-In Test | **SBAS** | Satellite Based Augmentation System |
| **CFR** | Code of Federal Regulations | **SD** | Secure Digital |
| **CHT** | Cylinder Head Temperature | **SDI** | Source/Destination Identifiers |
| **DC** | Direct Current | **STC** | Supplemental Type Certificate |
| **EGT** | Exhaust Gas Temperature | **TAS** | Traffic Advisory System |
| **EIS** | Engine Indicating System | **TAWS** | Terrain Awareness and Warning System |
| **FAA** | Federal Aviation Administration | **SSM** | Sign/Status Matrix |
| **FD** | Flight Director | **TCAS** | Traffic Collision Avoidance System |
| **FIS-B** | Flight Information Services Broadcast | **TCAD** | Traffic Collision Avoidance Device |
| **GDC** | Garmin Data Computer | **TIS** | Traffic Information Service |
| **GDU** | Garmin Display Unit | **TSO** | Technical Standard Order |
| **GEA** | Garmin Engine Adapter | **UAT** | Universal Access Transceiver |
| **GMU** | Garmin Magnetometer Unit | **UTC** | Coordinated Universal Time |
| **GPS** | Global Positioning System | **VHF** | Very High Frequency |
| **GRS** | Garmin Reference System | **VOR** | VHF Omni-Directional Range |
| **GTP** | Garmin Temperature Probe | **WAAS** | Wide Area Augmentation System |
| **HSI** | Horizontal Situation Indicator | **WXR** | Weather Radar |

# 2 SYSTEM DESCRIPTION

## 2.1 System Overview

The GI 275 installation can provide Primary ADI, HSI, MFD/Standby ADI, HSI/Standby ADI, MFD, and EIS functions. Three unit variants are available: the baseline GI 275 Base, the GI 275 ADAHRS which contains an integrated ADAHRS, and the GI 275 ADAHRS+AP which includes the functionality of the GI 275 ADAHRS but can also drive an approved autopilot. The GI 275 system utilizes engine sensors and a GEA 24 or GEA 110 engine adapter to provide EIS functions.

System limitations are contained in Section 2 of the GI 275 installation manuals (refer to Table 1-1). Model-specific limitations are contained in Appendix D of the GI 275 installation manuals. This information includes specific installation limitations for type rated, commuter category/Class IV, as well as Class I - III aircraft.

### 2.1.1 Primary ADI Functionality

The Primary Attitude Direction Indicator provides attitude, airspeed, altitude, and heading. The required Primary ADI installation consists of:

- GI 275 ADAHRS or ADAHRS+AP
- If configured for 3-in-1 ADI
  - GTP 59 OAT Probe (optional for Class I & II aircraft)
  - Internal or external WAAS GPS source
  - Pitot-static connection
- Installed backup battery

### 2.1.2 HSI Functionality

The Horizontal Situation Indicator provides magnetically stabilized heading based on magnetometer data. The HSI can provide course error and deviations to an autopilot if the GI 275 ADAHRS+AP is used. The required HSI installation consists of:

- GI 275 display (the GI 275 Base can be used if it receives AHRS from a GI 275 ADAHRS or ADAHRS+AP)
- ADAHRS capability, via internal ADAHRS (included with GI 275 ADAHRS and ADAHRS+AP variants)
- GMU 11 or GMU 44B Magnetometer

### 2.1.3 MFD/Standby ADI Functionality

The MFD/Standby ADI provides the same information as the Primary ADI, but can additionally display information on pages similar to the MFD during normal operation. The standby indicator has the same installation requirements as the GI 275 Primary ADI but with the additional requirement to install a GTP 59, backup battery, and potentially a display backup switch. Refer to *GI 275 Part 23 AML STC Installation Manual* for switch requirements.

### 2.1.4 HSI/Standby ADI Functionality

The HSI/Standby ADI provides the same information as the Primary ADI, but additionally displays HSI information during normal operation. The standby indicator has the same installation requirements as the GI 275 Primary ADI and GI 275 HSI but with the additional requirement to install a GTP 59, backup battery, and a display backup switch. Refer to *GI 275 Part 23 AML STC Installation Manual* for switch requirements.

### 2.1.5 MFD Functionality

The Multi-Function Display provides, at a minimum, a moving map display. The display can optionally provide traffic, terrain, and weather functions depending on installed equipment. The required MFD system installation consists of:

- GI 275 display

### 2.1.6 EIS Functionality

The Engine Indicating System is an optional feature for single- and twin-engine reciprocating engine equipped aircraft listed on the STC AML. The EIS will display 4 and 6 cylinder engine data and select airframe parameters. The EIS can display engine and airframe operating parameters on the GI 275. Configurable EIS gauges include optional gauges and those required by the aircraft POH and manufacturer.

This manual only provides information for the EIS sensors installed per the GI 275 AML STC. Table 2-1 lists the sensors that are maintained in this manual. Refer to the applicable maintenance data and/or TSO manual for other sensors that are interfaced to the EIS.

**Table 2-1 AML STC Installed Sensors**

| Function | Manufacturer P/N | Garmin P/N |
|---|---|---|
| Oil Press | Garmin 150 PSIG pressure, (Brass) | 011-04202-30 |
| | Kulite APT-20GX-1000-150G (Stainless) | 494-30032-00 |
| Oil Temp | UMA T3B3-2.5G | 494-70009-00 |
| Manifold Press | Garmin 30 PSIA Press, (Brass) | 011-04202-00 |
| | Kulite APT-20GX-1000-25A (Stainless) | 494-30030-00 |
| Fuel Press | Garmin 75 PSIG Press, (Brass) | 011-04202-20 |
| | Garmin 15 PSIG Press, (Brass) | 011-04202-10 |
| | Kulite APT-20GX-1000-50G (Stainless) | 494-30031-00 |
| | Kulite APT-20GX-1000-15G (Stainless) | 494-30029-00 |
| Fuel Flow | EI FT-60 (Red) | 494-10001-00 |
| | EI FT-90 (Gold) | 494-10001-01 |
| RPM | N/A (Magneto P-lead) | N/A |
| Carb Air Temp | UMA T3B10-SG | 494-70010-00 |

### 2.1.7 Electrical Load Information

Electrical load information for the GI 275 system LRUs is provided below. Appendix A of this document contains details specific to the load changes for the specific aircraft installation.

**Table 2-2 GI 275 LRU Electrical Load**

| LRU | Current Draw [1] | | | |
|---|---|---|---|---|
| | 14V System | | 28V System | |
| | Typical | Maximum | Typical | Maximum |
| GI 275 Base (without battery) | 0.65 A | 0.75 A | 0.32 A | 0.40 A |
| GI 275 Base (with battery) | 0.65 A | 1.70 A | 0.32 A | 0.80 A |
| GI 275 ADAHRS | 0.75 A | 2.00 A | 0.35A | 1.00 A |
| GI 275 ADAHRS+AP | 0.80 A | 2.00 A | 0.40 A | 1.00 A |
| GEA 110 | 0.30 A | 0.60 A | 0.15 A | 0.30 A |
| GEA 24 | 0.20 A | 0.40 A | 0.10 A | 0.20 A |
| GSB 15 (charging from both ports) | 1.30 A | 2.86 A | 0.63 A | 1.43 A |

**Notes:**

[1] All GI 275 current draws include the GMU 11/44B and GTP 59.

## 2.2 Normal Mode Operation

Control and operation of the GI 275 in Normal mode occurs through the use of the touch display and dual rotary knob. The Normal mode home page differs depending on the configuration and purpose of the GI 275 unit. The menu can be accessed on any page by swiping up from the bottom of the screen or by pressing and holding the inner knob for 2 seconds.

An example of a GI 275 Normal mode page and associated menu is shown in Figure 2-1 and describes some key aspects of the GI 275 features and controls:

- **Message Annunciation** – A silver flashing triangle appears on screen until the associated message(s) are acknowledged in the menu. Typically the annunciation appears in the top-left of the display screen
- **Photocell** – The photocell may be configured as the lighting source for the display and/or knob to automatically adjust the backlighting with no further prompt
- **Selectable Field** – Some pages contain selectable that can be adjusted using the inner knob. Simply touch the field on the screen and turn the inner knob to change the value
- **Outer Knob** – Control knob that can be used to scroll between pages or menu options
- **Inner Knob** – Control knob that can be used to adjust selectable fields
- **Menu page** – Accessible from any Normal mode. Contains page-specific options and system-wide options
- **Navigation buttons** – Back and arrow buttons can be used to navigate menu pages in lieu of using the touch screen


**Figure 2-1 GI 275 Normal Mode**

## 2.3 Configuration Mode Operation

### 2.3.1 Entering Configuration Mode

The Configuration mode of the GI 275 can be accessed by holding down the inner knob located at the bottom-left of the unit upon initial power-up. The knob must be pressed until the splash screen shown in Figure 2-2 appears. Touch **Accept** to proceed to the Configuration mode home page.


**Figure 2-2 Entering Configuration Mode on the GI 275**

### 2.3.2 Wireless Connectivity

The GI 275 is capable of connecting to Wi-Fi and Bluetooth via the Garmin Pilot application to update flight databases. Refer to Section 5.14 of *GI 275 Part 23 AML STC Installation Manual* for procedures.

### 2.3.3 Import Configuration

Configuration settings can be imported via USB using the following procedure:

1. Power the GI 275 and all LRUs in the system on in Configuration mode.
2. Insert the USB drive containing the configuration files into the USB dongle or GSB 15 (if installed). A USB icon should appear on the left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
3. Navigate to the ***Config Options*** page (***SW/Config → Config Options***).
4. Touch the **Import Configuration** button.
5. Touch the **Select Files** button and select the configuration file to be imported.
6. Touch the **Select Configuration** button.
7. Select the applicable configurations and then touch the **Back** button.
8. Touch the **Import Config ( )** button and then touch the **Start** button.

### 2.3.4 Export Configuration

Configuration settings can be exported via USB using the following procedure:

1. Power the GI 275 and all LRUs in the system on in Configuration mode.
2. Insert a USB drive into the USB dongle or GSB 15 (if installed). A USB icon should appear on the left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
3. Navigate to the ***Config Options*** page (***SW/Config → Config Options***).
4. Touch the **Export Config** button.
5. Touch the **Select Name** field and enter a name for the saved file.
6. Touch the **Export Config** button.

## 2.4 LRU Description, Control, and Operation

### 2.4.1 GI 275 Display

The GI 275 is a multi-function electronic instrument display. The GI 275 can be configured as a Primary ADI, HSI, MFD/Standby ADI, HSI/Standby ADI, MFD, or EIS display. The GI 275 ADAHRS and ADAHRS+AP variants include an integrated ADAHRS.

**Figure 2-3 GI 275 Display**

### 2.4.2 VFR GPS Antenna

The GI 275 has an internal VFR GPS that may be used as a primary GPS source for VFR navigation only or as a backup GPS. The internal VFR GPS is not approved as an IFR navigation source. If the VFR GPS antenna is installed, the internal VFR GPS is automatically used when the primary GPS source is unavailable. The GI 275 internal GPS antenna is installed on the instrument panel glareshield. Only one antenna is required for all installed GI 275s in the system. GPS data will be forwarded from the GI 275 directly interfaced to the GPS antenna.

**Figure 2-4 VFR GPS Antenna**

### 2.4.3 Integrated ADAHRS

The GI 275 ADAHRS and ADAHRS+AP variants have an integrated ADAHRS that provides altitude, vertical speed, airspeed, attitude, OAT, and heading data for flight instrumentation. The internal ADAHRS receives data from the GMU 11/44B, GTP 59, and pitot-static system. The integrated ADAHRS utilizes GPS signals sent from the internal VFR GPS or an external GPS/SBAS source. Attitude, heading, and air data can be sent to external LRUs via ARINC 429.

### 2.4.4 GMU 11 Magnetometer

The GMU 11 Magnetometer senses the magnetic field and sends the data to the internal ADAHRS to determine aircraft magnetic heading. This unit receives power directly from the GI 275 and communicates with the AHRS board via RS-232. The GMU 11 is applicable to Class I & II aircraft only.

**Figure 2-5 GMU 11 Magnetometer**

### 2.4.5 GMU 44B Magnetometer

The GMU 44B Magnetometer senses the magnetic field and sends the data to the internal ADAHRS to determine aircraft magnetic heading. This unit receives power directly from the GI 275 and communicates with the AHRS via RS-485 and RS-232.

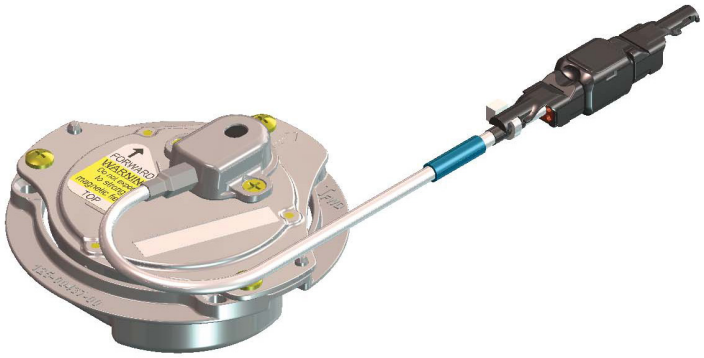


**Figure 2-6 GMU 44B Magnetometer**

### 2.4.6 GTP 59 OAT Probe

The GTP 59 is a remotely mounted temperature probe that interfaces to the internal ADC for OAT display and true airspeed computations. The GTP 59 is mounted externally on the aircraft and is powered from the GI 275.

**Figure 2-7 GTP 59 Outside Air Temperature Probe**

### 2.4.7 Backup Battery

The backup battery is a lithium-iron battery that is required when the GI 275 is used as a primary or standby indicator. The battery will power the essential display sensors for a minimum of 60 minutes. The battery is charged by the aircraft electrical system when not in use. The backup battery is optional for GI 275 Base models and standard for GI 275 ADAHRS and ADAHRS+AP models.


**Figure 2-8 Backup Battery**

### 2.4.8 GSB 15

The GSB 15 is an optional LRU that mounts into the instrument panel and provides two USB ports for charging and data transfer to a GI 275 unit. The USB ports can be used in place of a USB dongle to update the software on the GI 275 system and to charge devices while in-flight.

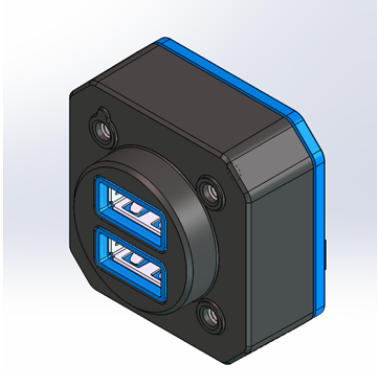


**Figure 2-9 GSB 15 Charging Hub**

### 2.4.9 EIS Components

#### 2.4.9.1 GEA 24 Engine Adapter

The GEA 24 is a remotely mounted engine interface and monitoring module that gathers sensor input parameters from the engine and processes the signals for the GI 275. The GEA 24 communicates with the GI 275 via RS-232. The GEA 24 is applicable to Class I & II aircraft only.


**Figure 2-10 GEA 24 Engine Adapter**

#### 2.4.9.2 GEA 110 Engine Adapter

The GEA 110 is a remote mount engine interface and monitoring module that gathers sensor input parameters from the engine and processes the signals for the GI 275. The GEA 110 communicates with the GI 275 via RS-485.


**Figure 2-11 GEA 110 Engine Adapter**

### 2.4.9.3 Engine Annunciator

An engine annunciator will only be installed if the EIS display is not installed within the pilot's maximum field-of-view. There are two options for EIS annunciators.

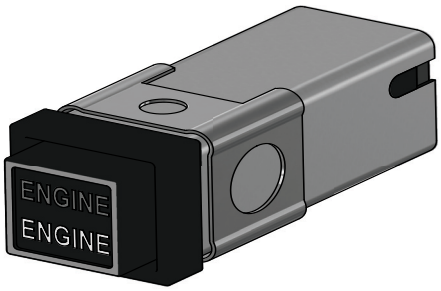



**Figure 2-12 Engine Annunciator (Single)**


**Figure 2-13 Engine Annunciator (Separate)**

### 2.4.9.4 Carburetor Temperature Probe

The carburetor temperature probe is a Type-K thermocouple (Chromel and Alumel) probe.

**Figure 2-14 Carburetor Temperature Probe**

### 2.4.9.5 Oil Temperature Probe

The oil temperature probe is a Type-K thermocouple (Chromel and Alumel) probe.

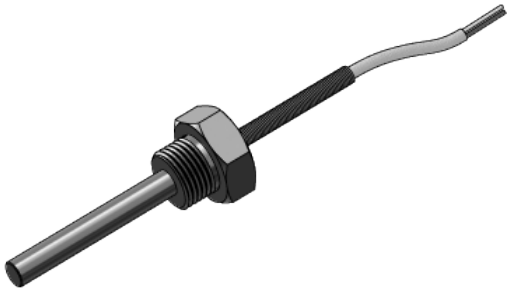


**Figure 2-15 Oil Temperature Probe**

### 2.4.9.6 Fuel Flow Sensors

The fuel flow sensor is incorporated in an aluminum housing that is installed in-line to the engine fuel supply. There are two STC approved options available for installation to suit most aircraft applications.

**Figure 2-16 Fuel Flow Sensor FT-60 (Left) and FT-90 (Right)**

### 2.4.9.7 Brass Pressure Sensors

The brass pressure sensors are small sensors that are supplied with a compatible plug. Depending on the installation, these sensors may be used to measure oil, fuel, and manifold pressure.

**Figure 2-17 Brass Pressure Sensor**

### 2.4.9.8 Stainless Steel Pressure Sensors

The stainless pressure sensors are unamplified, high-reliability sensors for harsh installation environments. There are four sensors available to measure oil, fuel, and manifold pressure.


**Figure 2-18 Stainless Steel Pressure Sensor**

### 2.4.9.9 P-Lead RPM Pickup

A wire with two parallel resistors in-line connects from each P-lead, at the Magneto or the ignition switch, to the GEA 24/110 to sense RPM.

# 3 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

## 3.1 Airworthiness Limitations

There are no new (or additional) airworthiness limitations associated with this equipment and/or installation.

**The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§ 43.16 and 91.403 of Title 14 of the Code of Federal Regulations unless an alternative program has been FAA approved.**

FAA APPROVED

JR Brownell

JR Brownell
ODA STC Unit Administrator
ODA-240087-CE

1/13/2020
Date

## 3.2 Servicing Information

There are no servicing requirements for the GI 275 system. In the event of a system or LRU failure, troubleshoot the GI 275 system in accordance with Section 4.

### 3.2.1 Periodic Maintenance Instructions

GI 275 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 while the LRUs are operating. Detected errors are indicated on the GI 275 display via failure annunciations, system messages, or a combination of the two. A list of reported errors for the system can be printed in the form of a maintenance log using the instructions provided in Section 4.1.

### 3.2.2 Special Tools

A milliohm meter with an accuracy of ±0.1 mΩ (or better) is required to measure the electrical bonding between the GI 275 system components and aircraft ground.

A pitot-static ground tester is required for internal ADAHRS and standby instrument checkout procedures and maintenance.

## 3.3 Maintenance Intervals

**Table 3-1 Periodic Maintenance**

| Item | Description/ Procedure | Interval |
|---|---|---|
| GI 275 System Visual Inspection | All installed system LRUs, switches, knobs, and wiring harnesses must be inspected to ensure continued integrity of the installation. The inspection must be performed in accordance with Section 3.4. | 12 calendar months |
| Backup Battery Check | If installed, perform a Backup Battery Check as described in Section 5.12.5.<br>If the backup battery does not pass the Backup Battery Check, it must be replaced using the procedure found in Section 5.5. | 12 calendar months |
| EIS Annunciator Lamp Check | If an EIS annunciator(s) is installed, perform a check of the annunciator lamps using the following procedure:<br>1. Power on the GI 275 directly interfaced to the annunciator in Configuration mode.<br>2. Navigate to ***Diagnostics*** → ***Discrete Outputs***.<br>3. Toggle the state of the Engine Caution and Engine Warning discrete outputs to *Active*.<br>4. Verify that the respective engine annunciator lights have illuminated.<br>5. Toggle the state of the Engine Caution and Engine Warning discrete outputs to *Inactive*. | 12 calendar months |
| AHRS Magnetic Field Model Update | The GI 275 Integrated ADAHRS utilizes an Earth magnetic field model that is updated once every 5 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 start-up indicating the model has expired. A Service Bulletin containing the updated magnetic field model and instructions for installation can be obtained from the Dealer Resource Center or by contacting Garmin. | Every 5 years |
| Electrical Bonding Check | Perform an electrical bonding check of the GI 275 system LRUs in accordance with Section 3.5. | Every 2000 flight hours or 10 years, whichever comes first |
| Altimeter Checks | Test according to 14 CFR §43 Appendix E.<br>Refer to the pitot-static checkout procedure in Section 5.14.2 for system-specific checkout procedure. | Interval must be in accordance with Title 14 CFR §91.411 and 91.413 |
| Lightning Damage Check | Conduct an inspection of the GI 275 system in accordance with Section 3.7. | After a suspected or actual lightning strike |
| Equipment Removal and Replacement | Removal and replacement of the GI 275 system LRUs can be accomplished by referring to Section 5 for instructions. | On Condition |

| Item | Description/ Procedure | Interval |
|---|---|---|
| Cleaning GI 275 Touchscreen | The display can be cleaned with a soft cotton cloth dampened with clean water. DO NOT use any chemical cleaning agents. Care should be taken to avoid scratching the surface of the display. | On Condition |
| Display Backlight | Over time, the backlight lamp may dim and the display may not perform as well in direct sunlight conditions. The user must determine by observation when the display brightness is not suitable for its intended use. Contact a Garmin authorized repair station when the backlight lamp requires service. | On Condition |

## 3.4 Visual Inspection

Operation of the GI 275 system is not permitted unless an inspection, as described in this section, has been completed within the preceding 12 calendar months. Conduct the following visual inspection of the GI 275 system LRUs and associated wiring harnesses to ensure installation integrity:

1. Inspect all units for security of attachment, including visual inspection of brackets and other supporting structure attaching all units to the airframe.
2. Inspect all switches, annunciators, knobs, and buttons for legibility.
3. Visually inspect each unit's wiring (including electrical bonding straps), overbraid, and connectors for chafing, deterioration, damage, or wear.
4. Visually check for any signs of corrosion.

### 3.4.1 Aluminum Foil Tape (Non-metallic Aircraft Only)

Any aluminum foil tape used in the GI 275 installation for grounding of a GEA 24 or GEA 110 (refer to Appendix A of this document) must be inspected every 12 calendar months. The inspection must verify that the foil tape is not torn, damaged, or showing signs of corrosion. If any of these conditions are found, the tape must be replaced in accordance with Section 4 of *GI 275 Part 23 AML STC Installation Manual*.

## 3.5 Electrical Bonding Maintenance Check

GI 275 LRU electrical bonding must be checked every 2,000 flight hours or 10 years, whichever occurs first. During the check, any cables normally attached to the LRU must be disconnected from the LRU. Resistance must be measured from a bare metal portion of the LRU to an airframe grounding location. The airframe grounding location should be as close to the LRU as possible, unless otherwise noted in Table 3-2. If the measured resistance is greater than applicable values in the table, bonding must be improved to meet applicable requirements for a new installation in accordance with Section 4 of *GI 275 Part 23 AML STC Installation Manual*.

**Table 3-2 Electrical Bonding Maintenance Requirements**

| LRU | Maintenance Requirement |
|---|---|
| GI 275 Base<br>GI 275 ADAHRS<br>GI 275 ADAHRS+AP | 5 mΩ (from unit to instrument panel) |
| Engine Annunciator(s) | 20 mΩ (from unit to instrument panel) |
| GEA 24<br>GEA 110 | 5 mΩ (from unit to local structure) |
| GTP 59<br>GMU 44B | 5 mΩ (or electrically isolated per Appendix D of *GI 275 Part 23 AML STC Installation Manual*) |
| GMU 11 | None, except when overbraid is required. Overbraid bond must meet 5 mΩ. |
| GSB 15 | 5 mΩ (from unit to instrument panel or local structure) |

## 3.6 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 GI 275 system. If any LRU indicates an internal failure, the unit may be removed and replaced. Refer to Section 4 of this document for fault corrective actions.

## 3.7 Special Inspection Requirements

After a suspected lightning strike, the following actions must be performed for the specified LRU:

### *GTP 59 OAT Probe*

Inspect the GTP 59 for signs of lightning damage. Check the self-sealing washer (P/N 212-00026-00) used on the probe tip outside of the aircraft for any evidence of melting or lack of seal. Replace the washer if damaged. If there is evidence of lightning strike to the OAT or any lightning damage, replace the GTP 59 OAT Probe.

Tube-and-fabric aircraft must replace the OAT probe bond strap (if installed) in accordance with Section 4 of the GI 275 installation manuals (refer to Table 1-1).

### *GMU 11/44B*

Aircraft with a GMU mounted in the wingtip of metallic aircraft with non-metallic wingtip covers must inspect the magnetometer installation for the following conditions:

1. Check the GMU magnetometer body and mount for scorching, soot, melting, pitting, denting, or discoloration.
2. Check the GMU connectors for melting or pin damage.
3. Check the cable overbraid for pinching, melting, or evidence of arcing.
4. Check the lug for evidence of arcing and verify that the lug is still secured to the overbraid.
5. Check electrical bonding between the GMU overbraid and adjacent aircraft structure. Resistance should be less than 5 mΩ.
6. If any of these checks shows evidence of a lightning strike, replace the overbraid assembly and affected components in accordance with Section 4 of *GI 275 Part 23 AML STC Installation Manual*.

Perform the Magnetic Interference Check in accordance with Section 6 of *GI 275 Part 23 AML STC Installation Manual*. The purpose of this check is to ensure the structure around the GMU did not get magnetized by the lightning event to the point of affecting magnetometer performance.

## 3.8 Application of Protective Treatments

None.

## 3.9 Data Relative to Structural Fasteners

Data relative to structural fasteners, such as type, torque, and installation requirements can be found in Section 5 of this manual.

## 3.10 Additional Instructions

None.

# 4 TROUBLESHOOTING



This section provides information to assist troubleshooting if fault codes are displayed on the GI 275 or problems occur after completing system maintenance. Refer to Appendix A of this document retained in the aircraft permanent records for a list of the interfaced equipment and system configuration data. When troubleshooting the GI 275 system, refer to wire routing drawings and interconnect diagrams retained in Appendix A of this document or with the aircraft's permanent records.

## 4.1 General System Troubleshooting

Before troubleshooting the GI 275 system, print the current configuration log using the procedure in Section 2.3.4 to ensure that system configuration settings match those recorded in the aircraft's permanent records as applicable to the aircraft's current configuration.

If the GI 275 configuration does not match the configuration log retained with the aircraft permanent records, load the saved configuration from the USB drive retained with the aircraft records. If this cannot be accomplished, or does not correct the configuration, the issue must be corrected by a Garmin dealer using the configuration instructions provided in Section 5 of the GI 275 installation manuals (refer to Table 1-1). Basic troubleshooting of the GI 275 system can be accomplished using the instructions provided in Table 4-1.

**Table 4-1 GI 275 Failures**

| Symptom | Recommended Action |
|---|---|
| GI 275 screen is blank | Check power/ground wiring for GI 275. |
| EIS Gauge Fault/Failure | Troubleshoot the problem using the EIS gauge troubleshooting flowchart provided in Section 4.3. |
| An alert message is displayed on the GI 275 or present in the maintenance log | Troubleshoot the alert message using the flowcharts provided in Section 4.3. |

### 4.1.1 System Maintenance Log

The GI 275 system has a maintenance and error log that can be accessed or printed to assist with system maintenance and troubleshooting.

The maintenance and error log can be printed using the following procedure:

1. Power on all GI 275s in the system in Configuration mode in accordance with Section 2.3.1.
2. Insert a USB drive into the USB dongle or GSB 15 (if installed). A USB icon should appear on the left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
3. Navigate to the ***Maintenance*** page.
4. Press the **Export Logs** button.
5. Select which log to download: Assert, Flight Data, Aircraft Report, or Fault Log.
    - For downloading Flight Data logs, select the desired option for the Download Log Style and enter the applicable date if downloading flight data logs for a specific date
6. Press the **Start Download** button.
7. Once the save process is completed, disconnect the USB drive and insert it into a computer.
8. On the computer, navigate to the USB drive and open the "maintenance_logs" directory.
9. Open the .htm file.
10. The file should open in your computer's Internet browser and can be printed using your selected Internet browser print function (in most cases, pressing **Ctrl** + **P** buttons simultaneously will access this function).

The maintenance log will display reported system faults. The alert message that is displayed on the GI 275 for that fault (if any) will display frequency, most recent occurrence time of the fault, and any additional information about the fault that might be helpful. If any faults are reported on the maintenance log, refer to the troubleshooting flowcharts contained in Section 4.3.

## 4.2 Connector Information

This section contains connector information and description of pin functions for all LRUs that can be installed as part of the GI 275 STC.

### 4.2.1 GI 275

**NOTE**

*The J2752/P2752 connector is only included with GI 275 ADAHRS and ADAHRS+AP models.*

GI 275 displays have up to three connectors:

- J2751/P2751 - 78 pin female contact HD D-sub
- J2752/P2752 - 78 pin female contact HD D-sub (GI 275 ADAHRS and ADAHRS+AP units only)
- BNC, Male

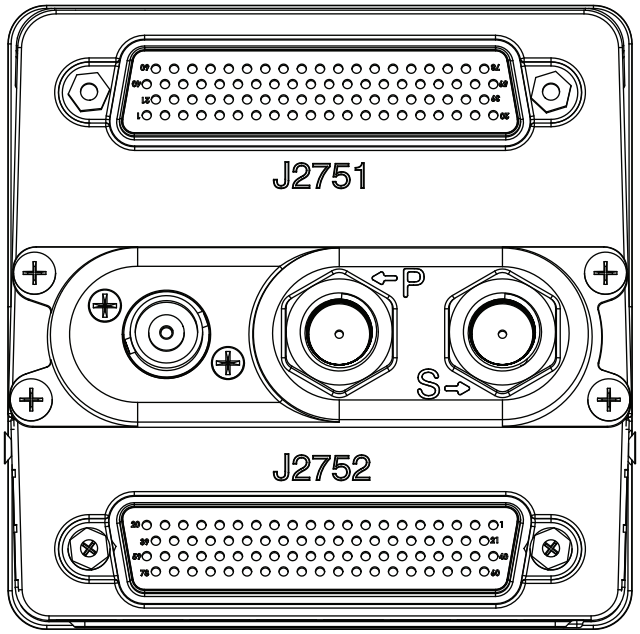



**Figure 4-1 GI 275 Connectors**

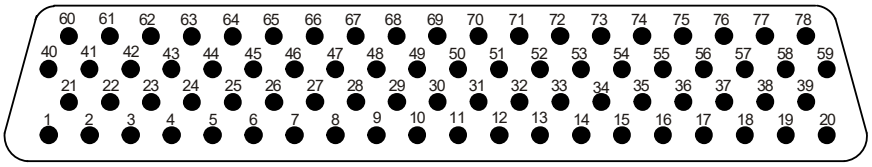



**Figure 4-2 GI 275 J2751 Connector (Looking at Connector)**

**Table 4-2 J2751/P2751 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | CONFIG MODULE GROUND | -- |
| 2 | AIRCRAFT POWER 1 | IN |
| 3 | AIRCRAFT POWER 2 | IN |
| 4 | DISCRETE OUT 1 LO | OUT |
| 5 | VOR/LOC COMPOSITE LO | IN |
| 6 | GLIDESLOPE DEVIATION +UP | IN |
| 7 | LATERAL -FLAG | IN |
| 8 | ETHERNET OUT 2A | OUT |
| 9 | ETHERNET OUT 2B | OUT |
| 10 | OBS STATOR F | OUT |
| 11 | GLIDESLOPE +FLAG | IN |
| 12 | DISCRETE IN 4 LO | IN |
| 13 | OBS ROTOR H | IN |
| 14 | ARINC 429 IN 2B | IN |
| 15 | ARINC 429 IN 4B | IN |
| 16 | ARINC 429 OUT 1A | OUT |
| 17 | SPARE GROUND | -- |
| 18 | RS-232 OUT 2 | OUT |
| 19 | LRU GROUND | -- |
| 20 | LRU POWER | OUT |
| 21 | CONFIG MODULE POWER | OUT |
| 22 | LIGHTING BUS HI | IN |
| 23 | DISCRETE IN 1 LO | IN |
| 24 | DISCRETE OUT 3 LO | OUT |
| 25 | LATERAL DEVIATION +LEFT | IN |
| 26 | LATERAL +FLAG | IN |
| 27 | ETHERNET IN 2A | IN |
| 28 | ETHERNET IN 2B | IN |
| 29 | OBS STATOR D | OUT |
| 30 | ALERT AUDIO OUT HI | OUT |
| 31 | GLIDESLOPE -FLAG | IN |
| 32 | TO/FROM -FLAG | IN |
| 33 | ARINC 429 IN 1B | IN |
| 34 | ARINC 429 IN 3B | IN |
| 35 | ARINC 429 OUT 2A | OUT |
| 36 | SPARE GROUND | -- |
| 37 | RS-232 IN 2 | IN |
| 38 | RS-232 OUT 1 | OUT |
| 39 | USB DATA LO | I/O |

| Pin | Function | I/O |
|---|---|---|
| 40 | CONFIG MODULE DATA | I/O |
| 41 | AIRCRAFT GROUND | -- |
| 42 | LIGHTING BUS LO | IN |
| 43 | DISCRETE OUT 2* | OUT |
| 44 | VOR/LOC COMPOSITE HI | IN |
| 45 | GLIDESLOPE DEV +DOWN | IN |
| 46 | ETHERNET OUT 1A | OUT |
| 47 | ETHERNET OUT 1B | OUT |
| 48 | ALERT AUDIO OUT LO | OUT |
| 49 | RS-485 A | I/O |
| 50 | TO/FROM +FLAG IN | IN |
| 51 | SPARE GROUND | -- |
| 52 | ARINC 429 IN 1A | IN |
| 53 | ARINC 429 IN 3A | IN |
| 54 | SPARE GROUND | -- |
| 55 | ARINC 429 OUT 1B | OUT |
| 56 | SPARE GROUND | -- |
| 57 | RS-232 IN 1 | IN |
| 58 | USB DATA HI | I/O |
| 59 | USB GROUND | -- |
| 60 | CONFIG MODULE CLOCK | OUT |
| 61 | AIRCRAFT GROUND | -- |
| 62 | DISCRETE IN 2 LO | IN |
| 63 | DISCRETE IN 3 LO | IN |
| 64 | LATERAL DEVIATION +RIGHT | IN |
| 65 | ETHERNET IN 1A | IN |
| 66 | ETHERNET IN 1B | IN |
| 67 | OBS STATOR G | IN |
| 68 | OBS STATOR E | OUT |
| 69 | RS-485 B | I/O |
| 70 | SPARE GROUND | -- |
| 71 | OBS ROTOR C | IN |
| 72 | ARINC 429 IN 2A | IN |
| 73 | ARINC 429 IN 4A | IN |
| 74 | ARINC 429 OUT 2B | OUT |
| 75 | SPARE GROUND | -- |
| 76 | RS-232 2 GROUND | -- |
| 77 | RS-232 1 GROUND | -- |
| 78 | USB VBUS POWER | OUT |

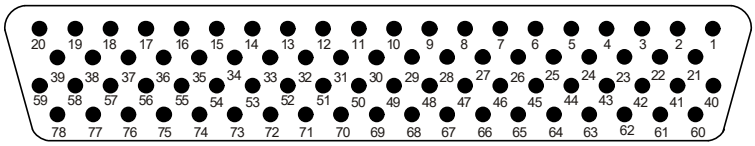



**Figure 4-3 GI 275 J2752 Connector (Looking at Connector)**

**CAUTION**

*Pins highlighted in gray are not present in GI 275 ADAHRS units (P/Ns 011-04489-10 and 011-04489-30) and should be treated as Not Connected. All pins listed in Table 4-3 are present in GI 275 ADAHRS+AP units (P/Ns 011-04489-20 and 011-04489-40).*

**Table 4-3 J2752/P2752 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | DISCRETE OUT 7 LO | OUT |
| 2 | SPARE | -- |
| 3 | GYRO VALID COMMON | -- |
| 4 | DISCRETE IN 5 LO | IN |
| 5 | VERTICAL -FLAG OUT | OUT |
| 6 | PITCH AC OUT HI | OUT |
| 7 | 26 VAC REF LO | IN |
| 8 | HEADING SYNCRO X | OUT |
| 9 | VERTICAL +UP OUT | OUT |
| 10 | LATERAL +RIGHT OUT | OUT |
| 11 | RADAR ROLL HI | OUT |
| 12 | CAN LO | I/O |
| 13 | A/P HEADING ERROR HI | OUT |
| 14 | DISCRETE OUT 5 LO | OUT |
| 15 | YAW RATE HI | OUT |
| 16 | HEADING SYNCRO Y | OUT |
| 17 | DISCRETE OUT 9 LO | OUT |
| 18 | FD ENABLE HI | IN |
| 19 | FD PITCH UP | IN |
| 20 | DISCRETE OUT 6 LO | OUT |
| 21 | OAT PROBE IN LO | IN |
| 22 | AP INTERLOCK RELAY NC | -- |
| 23 | GYRO VALID RELAY NO | OUT |
| 24 | VERTICAL +FLAG OUT | OUT |
| 25 | LATERAL SUPER FLAG | OUT |
| 26 | ROLL AC OUT HI | OUT |
| 27 | 10 VAC REF HI | IN |
| 28 | SPARE | -- |
| 29 | TO/FROM +FLAG | OUT |
| 30 | RADAR PITCH LO | -- |
| 31 | CAN HI | I/O |
| 32 | A/P COURSE ERROR HI | OUT |
| 33 | SPARE | -- |
| 34 | ROLL DC OUT | OUT |
| 35 | BARO CORRECTION HI | OUT |

| Pin | Function | I/O |
|---|---|---|
| 40 | DISCRETE OUT 8 LO | OUT |
| 41 | AP INTERLOCK RELAY COM | IN |
| 42 | GYRO VALID RELAY NC | OUT |
| 43 | DISCRETE IN 6 LO | IN |
| 44 | VERTICAL SUPERFLAG | OUT |
| 45 | ROLL AC OUT LO | -- |
| 46 | 10 VAC REF LO | IN |
| 47 | HEADING SYNCHRO Z | IN |
| 48 | LATERAL +LEFT OUT | OUT |
| 49 | TO/FROM -FLAG OUT | OUT |
| 50 | RADAR ROLL LO | -- |
| 51 | CAN TERMINATION A | I/O |
| 52 | A/P HEADING ERROR LO | OUT |
| 53 | SPARE | -- |
| 54 | BARO CORRECTION LO | IN |
| 55 | PITCH DC OUT | OUT |
| 56 | RS-232 IN 3 | IN |
| 57 | SPARE | -- |
| 58 | FD PITCH DOWN | IN |
| 59 | SPARE GROUND | -- |
| 60 | OAT PROBE IN HI | IN |
| 61 | AP INTERLOCK RELAY NO | OUT |
| 62 | OAT PROBE POWER | OUT |
| 63 | LATERAL +FLAG OUT | OUT |
| 64 | PITCH AC OUT LO | OUT |
| 65 | 26 VAC REF HI | IN |
| 66 | LATERAL -FLAG OUT | OUT |
| 67 | SPARE GROUND | -- |
| 68 | VERTICAL +DOWN OUT | OUT |
| 69 | RADAR PITCH HI | OUT |
| 70 | CAN TERMINATION | I/O |
| 71 | A/P COURSE ERROR LO | OUT |
| 72 | DISCRETE OUT 4 LO | OUT |
| 73 | YAW RATE LO | -- |
| 74 | SPARE GROUND | -- |

| | | |
|---|---|---|
| 36 | RS-232 3 GROUND | -- |
| 37 | DC REF IN | IN |
| 38 | FD ROLL RIGHT | IN |
| 39 | TIME MARK A | IN |

| | | |
|---|---|---|
| 75 | RS-232 OUT 3 | OUT |
| 76 | SPARE GROUND | -- |
| 77 | FD ROLL LEFT | IN |
| 78 | TIME MARK B | IN |

The Active-Low discrete outputs shall provide a connection to ground with a resistance of no more than 25Ω when in the active state.

### 4.2.2 GEA 24

The GEA 24 has four connectors:

- J241/P241 9-pin male contact HD D-sub
- J242/P242 25-pin female contact HD D-sub
- J243/P243 37-pin male contact HD D-sub
- J244/P244 50-pin male contact HD D-sub

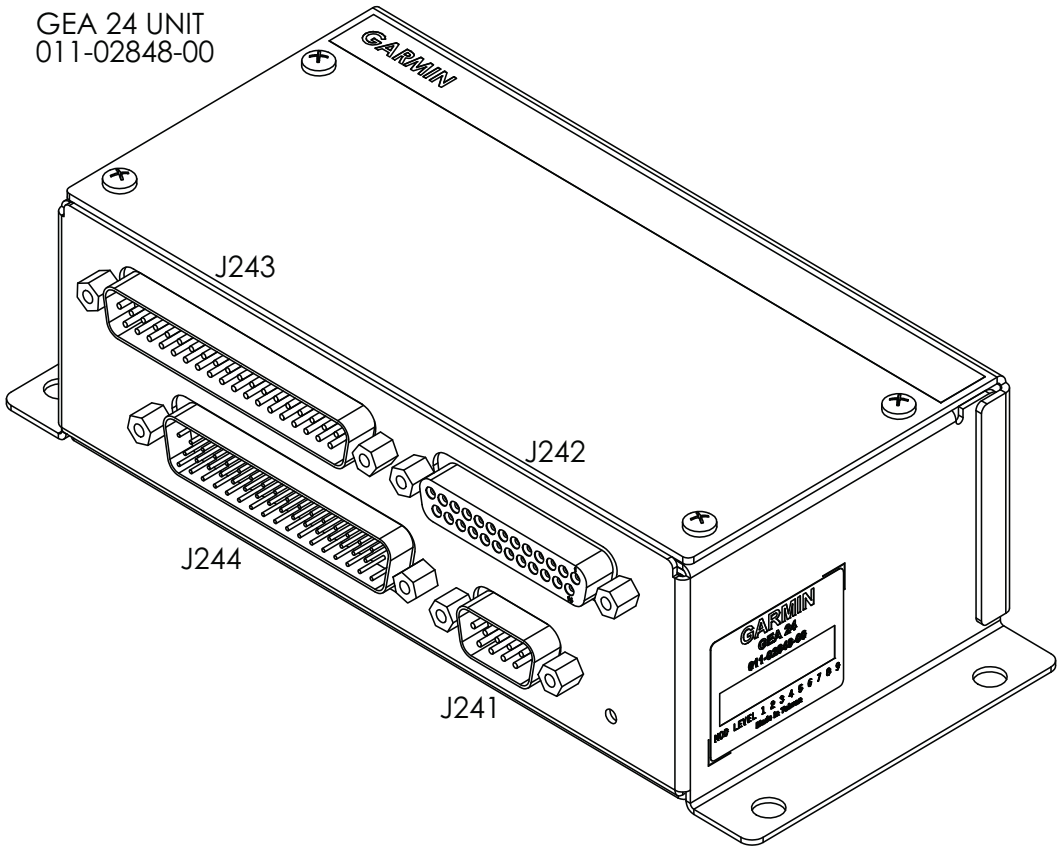



**Figure 4-4 GEA 24 Connectors**

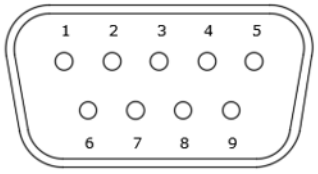



**Figure 4-5 GEA 24 J241/P241 Connector (Looking at the Connector)**

**Table 4-4 J241/P241 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | CAN HI | I/O |
| 2 | CAN LO | I/O |
| 3 | RESERVED | -- |
| 4 | RS-232 RX | IN |
| 5 | RS-232 TX | OUT |
| 6 | GROUND | -- |
| 7 | AIRCRAFT POWER 1 | IN |
| 8 | AIRCRAFT POWER 2 | IN |
| 9 | GROUND | -- |

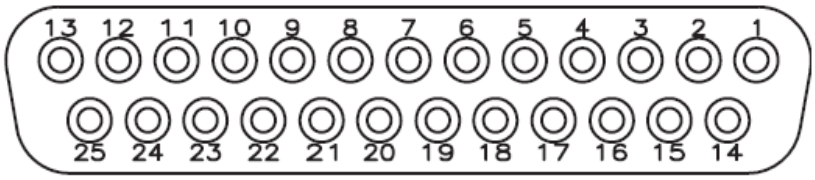



**Figure 4-6 GEA J242/P242 Connector (Looking at the Connector)**

**Table 4-5 J242/P242 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | RESERVED | -- |
| 2 | CHT 6 LO / CHT 2 RESIST LO | IN |
| 3 | EGT 6 LO | IN |
| 4 | CHT 5 LO / CHT 1 RESIST LO | IN |
| 5 | EGT 5 LO | IN |
| 6 | CHT 4 LO | IN |
| 7 | EGT 4 LO | IN |
| 8 | CHT 3 LO | IN |
| 9 | EGT 3 LO | IN |
| 10 | CHT 2 LO | IN |
| 11 | EGT 2 LO | IN |
| 12 | CHT 1 LO | IN |
| 13 | EGT 1 LO | IN |

| Pin | Function | I/O |
|---|---|---|
| 14 | CHT 6 HI / CHT 2 RESIST HI | IN |
| 15 | EGT 6 HI | IN |
| 16 | CHT 5 / CHT 1 RESISTIVE HI | IN |
| 17 | EGT 5 HI | IN |
| 18 | CHT 4 HI | IN |
| 19 | EGT 4 HI | IN |
| 20 | CHT 3 HI | IN |
| 21 | EGT 3 HI | IN |
| 22 | CHT 2 HI | IN |
| 23 | EGT 2 HI | IN |
| 24 | CHT 1 HI | IN |
| 25 | EGT 1 HI | IN |

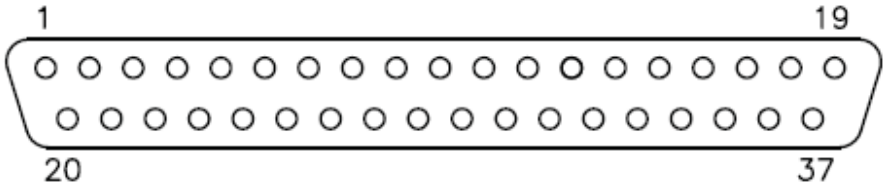



**Figure 4-7 GEA 24 J243/P243 Connector (Looking at Connector)**

**Table 4-6 J243/P243 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | FUEL PRESS GROUND | -- |
| 2 | FUEL PRESS | IN |
| 3 | FUEL PRESS XDCR +12V | OUT |
| 4 | FUEL PRESS XDCR +5V | OUT |
| 5 | RPM XDCR GROUND_2 | -- |
| 6 | RPM 2 | IN |
| 7 | RPM XDCR GROUND_1 | -- |
| 8 | RPM 1 | IN |
| 9 | RPM XDCR +12V_1 | OUT |
| 10 | RPM XDCR +12V_2 | OUT |
| 11 | RESERVED / SPARE | IN |
| 12 | MANIFOLD PRESS GROUND | -- |
| 13 | MANIFOLD PRESS | IN |
| 14 | MANIFOLD PRESS XDCR +12V | OUT |
| 15 | MANIFOLD PRESS XDCR +5V | OUT |
| 16 | OIL PRESS GROUND | -- |
| 17 | OIL PRESS HI | IN |
| 18 | OIL PRESS XDCR +12V | OUT |
| 19 | OIL PRESS XDCR +5V | OUT |

| Pin | Function | I/O |
|---|---|---|
| 20 | FUEL XDCR GROUND_1 | -- |
| 21 | FUEL RETURN (shared w/Pin 37, J244 connector) | IN |
| 22 | FUEL XDCR GROUND_2 | |
| 23 | FUEL FLOW (shared w/Pin 36, J244 connector) | IN |
| 24 | FUEL XDCR +12V_1 | OUT |
| 25 | FUEL XDCR +12V_2 | OUT |
| 26 | GP +5V_1 | OUT |
| 27 | GP GROUND_1 | -- |
| 28 | POS 7 / TIT 2 / MISC TEMP 2 LO | IN |
| 29 | POS 7 / TIT 2 / MISC TEMP 2 HI | IN |
| 30 | POS 6 / TIT 1 / MISC TEMP 1 LO | IN |
| 31 | POS 6 / TIT 1 / MISC TEMP 1 HI | IN |
| 32 | OIL TEMP LO | IN |
| 33 | OIL TEMP HI | IN |
| 34 | SHUNT 2 LO (shared w/Pin 47, J244 connector) | IN |
| 35 | SHUNT 2 HI (shared w/Pin 46, J244 connector) | IN |
| 36 | SHUNT 1 LO | IN |
| 37 | SHUNT 1 HI | IN |

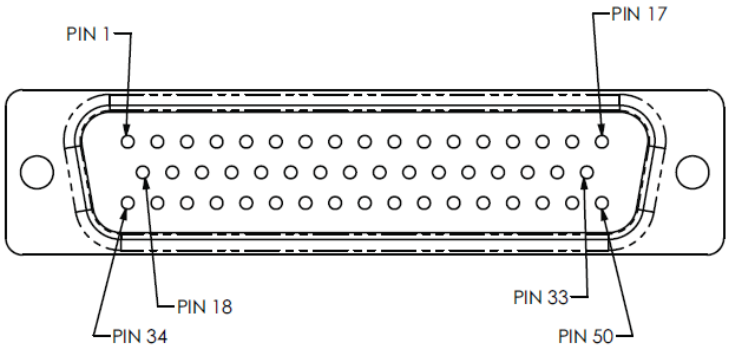



**Figure 4-8 GEA 24 J244/P244 Connector (Looking at the Connector)**

**Table 4-7 J244/P244 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | SYSTEM ID 1A* | IN |
| 2 | SYSTEM ID 1B / GROUND | -- |
| 3 | RESERVED | -- |
| 4 | RESERVED | -- |
| 5 | FUEL QTY +5V_1 | OUT |
| 6 | FUEL QTY 1 | IN |
| 7 | FUEL QTY 1 GROUND | -- |
| 8 | FUEL QTY +5V_2 | OUT |
| 9 | FUEL QTY 2 | IN |
| 10 | FUEL QTY 2 GROUND | -- |
| 11 | POS 3 HI / +5V_3 | OUT |
| 12 | POS 3 / GP 3 / FUEL QTY 3 | IN |
| 13 | POS 3 LO / GROUND | -- |
| 14 | POS 4 HI / +5V_4 | OUT |
| 15 | POS 4 / GP 4 / FUEL QTY 4 | IN |
| 16 | POS 4 LO / GROUND | -- |
| 17 | CAN2_H | I/O |
| 18 | GP1 HI / +5V | OUT |
| 19 | GP1 / POS 1 | IN |
| 20 | GP1 LO / GROUND | -- |
| 21 | GP2 HI / +5V | OUT |
| 22 | GP2 / POS 2 | IN |
| 23 | GP2 LO / GOURND | -- |
| 24 | GP +5V_2 | OUT |
| 25 | VOLTS 1 | IN |

| Pin | Function | I/O |
|---|---|---|
| 26 | GP GROUND_2 | -- |
| 27 | GP +5V_3 | OUT |
| 28 | VOLTS 2 | IN |
| 29 | GP GROUND 3 | -- |
| 30 | POS 5 HI / +5V | OUT |
| 31 | POS 5 / MISC PRESS | IN |
| 32 | POS 5 LO / GROUND | -- |
| 33 | CAN2_L | I/O |
| 34 | FUEL XDCR +12V_3 | OUT |
| 35 | FUEL XDCR +12V_4 | OUT |
| 36 | FUEL FLOW (shared w/Pin 23, J243 connector) | IN |
| 37 | FUEL RETURN (shared w/Pin 21, J243 connector) | IN |
| 38 | FUEL XDCR GND_3 | -- |
| 39 | FUEL XDCR GND_4 | -- |
| 40 | DISCRETE IN 1** | IN |
| 41 | DISCRETE IN 2** | IN |
| 42 | DISCRETE IN 3** | IN |
| 43 | DISCRETE IN 4** | IN |
| 44 | DISCRETE OUT 1* / MASTER WARNING | IN |
| 45 | DISCRETE OUT 2* / MASTER CAUTION | IN |
| 46 | SHUNT 2 HI (shared w/Pin 35, J243 connector) | IN |
| 47 | SHUNT 2 LO (shared w/Pin 34, J243 connector) | IN |
| 48 | RESERVED / SPARE 1 | IN |
| 49 | RESERVED / SPARE 2 | IN |
| 50 | GP +12V | OUT |

*Indicates Active-Low

**Can be configured as Active-High or Active-Low

### 4.2.3 GEA 110

The GEA110 has two connectors:

- J1101/P1101 15-pin female contact HD D-Sub
- J1102/P1102 78-pin female contact HD D-Sub

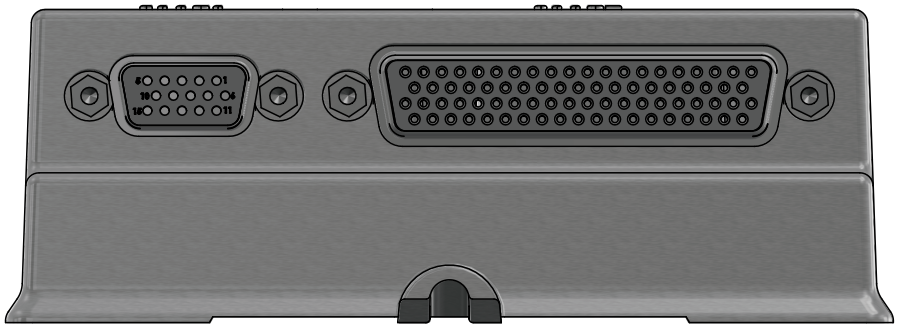


**Figure 4-9 GEA 110 Connectors**

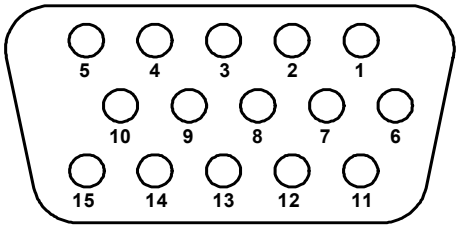



**Figure 4-10 GEA 110 J1101/P1101 Connector (Looking at Connector)**

**Table 4-8 J1101/P1101 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | AV PWR IN 1 | IN |
| 2 | RESERVED | -- |
| 3 | DISCRETE OUT 1 | OUT |
| 4 | RS 485 2A | I/O |
| 5 | RS 485 1A | I/O |
| 6 | AV PWR IN 2 | IN |
| 7 | RESERVED | -- |
| 8 | DISCRETE OUT 2 | OUT |
| 9 | RS 485 2B | I/O |
| 10 | RS 485 1B | I/O |
| 11 | DISCRETE IN 5 | IN |
| 12 | SYS ID #1 | IN |
| 13 | SYS ID #2 | IN |
| 14 | GND | -- |
| 15 | GND | -- |

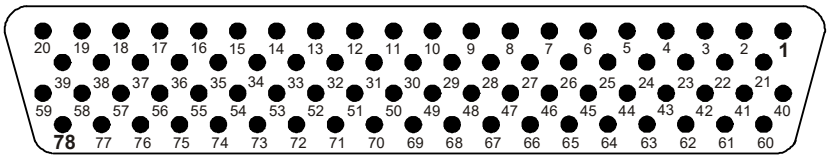



**Figure 4-11 GEA 110 J1102/P1102 Connector Looking at Unit**

**Table 4-9 J1102/P1102 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | CHT 1 (+) | IN |
| 2 | CHT 2 (+) | IN |
| 3 | CHT 3 (+) | IN |
| 4 | CHT 4 (+) | IN |
| 5 | CHT 5 (+) | IN |
| 6 | CHT 6 (+) | IN |
| 7 | GENERAL PURPOSE 1 (+) | IN |
| 8 | GENERAL PURPOSE 2 (+) | IN |
| 9 | +10 VDC | OUT |
| 10 | FUEL PRESSURE (+) | IN |
| 11 | DISCRETE IN 1 | IN |
| 12 | FUEL QUANTITY 1 / GENERAL PURPOSE 3 (+) | IN |
| 13 | FUEL QUANTITY 3 / GENERAL PURPOSE 5 (+) | IN |
| 14 | GND | IN |
| 15 | FUEL FLOW 1 | IN |
| 16 | FUEL FLOW 2 | IN |
| 17 | +12 VDC | OUT |
| 18 | RPM IN 1 (+) | IN |
| 19 | RPM IN 2 (+) | IN |
| 20 | CONFIG MOD PWR | OUT |
| 21 | CHT 1 (-) | IN |
| 22 | CHT 2 (-) | IN |
| 23 | CHT 3 (-) | IN |
| 24 | CHT 4 (-) | IN |
| 25 | CHT 5 (-) | IN |
| 26 | CHT 6 (-) | IN |
| 27 | GENERAL PURPOSE 1 (-) | IN |
| 28 | GENERAL PURPOSE 2 (-) | IN |
| 29 | +5 VDC | OUT |
| 30 | FUEL PRESSURE (-) | IN |
| 31 | DISCRETE IN 2 | IN |
| 32 | FUEL QUANTITY 1 / GENERAL PURPOSE 3 (-) | IN |
| 33 | FUEL QUANTITY 3 / GENERAL PURPOSE 5 (-) | IN |
| 34 | GND | -- |

| Pin | Function | I/O |
|---|---|---|
| 40 | EGT 1 (+) | IN |
| 41 | EGT 2 (+) | IN |
| 42 | EGT 3 (+) | IN |
| 43 | EGT 4 (+) | IN |
| 44 | EGT 5 (+) | IN |
| 45 | EGT 6 (+) | IN |
| 46 | CARB TEMP (+) | IN |
| 47 | OIL TEMP (+) | IN |
| 48 | OIL PRESSURE (+) | IN |
| 49 | GND | -- |
| 50 | MANIFOLD PRESSURE (+) | IN |
| 51 | DISCRETE IN 3 | IN |
| 52 | FUEL QUANTITY 2 / GENERAL PURPOSE 4 (+) | IN |
| 53 | FUEL QUANTITY 4 / GENERAL PURPOSE 6 (+) | IN |
| 54 | GND | -- |
| 55 | SHUNT 1 (-) | IN |
| 56 | SHUNT 2 (-) | IN |
| 57 | BUS 1 | IN |
| 58 | BUS 2 | IN |
| 59 | CONFIG MOD CLOCK | OUT |
| 60 | EGT 1 (-) | IN |
| 61 | EGT 2 (-) | IN |
| 62 | EGT 3 (-) | IN |
| 63 | EGT 4 (-) | IN |
| 64 | EGT 5 (-) | IN |
| 65 | EGT 6 (-) | IN |
| 66 | CARB TEMP (-) | IN |
| 67 | OIL TEMP (-) | IN |
| 68 | OIL PRESSURE (-) | IN |
| 69 | +12 VDC | OUT |
| 70 | MANIFOLD PRESSURE (-) | IN |
| 71 | DISCRETE IN 4 | IN |
| 72 | FUEL QUANTITY 2 / GENERAL PURPOSE 4 (-) | IN |
| 73 | FUEL QUANTITY 4 / GENERAL PURPOSE 6 (-) | IN |

| | | |
|---|---|---|
| 35 | SHUNT 1 (+) | IN |
| 36 | SHUNT 2 (+) | IN |
| 37 | RPM IN 1 (-) | IN |
| 38 | RPM IN 2 (-) | IN |
| 39 | CONFIG MOD DATA | I/O |

| | | |
|---|---|---|
| 74 | GND | -- |
| 75 | SPARE | -- |
| 76 | +5 VDC | OUT |
| 77 | BUS 3 | IN |
| 78 | CONFIG MOD GND | -- |

### 4.2.4 GMU 44B

The GMU 44B has one connector:

- J442/P442 6-pin rectangular connector

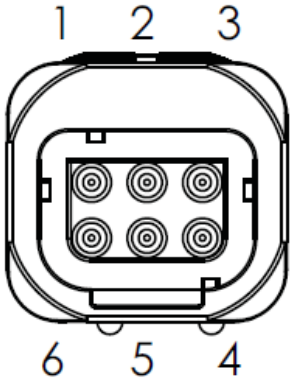



**Figure 4-12 J442/P442 Connector**

**Table 4-10 J442/P442 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | SHIELD GROUND | -- |
| 2 | RS-422 OUT B | OUT |
| 3 | RS-422 OUT A | OUT |
| 4 | POWER GROUND | -- |
| 5 | RS-232 IN | IN |
| 6 | MAG POWER INPUT | IN |

### 4.2.5 GMU 11

The GMU 11 has one connector:

- J111/P111 9-pin female connector

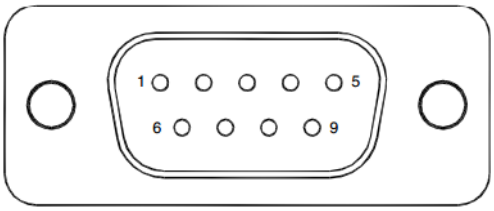



**Figure 4-13 GMU 11 Connector**

**Table 4-11 J111/P111 Connector**

| Pin | Function | I/O |
|---|---|---|
| 1 | CAN BUS HI | I/O |
| 2 | CAN BUS LO | I/O |
| 3 | UNIT ID 1 | IN |
| 4 | RS-232 IN | IN |
| 5 | RS-232 OUT | OUT |
| 6 | SIGNAL GROUND | -- |
| 7 | AIRCRAFT PWR 1 | IN |
| 8 | AIRCRAFT PWR 2 | IN |
| 9 | POWER GROUND | -- |

### 4.2.6 GTP 59

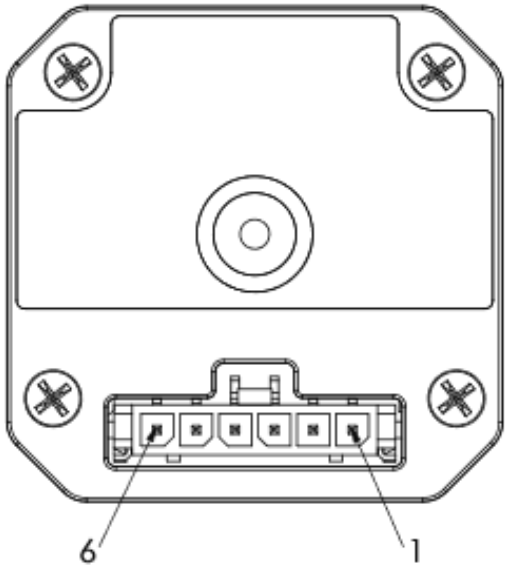
The GTP 59 Temperature Probe does not have a connector. Rather, a 3-conductor shielded cable extends from the sensor for interface with a GI 275 or GDC unit.

**Table 4-12 GTP 59 3-Conductor Shielded Cable**

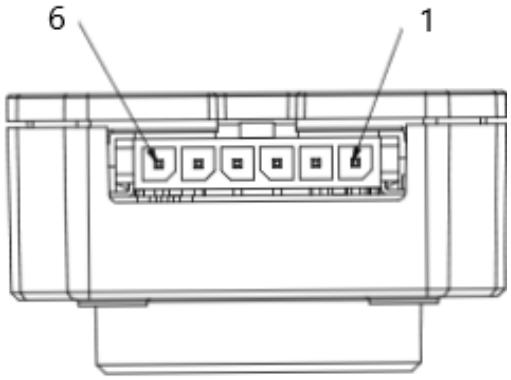
| Conductor Color | Name | I/O |
|---|---|---|
| White | Probe Power Lead | IN |
| Blue | Resistive Element HI | OUT |
| Orange | Resistive Element LO | OUT |

### 4.2.7 GSB 15

The GSB 15 has a 6-pin connector in either a vertical or horizontal position. The connector designation (P201 or P202) is dependent on the part number but the pin numbers and functions are identical.




**P201, GSB 15 Vertical Unit**
**P/N 011-04937-00**




**P202, GSB 15 Right Angle Unit**
**P/N 011-04937-01**

**Figure 4-14 GSB 15 Connectors**

**Table 4-13 J201/P201 & J202/P202**

| Pin | Function | I/O |
|---|---|---|
| 1 | AIRCRAFT POWER | IN |
| 2 | USB DN | I/O |
| 3 | USB DP | I/O |
| 4 | USB GND | -- |
| 5 | BACKLIGHT ENABLE | IN |
| 6 | POWER GROUND | -- |

## 4.3 Troubleshooting Flow Charts

This section provides troubleshooting flow charts for most system failures and alert messages. It is recommended that system troubleshooting and repair only be completed by a Garmin authorized repair facility. If a specific alert or fault condition is not listed, or the fault still exists after completing the given corrective action, contact Garmin Aviation Technical Support at the number listed for your specific region on the "Support" tab of the flyGarmin.com website.

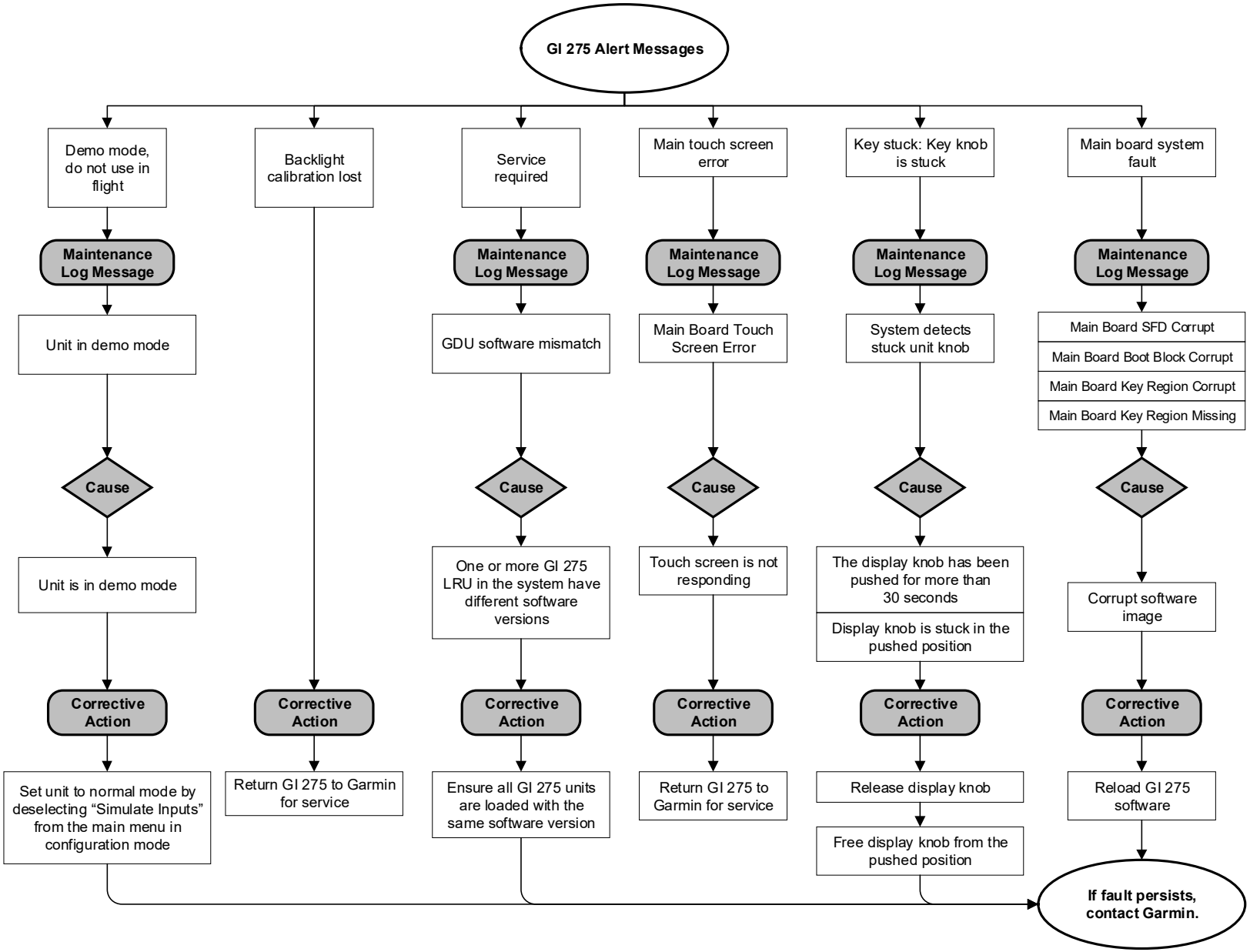



**Figure 4-15 GI 275 Alert Message Troubleshooting**
**Sheet 1 of 2**

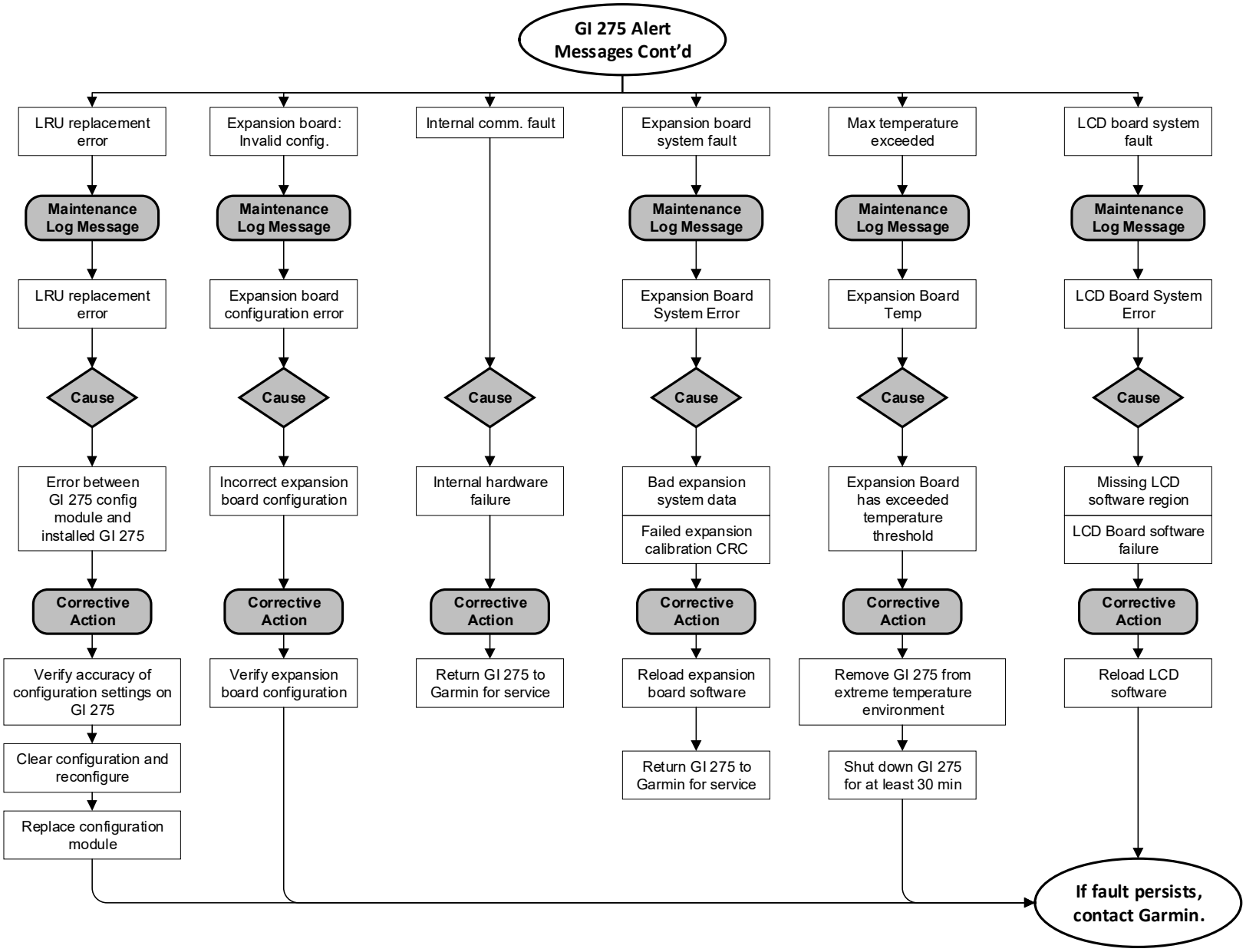



**Figure 4-15 GI 275 Alert Message Troubleshooting**
**Sheet 2 of 2**

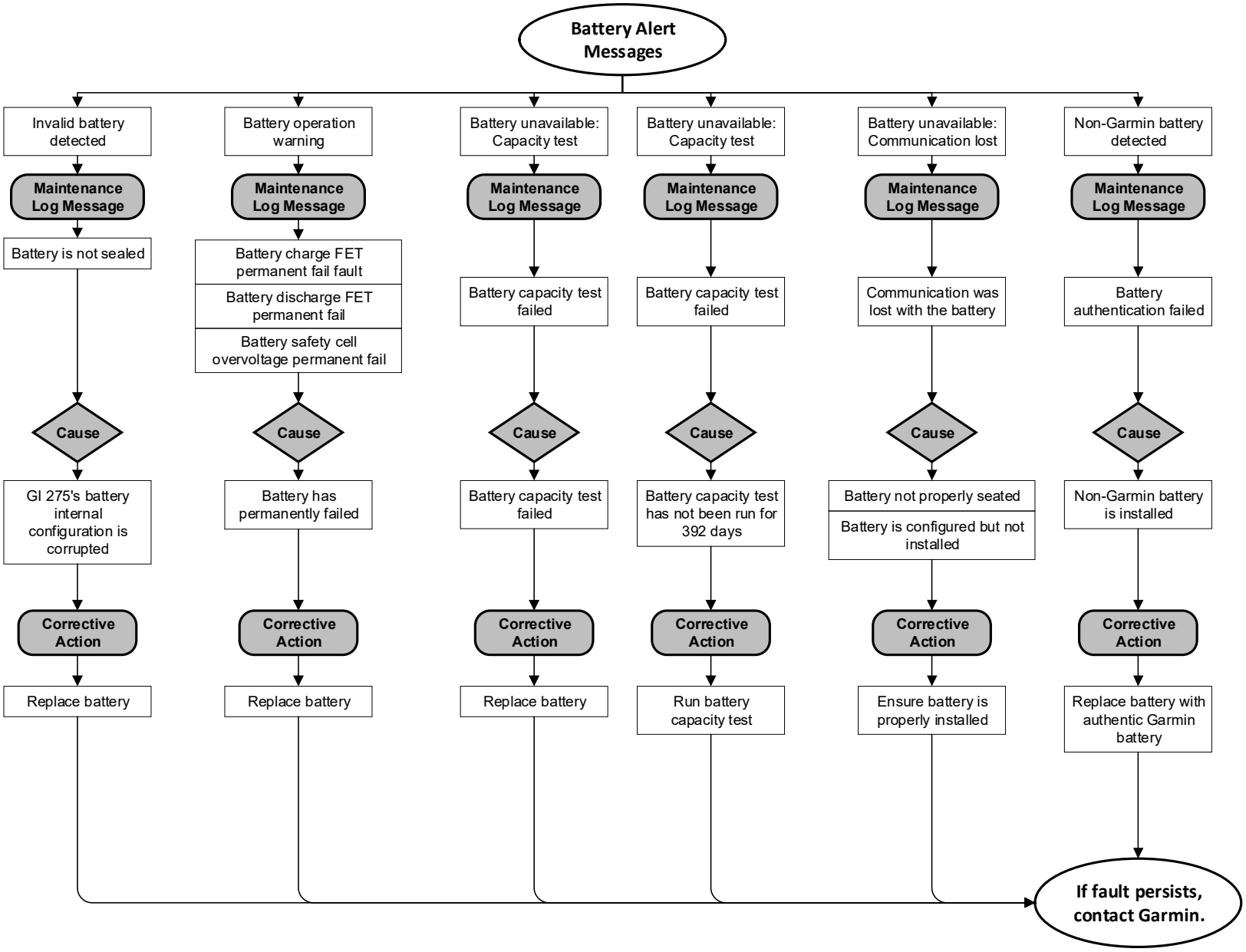



**Figure 4-16 Battery Alert Message Troubleshooting**
**Sheet 1 of 4**

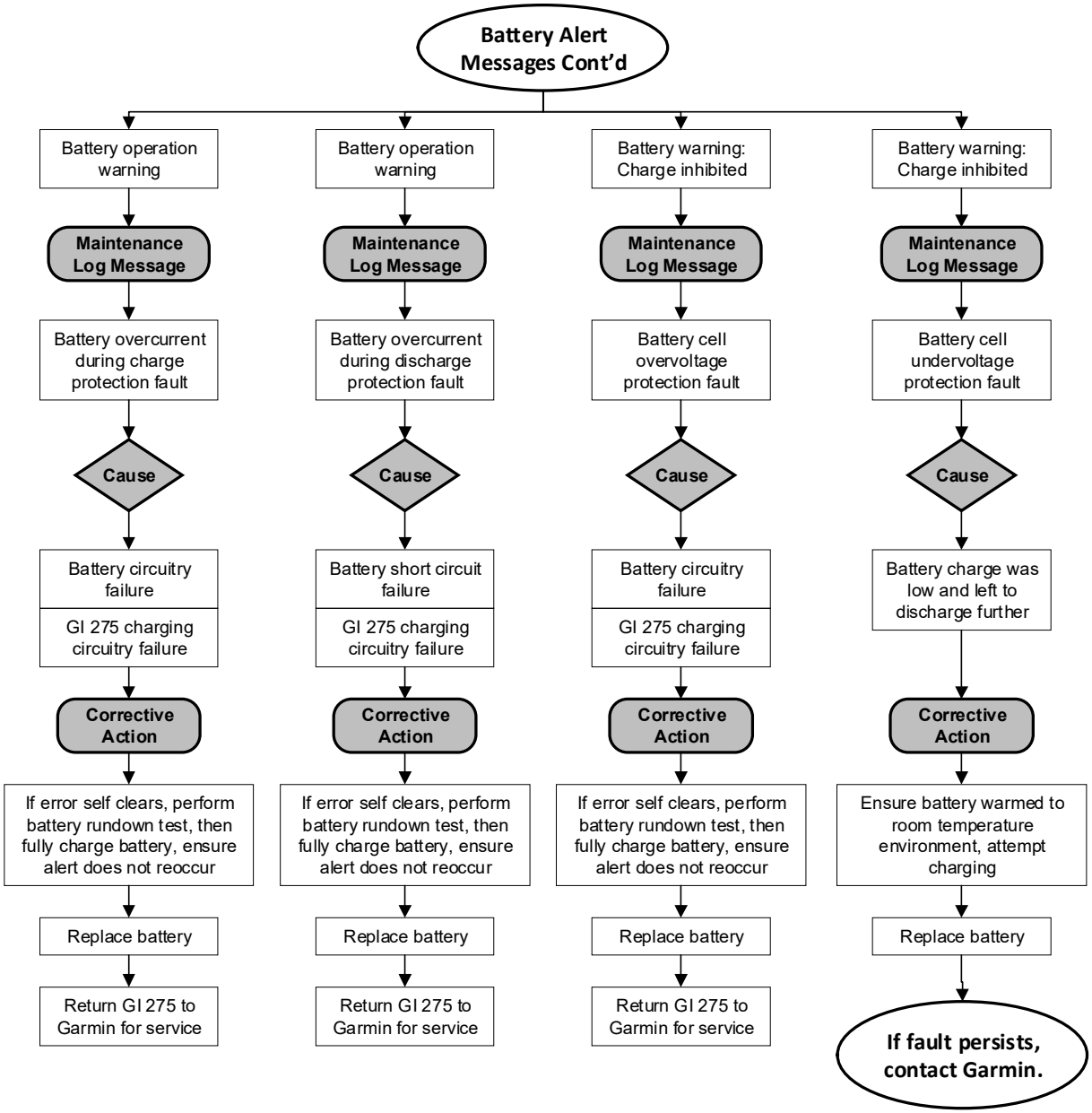



**Figure 4-16 Battery Alert Message Troubleshooting**
**Sheet 2 of 4**

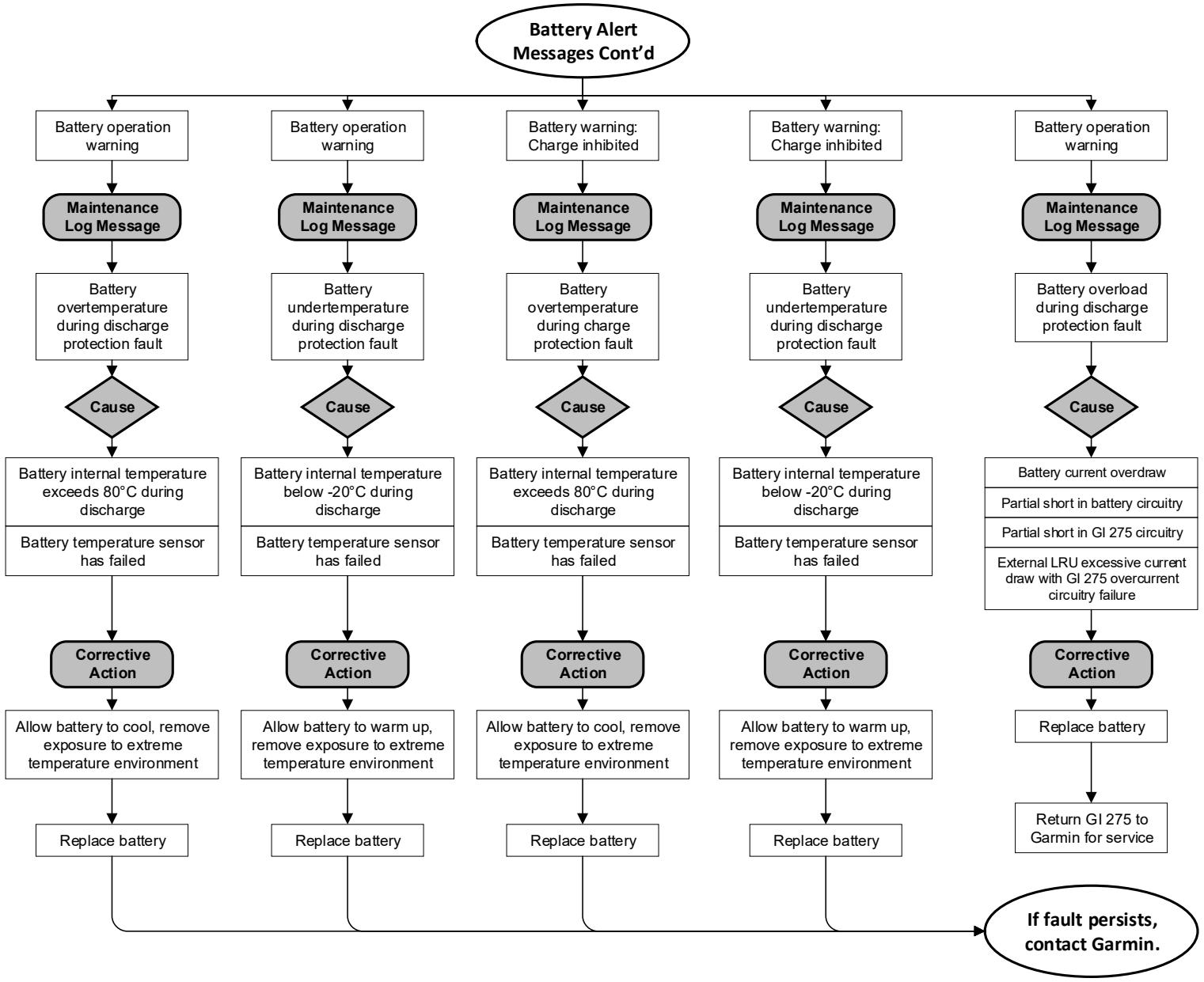



**Figure 4-16 Battery Alert Message Troubleshooting**
**Sheet 3 of 4**

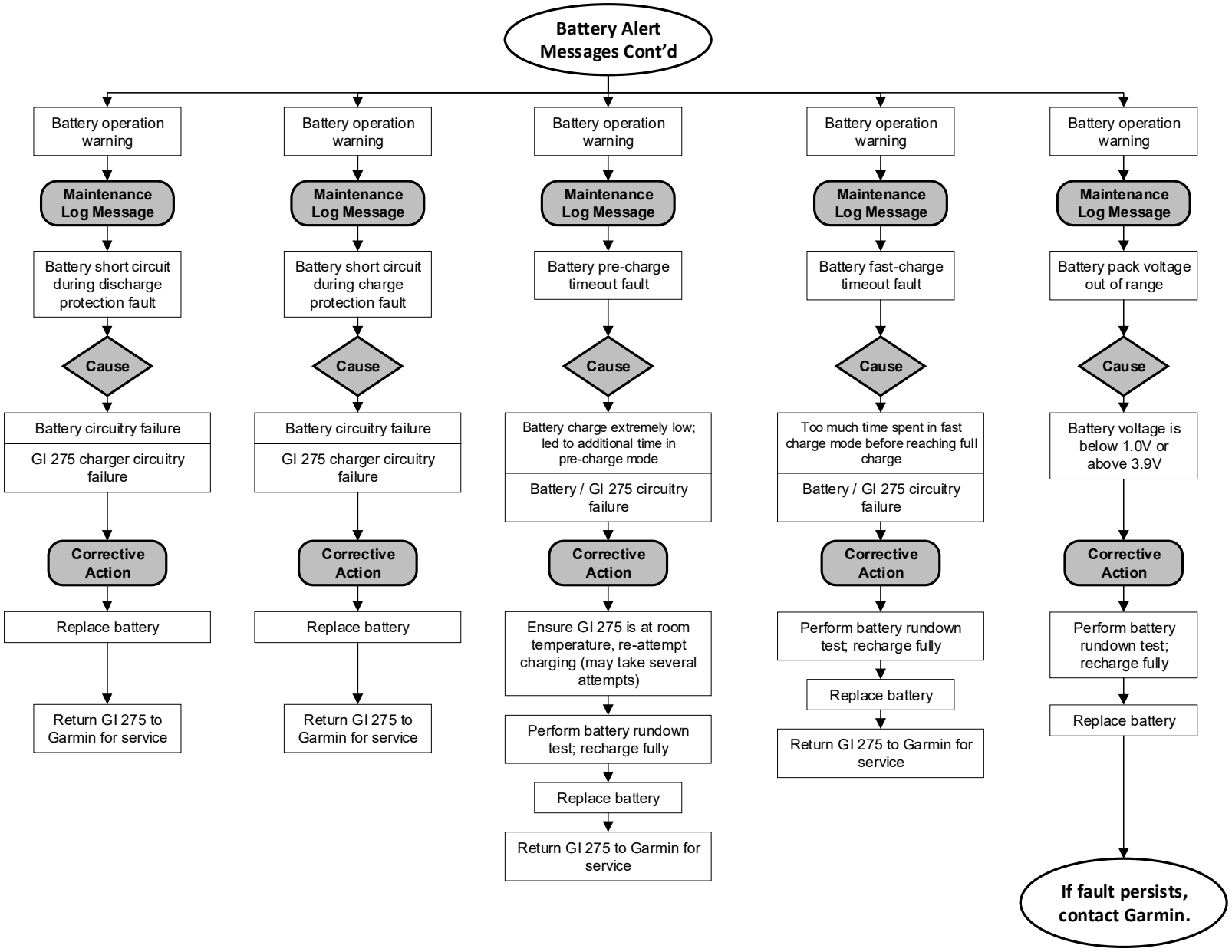



**Figure 4-16 Battery Alert Message Troubleshooting**
**Sheet 4 of 4**

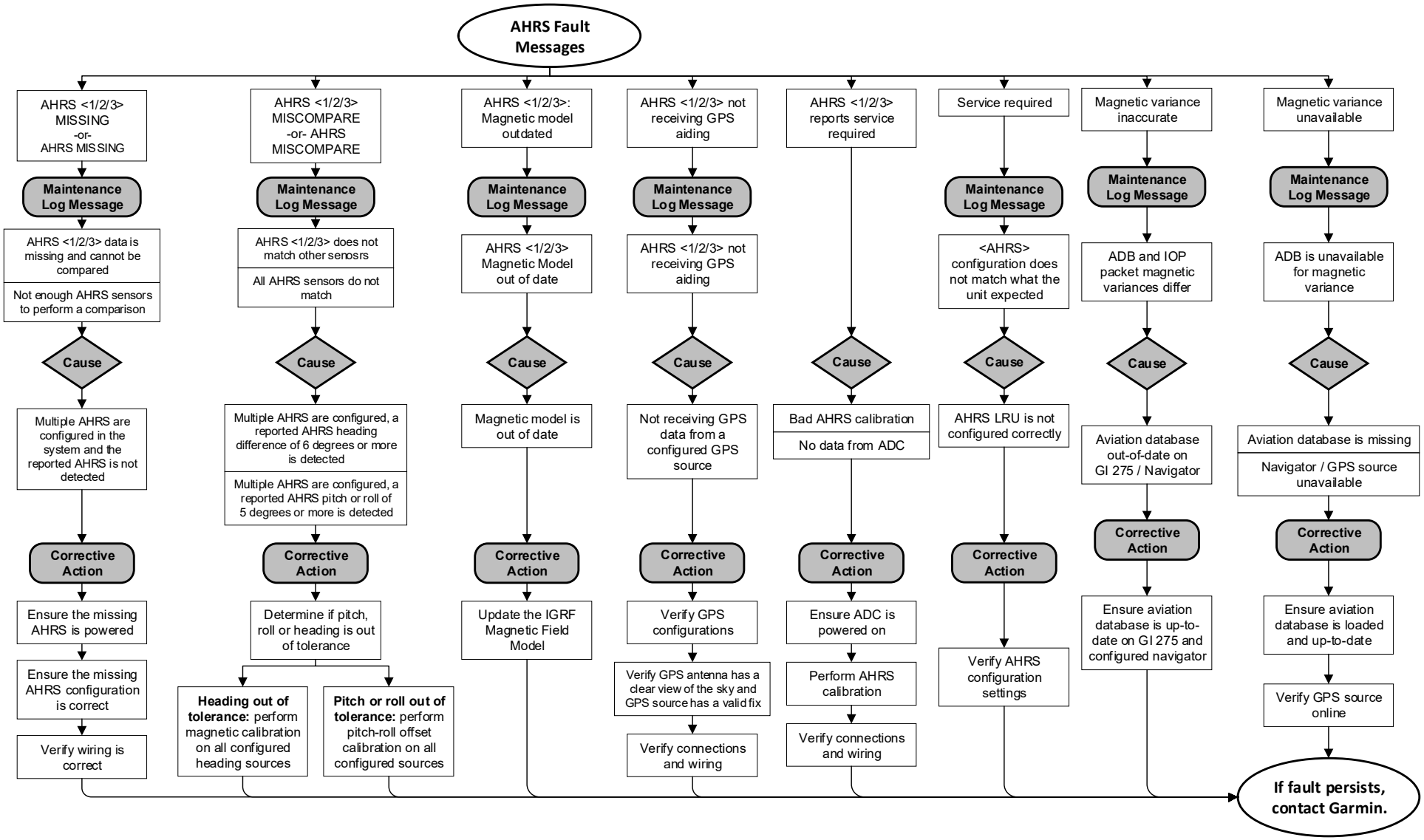



**Figure 4-17 AHRS Alert Message Troubleshooting**

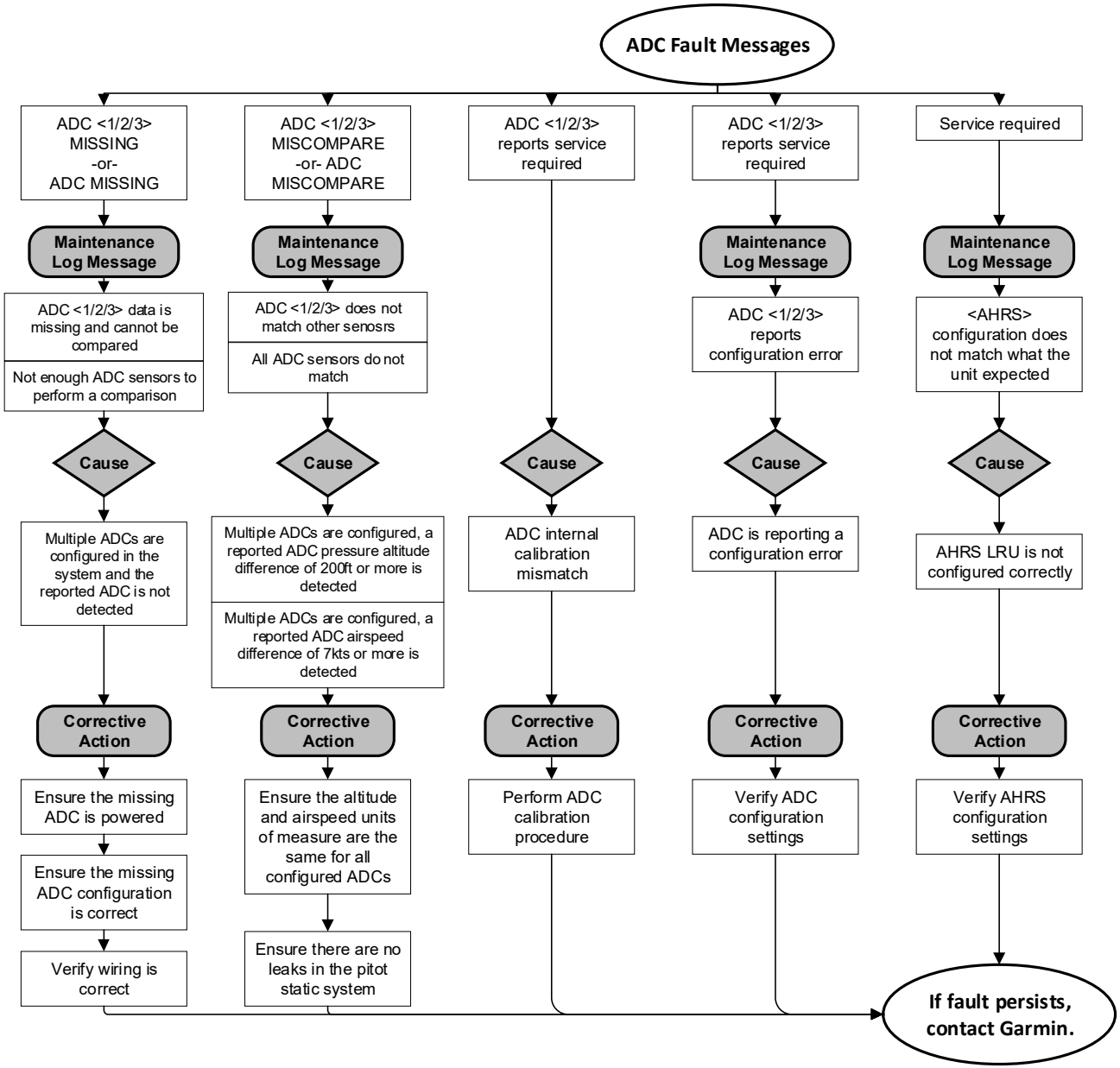



**Figure 4-18 ADC Alert Message Troubleshooting**

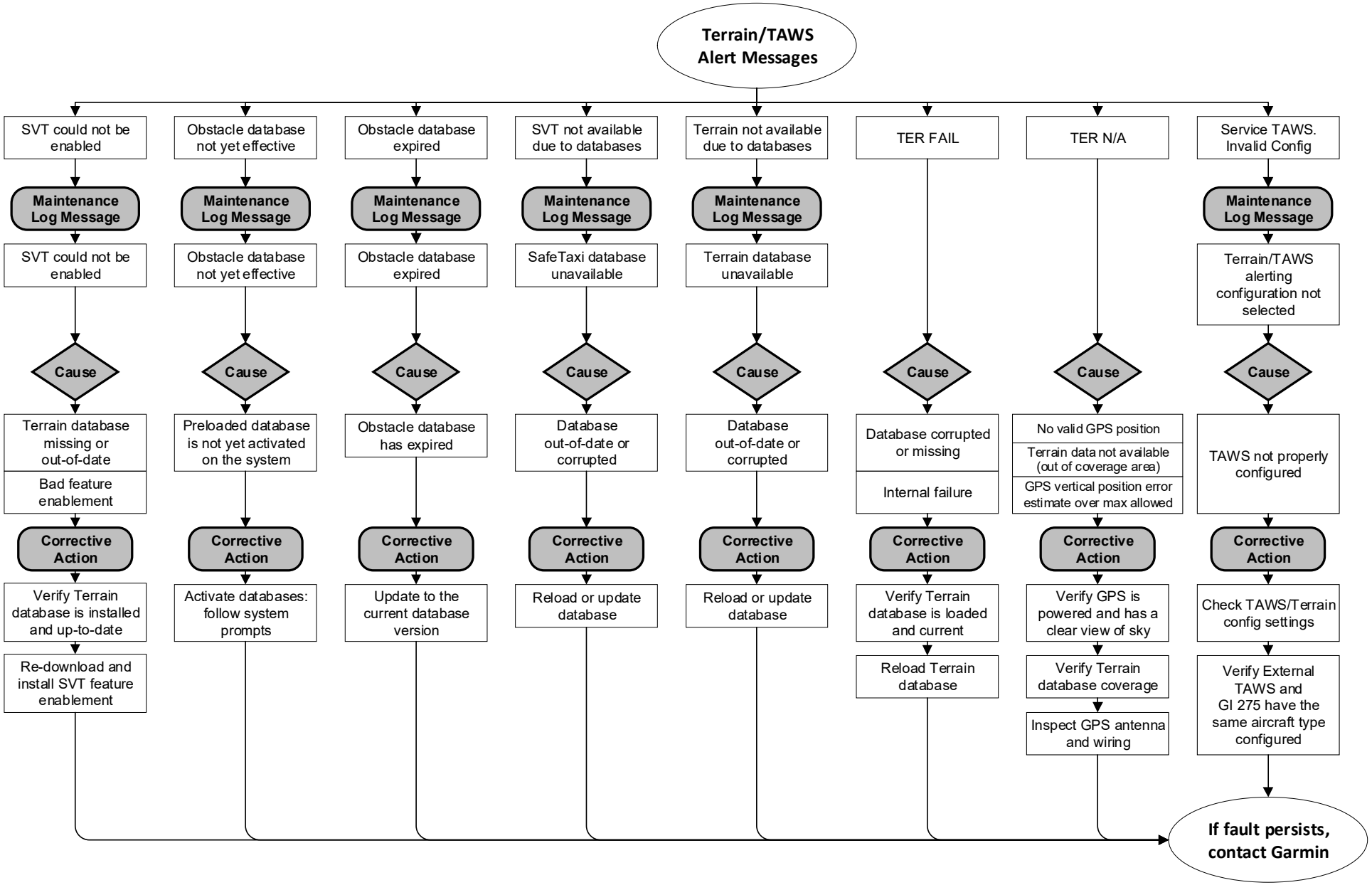



**Figure 4-19 Terrain/TAWS Alert Message Troubleshooting**

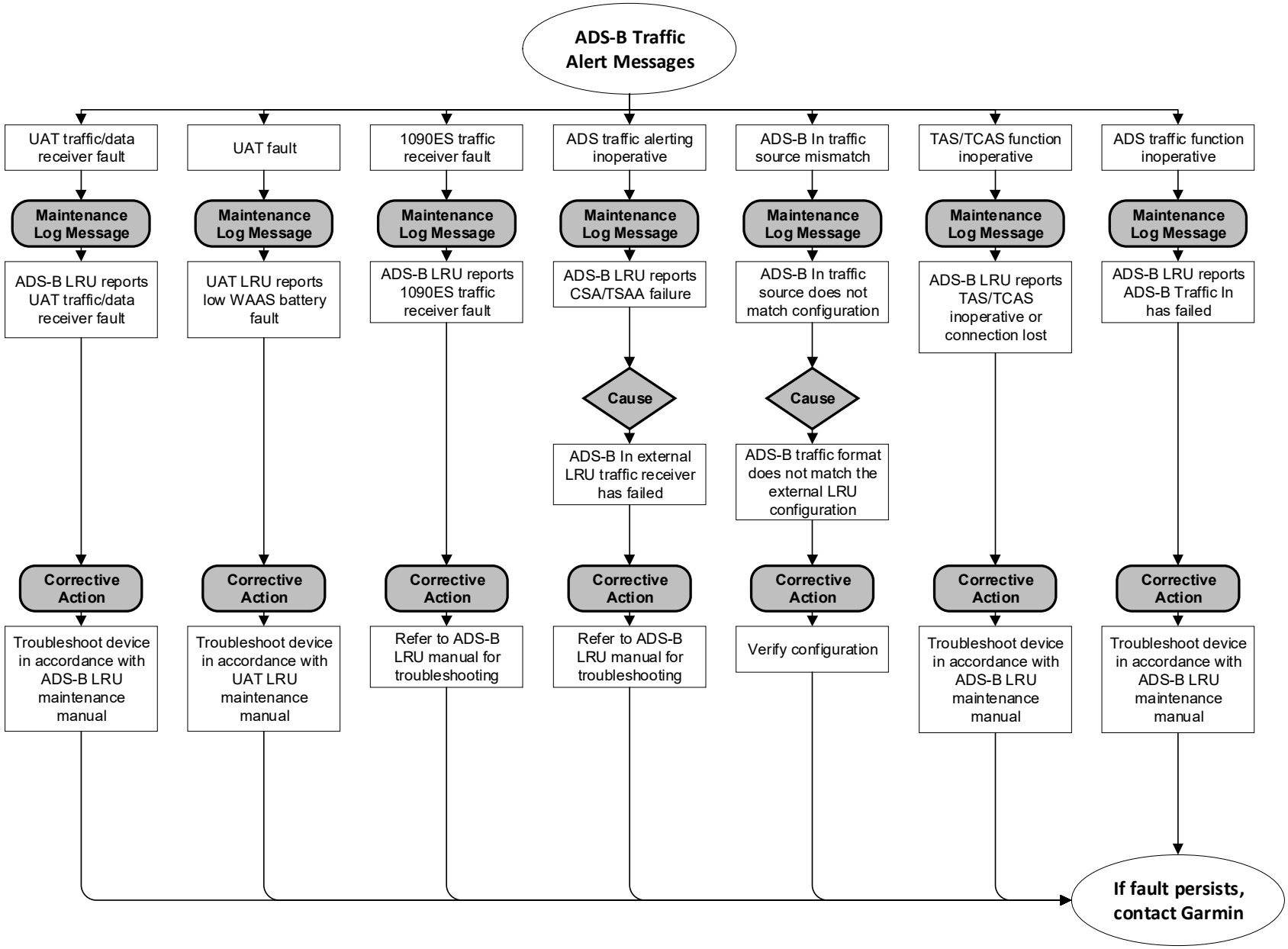



**Figure 4-20 Traffic Alert Message Troubleshooting**
**Sheet 1 of 2**

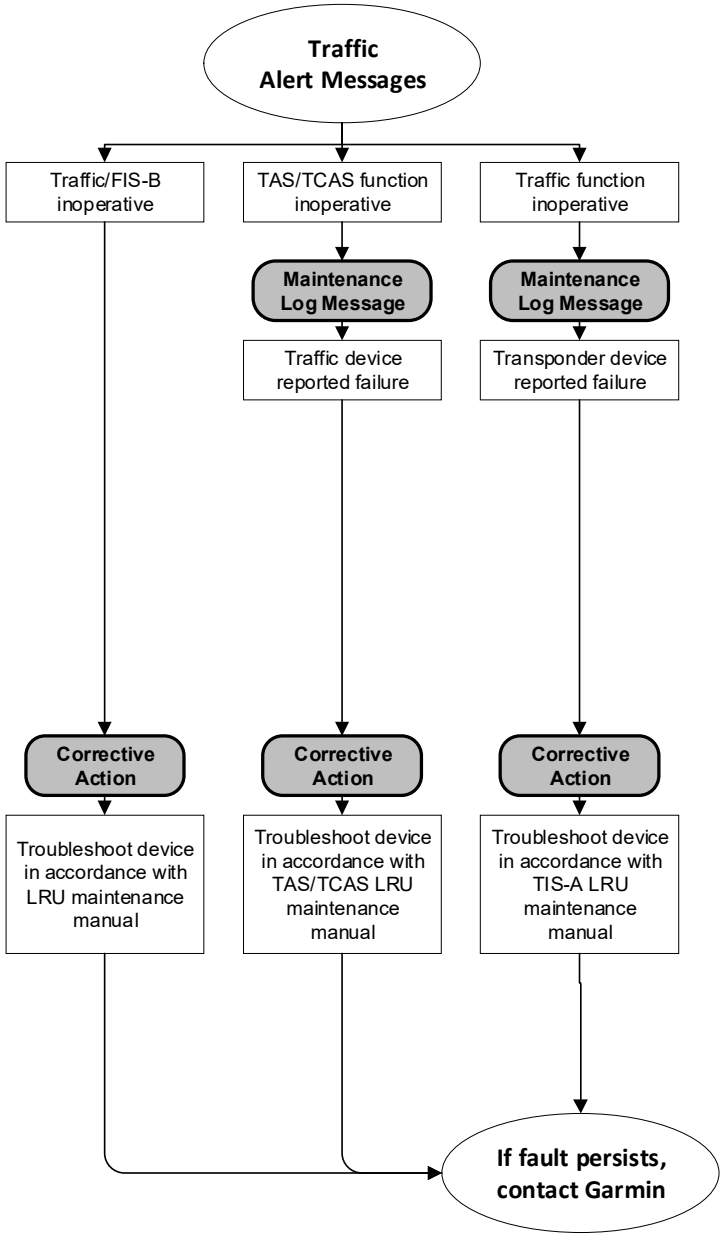



**Figure 4-20 Traffic Alert Message Troubleshooting**
**Sheet 2 of 2**

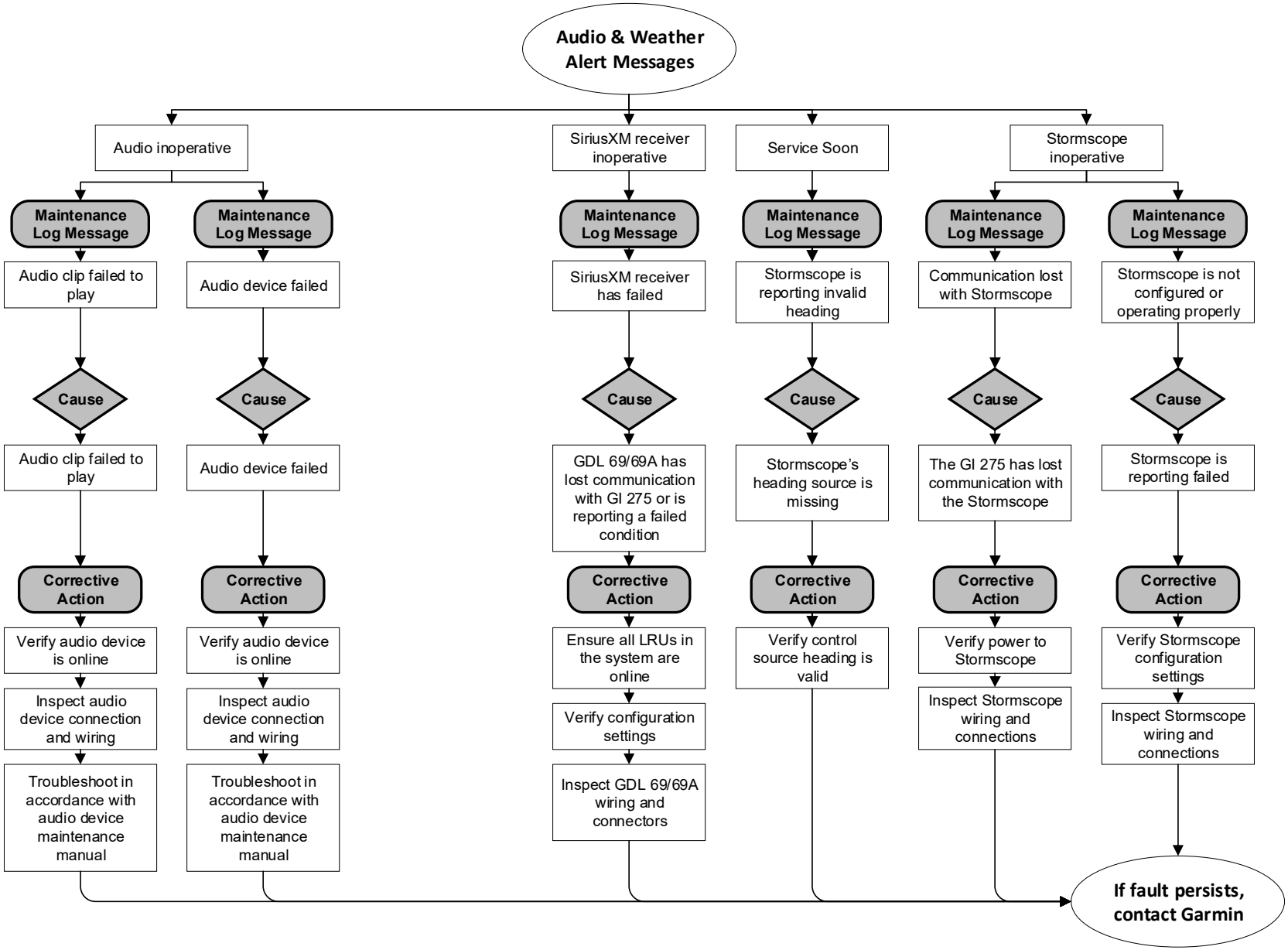



**Figure 4-21 Audio and Weather Alert Message Troubleshooting**

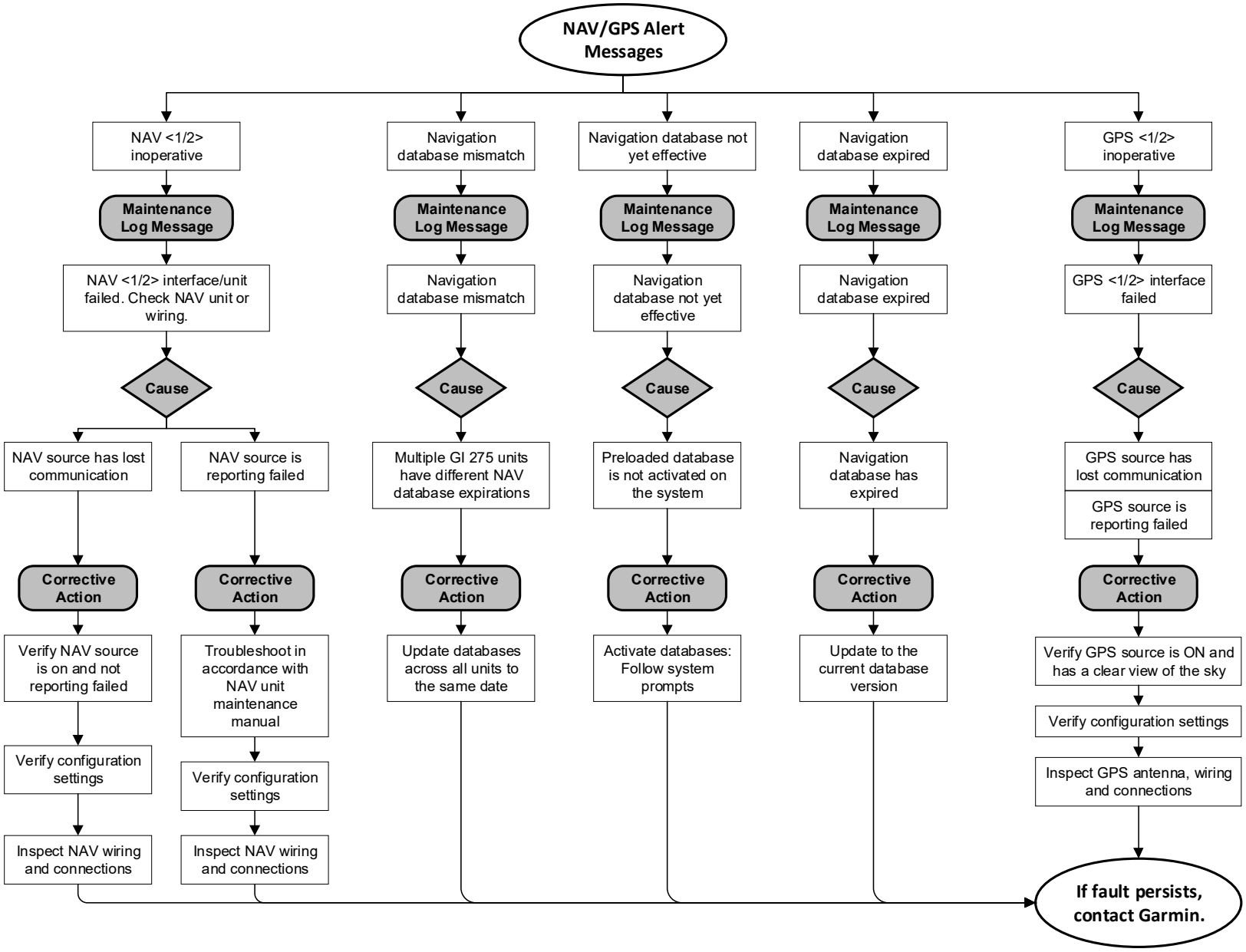



**Figure 4-22 NAV Alert Message Troubleshooting**

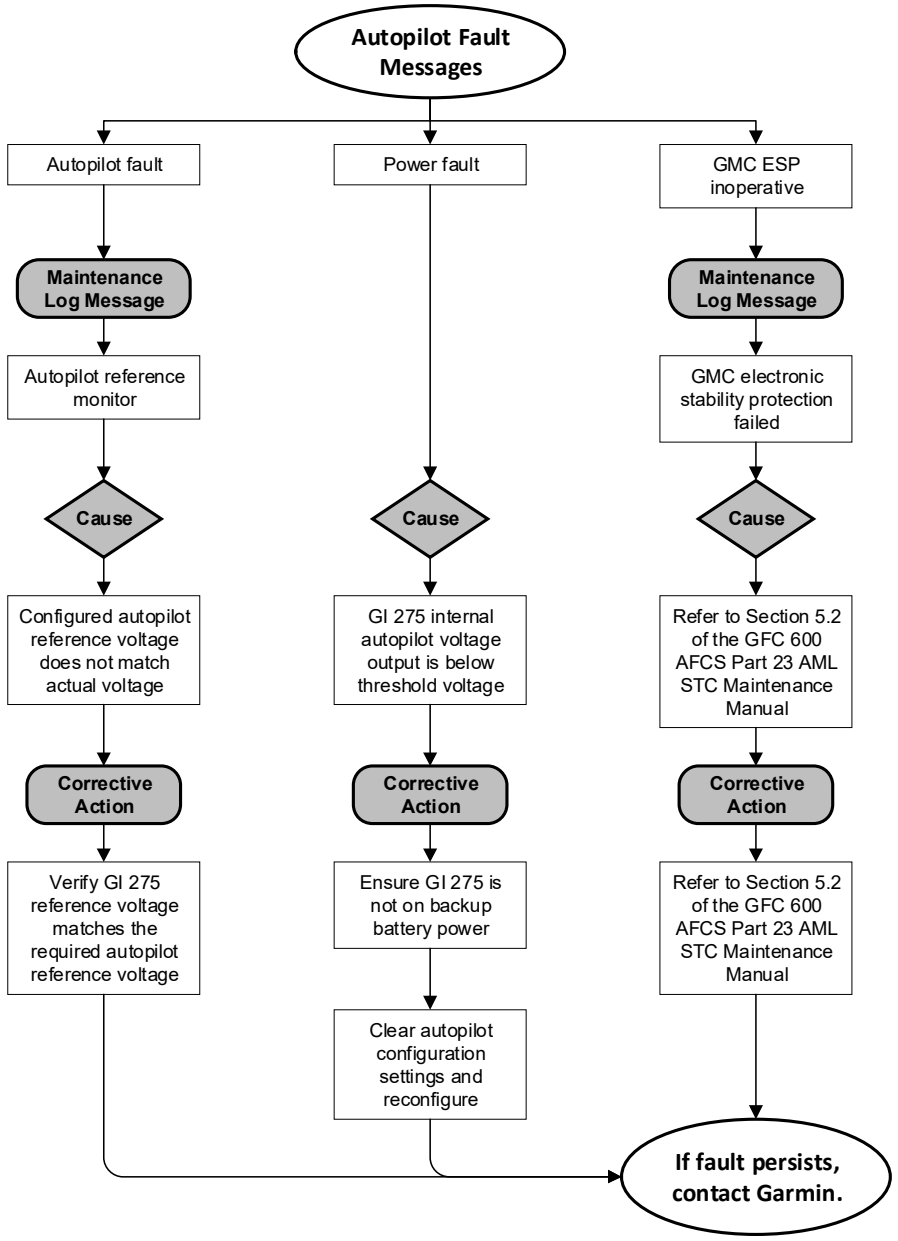



**Figure 4-23 Autopilot Alert Message Troubleshooting**

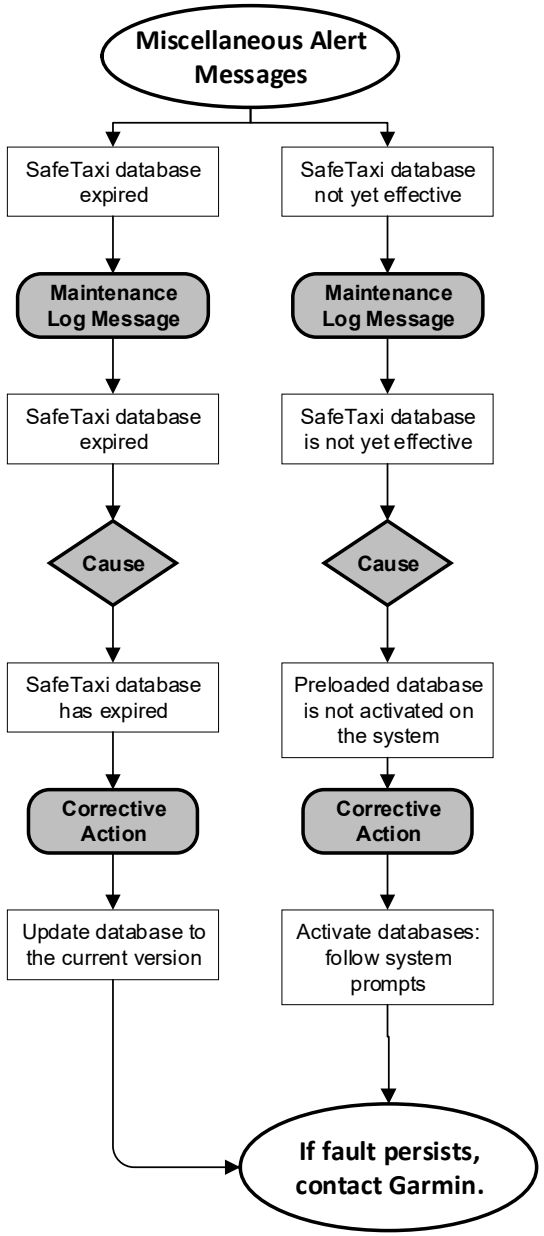



**Figure 4-24 Miscellaneous GI 275 Alert Messages**

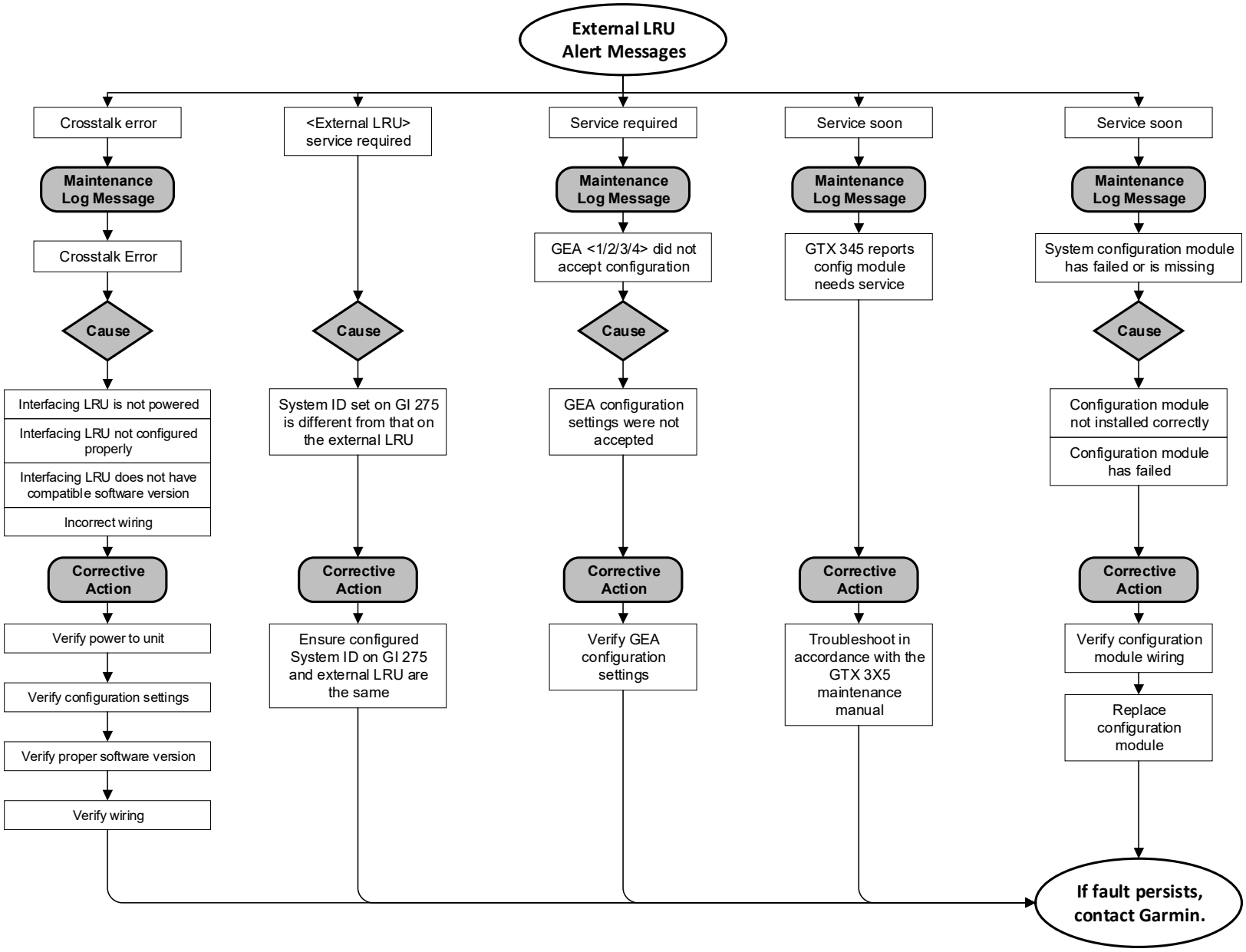
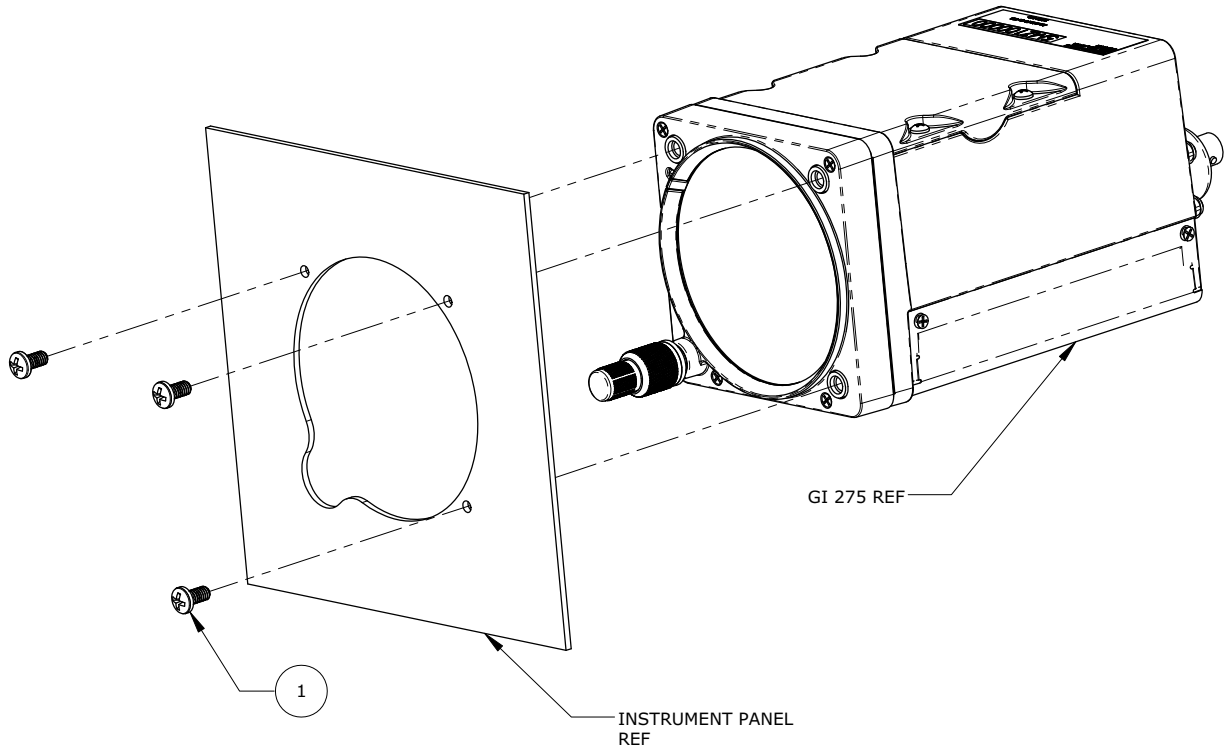



**Figure 4-25 External LRU Alert Message Troubleshooting**

# 5 EQUIPMENT MAINTENANCE AND CHECKOUT PROCEDURES

This section provides the procedures to remove, replace, and re-install required and optional LRUs that are part of the GI 275 system. Refer to Section 4.2 for the definition of connectors and pin functions for GI 275 system LRUs. Before performing any maintenance on the GI 275 system, all information in Appendix A must be filled out. It is highly recommended to save the system configuration to a USB drive and print the configuration log before replacing any system LRUs.

## 5.1 GI 275




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 3 | MS35214-XX [1] [2] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, BRASS 0.164-32 UNC-24 |
| | | OR | |
| | | MS24693BB-XX [1] [2] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°, CROSS-RECESSED, BRASS, #8-32 UNC-2A |

**Notes:**

[1] Screws can be substituted with any other suitable aerospace steel screws.

[2] Torque screws to 8.0 ± 1.0 in-lbf.

**Figure 5-1 GI 275 Installation**

### 5.1.1 GI 275 Removal

Remove the GI 275 using the following procedure:

1. Ensure the current configuration is saved to a USB drive in accordance with the instructions in Section 2.3.4.
2. Power off the GI 275 and remove power.
3. Remove the three screws retaining the GI 275 in the instrument panel.
4. Remove the backshell connectors (one or two) from the back of the GI 275.
5. Remove the BNC connector, if installed.
6. Disconnect the pitot-static connections.

### 5.1.2 GI 275 Configuration Module Replacement

To replace a GI 275 configuration module, perform the following procedure. All item numbers in this procedure refer to Figure 5-2. If replacing the configuration module on the Master display, the System ID will change and must be updated on the associated flyGarmin.com account to re-enable purchased feature enablements on the system.

1. Save the current configuration in accordance with the instructions in Section 2.3.4.
2. Remove the GI 275 in accordance with Section 5.1.1.
3. Remove the backshell cover (**7**) from connector J2751 by removing the two screws (**8**).
4. Remove the screw (**10**) securing the configuration module (**1**) to the backshell (**6**).
5. Lift the configuration module (**1**) out of the backshell (**6**) and disconnect the wiring harness (**3**) from the module.
6. Inspect the wiring harness (**3**) and connector pins (**4**) for damage, loose wiring, or corrosion. Replace all deficient components if any of these conditions are found.
7. Connect the harness to the new configuration module.
8. Install the new configuration module in the connector backshell (**6**) and re-install the cover (**7**).
9. Re-install the GI 275 in accordance with Section 5.1.3.
10. If desired, import the saved configuration into the new configuration module using the procedure in Section 2.3.3.

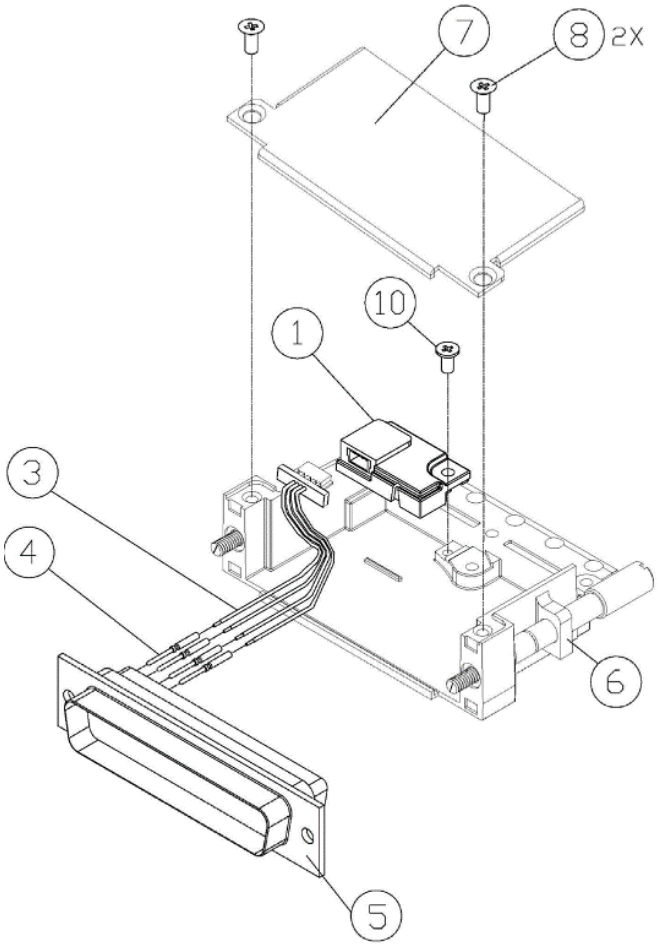



**Figure 5-2 Configuration Module Installation**

### 5.1.3 GI 275 Re-installation

To re-install the GI 275, perform the following procedure:

1. Place the GI 275 into the instrument panel cutout.
2. Install the three screws. Torque to specifications in Figure 5-1.
3. Connect the pitot-static connections.
4. Connect the wiring connector(s) and any installed antenna wires to the back of the GI 275 and tighten the retaining screws.
5. Perform the Configuration mode ground checks in Section 5.14.1.

## 5.2 EIS Annunciator

### 5.2.1 EIS Annunciator Removal

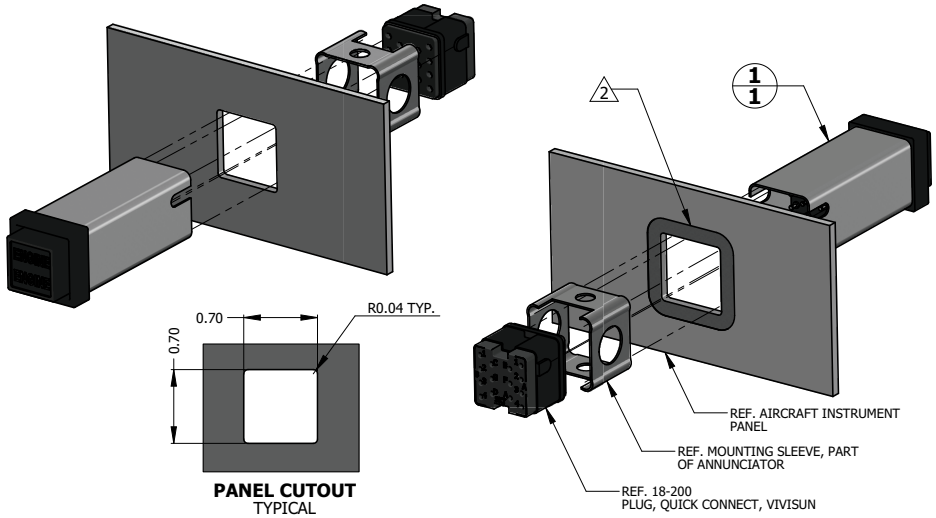
The Applied Avionics EIS caution and warning annunciator can be removed using the following procedure:

1. Using an Aerospace Optics cap extraction tool (P/N 17-150), locate the two extraction slots positioned on either side of the pushbutton cap.
2. Insert the tool into the extraction slots and pull the cap out from the module.

**NOTE**

*The cap will rotate 90° on two hinged slide retainer pins to allow access to the module mounting screws.*

3. Loosen the two small flat head module mounting screws located behind the pushbutton cap until the module can be removed from the housing.
4. Insert an Aerospace Optics connector extraction tool (P/N 18-234) into the slots at the top and bottom of the electrical connector.
5. Push to release the snap tabs in the switch housing and gently pull the connector out of the module.




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 95-40-17-B4-E1WPM | ANNUNCIATOR, 14 VDC INCANDESCENT, CAUTION AND WARNING, ENGINE INDICATION, AEROSPACE OPTICS |
| | | LED-40-17-BM-E1WPM | ANNUNCIATOR, 28 VDC LED, CAUTION AND WARNING, ENGINE INDICATION, AEROSPACE OPTICS |

**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
2. AREA IN DIRECT CONTACT WITH ANNUNCIATOR MOUNTING SLEEVE AT THE BACK SIDE OF INSTRUMENT PANEL MUST BE PREPARED FOR ELECTRICAL BOND TO ACHIEVE DIRECT CURRENT RESISTANCE LESS THAN OR EQUAL TO 10 MILLIOHMS AS MEASURED BETWEEN ANNUNCIATOR BODY AND AIRCRAFT INSTRUMENT PANEL WITH CONNECTOR DISCONNECTED.

**Figure 5-3 EIS Caution and Warning Annunciator Installation**

### 5.2.2 EIS Annunciator Re-installation

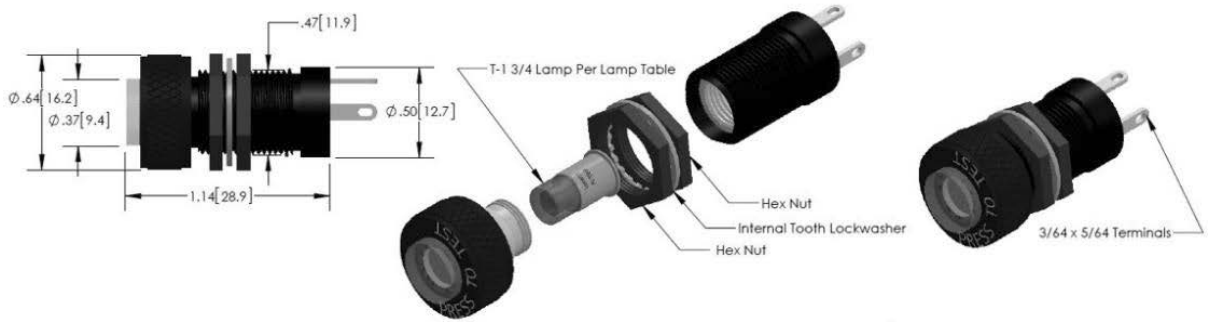
Re-installation of the annunciator is accomplished using the following procedure:

1. Orient the keyed electrical connector to the module and press together until locked.
2. Orient the annunciator for proper viewing and gently slide the module into the housing until seated.
3. Tighten the mounting screws until the module is fully seated in the housing.
4. Rotate the cap back into position on the module and gently press until secured.

### 5.2.3 Separate EIS Annunciator Removal

The Mil-Spec EIS annunciators can be removed using the following procedure:

1. Remove the lens holder from the indicator.
2. Remove the lamp from the lens holder.
3. Remove the MS25041 assembly.




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | MS25041-4-327 | ANNUNCIATOR, YELLOW, PRESS TO FIT FOR 28V AIRCRAFT |
| 2 | 1 | MS25041-2-327 | ANNUNCIATOR, RED, PRESS TO FIT FOR 28V AIRCRAFT |
| 3 | 1 | MS25041-4-330 | ANNUNCIATOR, YELLOW, PRESS TO FIT FOR 14V AIRCRAFT |
| 4 | 1 | MS25041-2-330 | ANNUNCIATOR, RED, PRESS TO FIT FOR 14V AIRCRAFT |

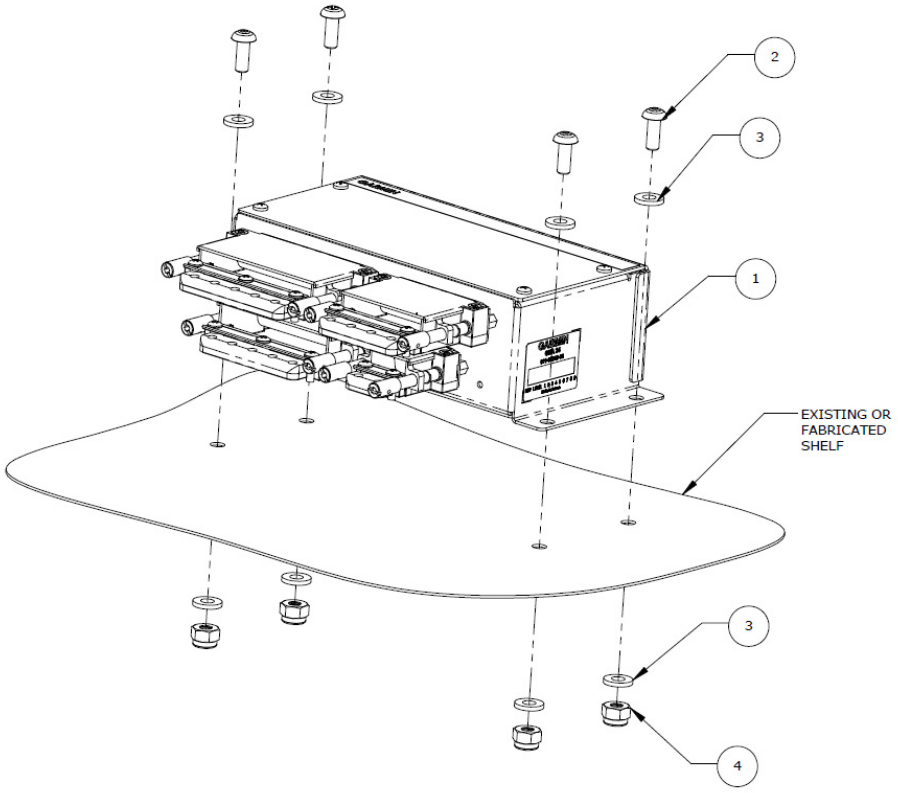
**Figure 5-4 Separate EIS Annunciator Installation**

### 5.2.4 Separate EIS Annunciator Re-installation

Re-installation of the annunciators is accomplished using the following procedure:

1. Insert the MS25041 assembly without lens holder from the forward side of the panel and secure.
2. Install lamp on the lens holder.
3. Install and secure lens holder on the indicator.

## 5.3 GEA 24




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 011-02848-01 | GEA 24 REMOTE MOUNTED ENGINE INTERFACE UNIT |
| 2 | 4 | MS35207-XX [1] [2] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CARBON STEEL, CADMIUM PLATED, #10-32 UNF-2A |
| 3 | 8 | NAS1149F0363P | WASHER |
| 4 | 4 | MS21044N3 [3] | NUT SELF-LOCKING, HEXAGON REGULAR HEIGHT, 250°F, CADMIUM PLATED, STEEL, #10-32 |

**Notes:**

[1] Screws can be substituted by any other suitable aerospace steel screws.

[2] Torque 0.190-32 UNF-2A screws 13.5 ± 1.0 in-lbf.

[3] Nut can be substituted by any suitable aerospace steel self-locking nuts or nutplates.

**Figure 5-5 Example GEA 24 Installation**

### 5.3.1 GEA 24 Removal

To remove the GEA 24, perform the following procedure:

1. Remove power from the GEA 24.
2. Disconnect the four electrical connectors.
3. Remove the four screws.

### 5.3.2 GEA 24 Re-installation

To re-install the GEA 24, perform the removal procedures in reverse.

If the GEA 24 was replaced, the sensor configurations must be loaded to the new unit using the following procedure:

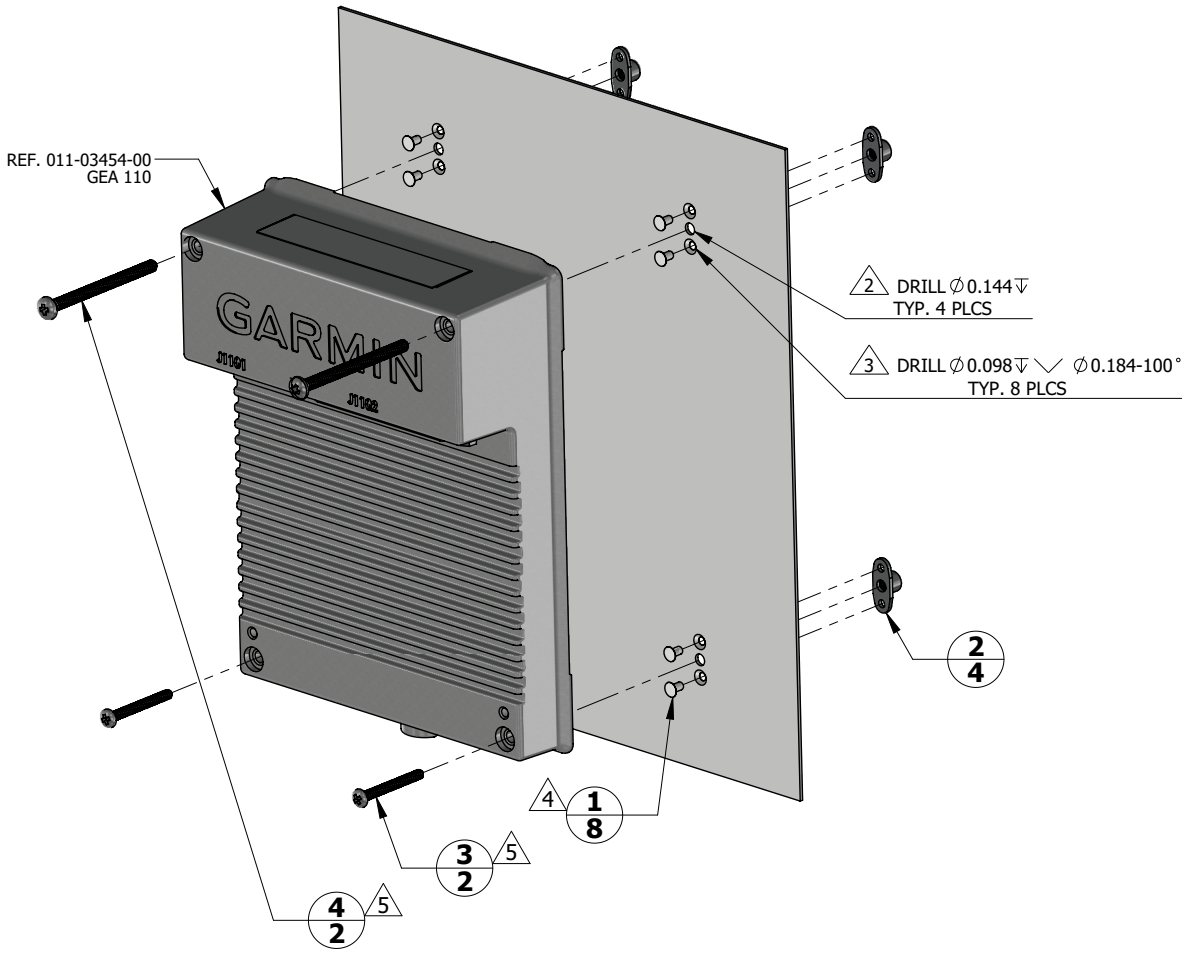
1. Power on the GI 275 that is directly interfaced to the GEA 24 into Configuration mode.
2. Insert the USB drive containing the saved configuration into the USB dongle or GSB 15. A USB icon should appear in the bottom-left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
3. Touch the **SW/Config** button, then the **Config Options** button.
4. Touch the **Import Configuration** button.
5. Touch the **Select Files** button and select the appropriate aircraft configuration file.
6. Touch the **Select Configuration** button.
7. Touch the **EIS Sensor Config** button to select it. Touch the **Back** button.
8. Touch the **Import Config** button and then the **Start** button.
9. A restart is required to complete import. Touch the **Restart Now** button.

### 5.3.3 GEA 24 Checkout

Perform the Configuration Mode Ground Checks described in Section 5.14.1. If the GEA 24 does not pass the checks in this step, reload the sensor configurations using the procedure in Section 5.3.2 and perform the checkout procedure again.

If the GEA 24 was replaced or did not initially pass the checkout procedure, perform the EIS Ground Checks described in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10) or *GI 275 STC EIS & MFD Installation Manual* (P/N 190-02246-14).

## 5.4 GEA 110




| QTY. | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 2 | 4 | MS35206-237 | SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CAD PLATED .1380- 32 UNC-2A, 1.750 IN LONG |
| 2 | 3 | MS35206-234 | SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CAD PLATED .1380- 32 UNC-2A, 1.000 IN LONG |
| 4 | 2 | MS21069L06 | NUT, SELF-LOCKING, PLATE, TWO-LUG, REDUCED RIVET SPACING, LOW HEIGHT, STEEL .138-32 UNJC-3B |
| 8 | 1 | MS20426AD3-3 | RIVET, SOLID, COUNTERSUNK 100 DEG, PRECISION HEAD, 3/32 IN OD, 3/16 IN LONG |

**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

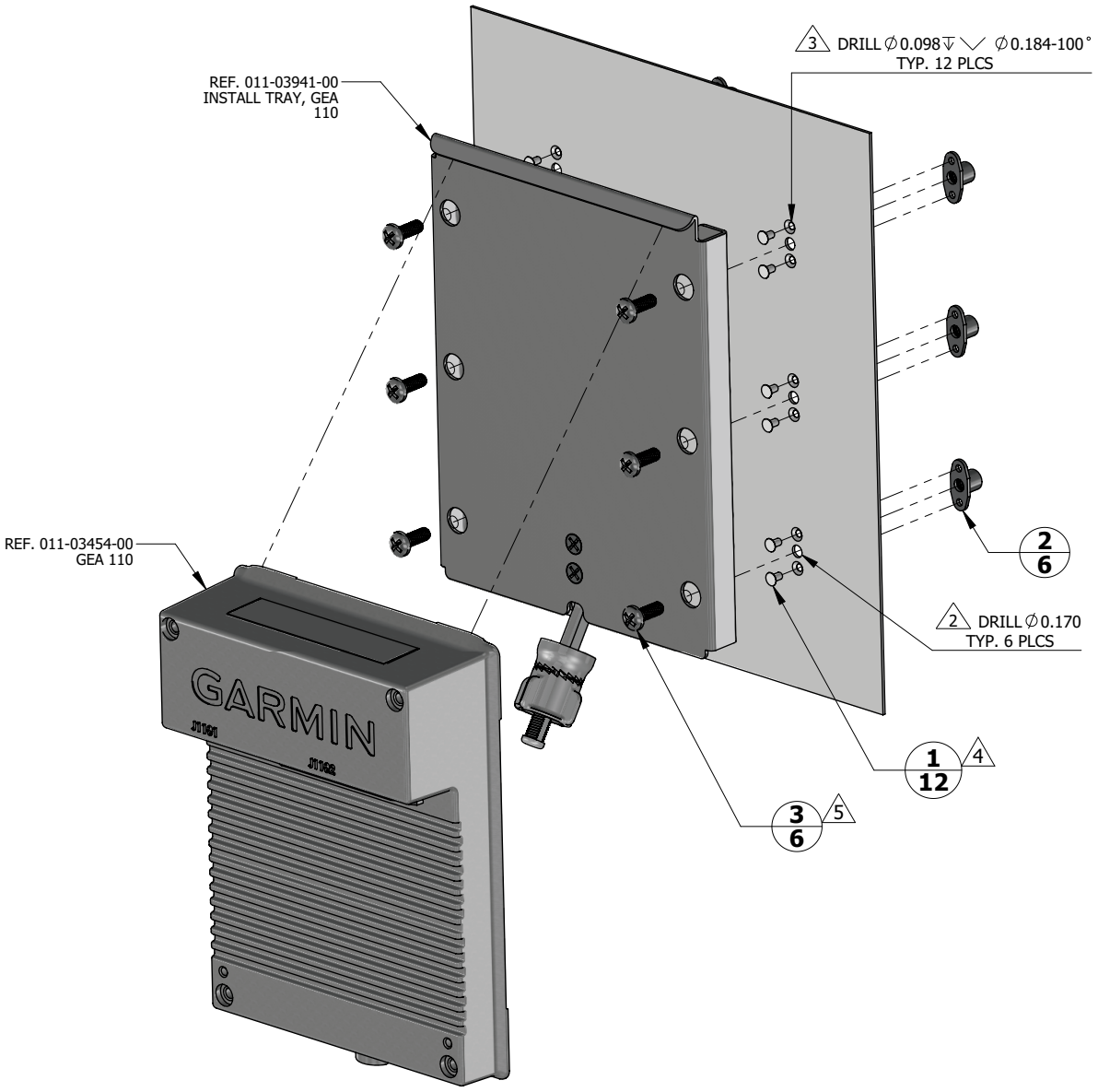
2 FASTENER HOLES ARE LOCATED TO MATCH GEA 110.

3 FASTENER HOLES ARE LOCATED TO MATCH NUTPLATE ITEM 2.

4 RIVETS ARE INSTALLED PER MIL-R-47196 (NASM47196) RIVET, BUCK TYPE, *PREPARATION FOR AND INSTALLATION,* OR PER MIL-STD-403 *PREPARATION FOR AND INSTALLATION OF RIVETS AND SCREWS, ROCKET MISSILE, AND AIRFRAME STRUCTURES.*

5 TORQUE .1380-32 UNC-2A SCREWS 8.0 ± 1.0 LBF-IN.

**Figure 5-6 GEA 110 Installation (Mounted Directly to Airframe Example)**




| QTY. | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 6 | 3 | MS27039-0807 | SCREW, MACHINE, PAN HEAD, STRUCTURAL, CROSS RECESSED .1640-32 UNC-3A, 0.469 IN |
| 6 | 2 | MS21069L08 | NUT, SELF-LOCKING, PLATE, TWO-LUG, REDUCED RIVET SPACING, LOW HEIGHT, STEEL .164-32 UNJC-3B |
| 12 | 1 | MS20426AD3-3 | RIVET, SOLID, COUNTERSUNK 100 DEG, PRECISION HEAD, 3/32 IN OD, 3/16 IN LONG |

**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

△2 FASTENER HOLES ARE LOCATED TO MATCH GEA 110 INSTALL TRAY.

△3 FASTENER HOLES ARE LOCATED TO MATCH NUTPLATE ITEM 2.

△4 RIVETS ARE INSTALLED PER MIL-R-47196 (NASM47196) RIVET, BUCK TYPE, *PREPARATION FOR AND INSTALLATION,* OR PER MIL-STD-403 *PREPARATION FOR AND INSTALLATION OF RIVETS AND SCREWS, ROCKET MISSILE, AND AIRFRAME STRUCTURES.*

△5 TORQUE .1640-32 UNC-2A SCREWS 13.5 ±1.5 LBF-IN.

**Figure 5-7 GEA 110 Installation (Mounted on a Tray Example)**

### 5.4.1 GEA 110 Removal

To remove the GEA 110, perform the following procedure:

1. Remove power from the GEA 110.
2. Disconnect the two electrical connectors.
3. If the unit is mounted on a tray, as shown in Figure 5-7, pull out on the mounting knob and turn counterclockwise to loosen it enough to rotate the arm down and away from the unit.
4. If the unit is mounted to the airframe using screws, as shown in Figure 5-6, loosen the four screws securing the unit to the airframe.

### 5.4.2 GEA 110 Re-installation

To re-install the GEA 110, perform the removal procedures in reverse. If the unit is mounted to the airframe, torque the screws to the specification in Figure 5-6. For units that are mounted in a mounting tray, tighten the mounting screw by hand until the unit is secure.

If the GEA 110 was replaced, the sensor configurations must be loaded to the new unit using the following procedure:

1. Power on the GI 275 that is directly interfaced to the GEA 110 into Configuration mode.
2. Insert the USB drive containing the saved configuration into the USB dongle or GSB 15. A USB icon should appear in the bottom-left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
3. Touch the **SW/Config** button, then the **Config Options** button.
4. Touch the **Import Configuration** button.
5. Touch the **Select Files** button and select the appropriate aircraft configuration file.
6. Touch the **Select Configuration** button.
7. Touch the **EIS Sensor Config** button to select it. Touch the **Back** button.
8. Touch the **Import Config** button and then the **Start** button.
9. A restart is required to complete import. Touch the **Restart Now** button.

### 5.4.3 GEA 110 Checkout

Perform the Configuration Mode Ground Checks described in Section 5.14.1. If the GEA 110 does not pass the checks in this step, reload the sensor configurations using the procedure in Section 5.4.2 and perform the checkout procedure again.

If the GEA 110 was replaced or did not initially pass the checkout procedure, perform the EIS Ground Checks described in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10).

## 5.5 Backup Battery

### 5.5.1 Backup Battery Removal

1. Remove the GI 275 in accordance with Section 5.1.1.
2. Remove the four screws securing the battery access panel to the top of the GI 275 and remove the panel.
3. Remove the battery by pulling the battery pack straight up until it is unseated from the connector.

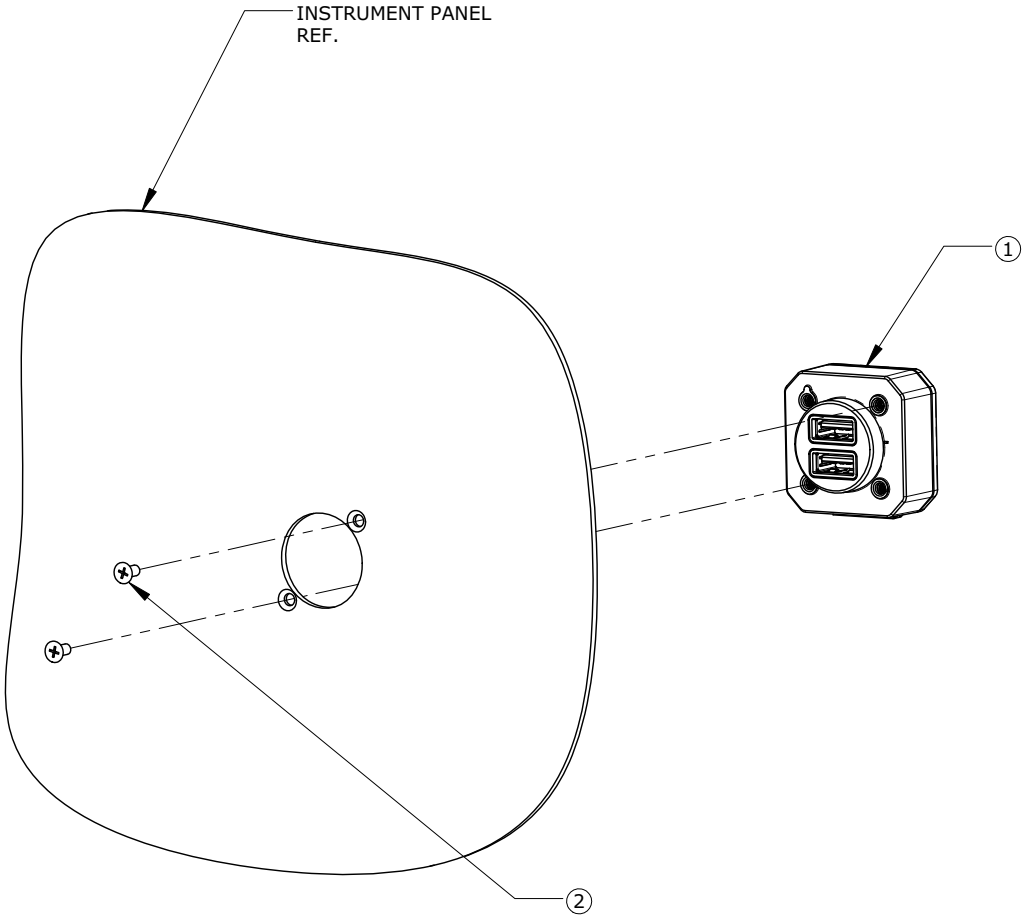
### 5.5.2 Backup Battery Re-installation

1. Lower the battery with the rubber end caps onto the GI 275 connector. Ensure proper alignment and push down to seat the connector.
2. The unit will automatically power on. Power off the unit.
3. Re-install the battery access panel and the four panel screws. Torque screws to 8 ± 1 in-lbf.
4. Re-install the GI 275 in accordance with Section 5.1.3.

### 5.5.3 Backup Battery Checkout

1. Perform an LRU Status Check as described in Section 5.14.1.1 to ensure the battery is connected properly.
2. If the battery was replaced, perform the Backup Battery Check as described in Section 5.12.5.

## 5.6 GSB 15



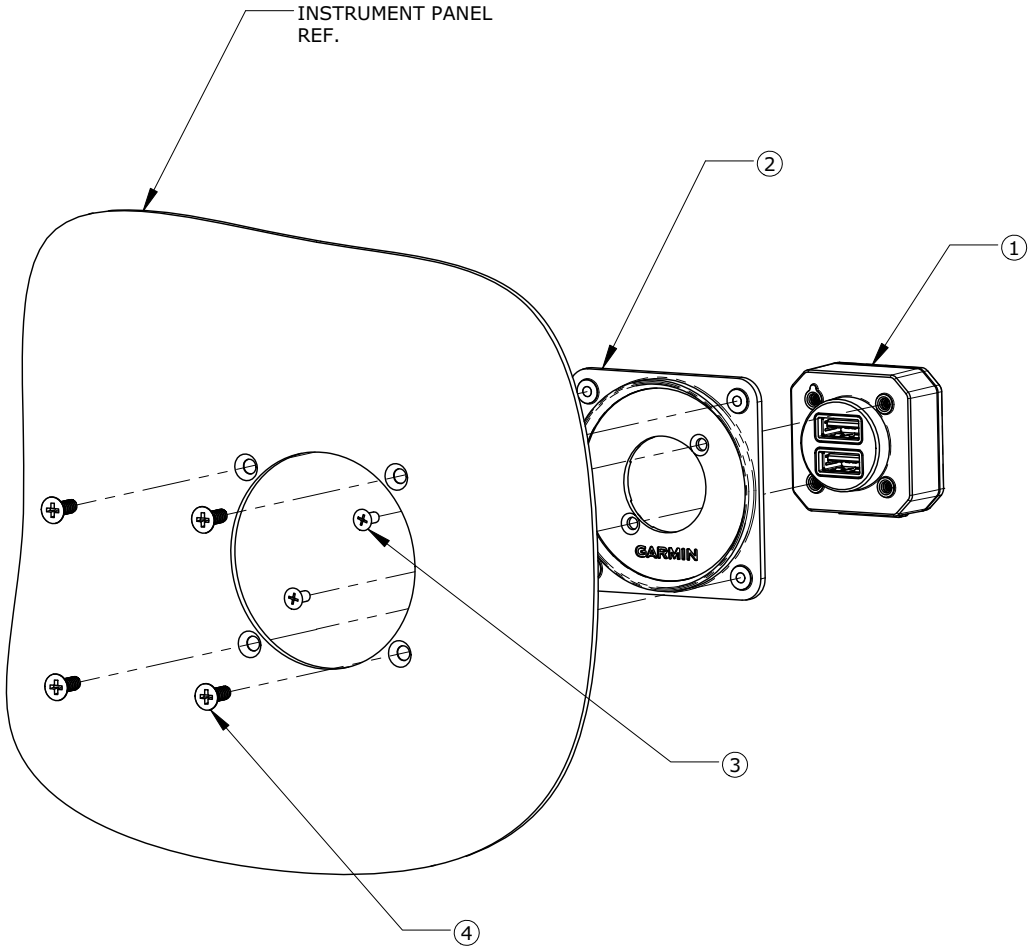

| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 010-02201-00 | GSB 15, VERTICAL, UNIT |
| | | OR | |
| | | 010-02201-01 | GSB 15, RIGHT ANGLE, UNIT |
| 2 | 2 | MS35214-XX [1] [2] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, BRASS, 0.112-40 UNC-2A |
| | | OR | |
| | | MS24693-XX [1] [2] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°, CROSS-RECESSED, BRASS, #4-40 UNC-2A |

**Notes:**

[1] Screws can be substituted by any other suitable pan head or countersink #4-40 UNC-2A aerospace steel screws.

[2] Torque 0.112-40 UNC-2A screws to 5.0 ± 1.0 in-lbf.

**Figure 5-8 GSB 15 Cutout Installation**




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 010-02201-00 | GSB 15, VERTICAL, UNIT |
| | | OR | |
| | | 010-02201-01 | GSB 15, RIGHT ANGLE, UNIT |
| 2 | 1 | 011-05043-00 | SUB-ASSY, MOUNTING KIT, 2.25”, GSB 15 |
| 3 | 2 | MS24693BB-XX [1] [2] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°P, CROSS-RECESSED, BRASS, #4-40 UNC-2A |
| 4 | 4 | MS35214-XX [1] [3] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, BRASS, 0.138-32 UNC-2A |
| | | OR | |
| | | MS24693BB-XX [1] [3] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°P, CROSS-RECESSED, BRASS, #6-32 UNC 2-A |

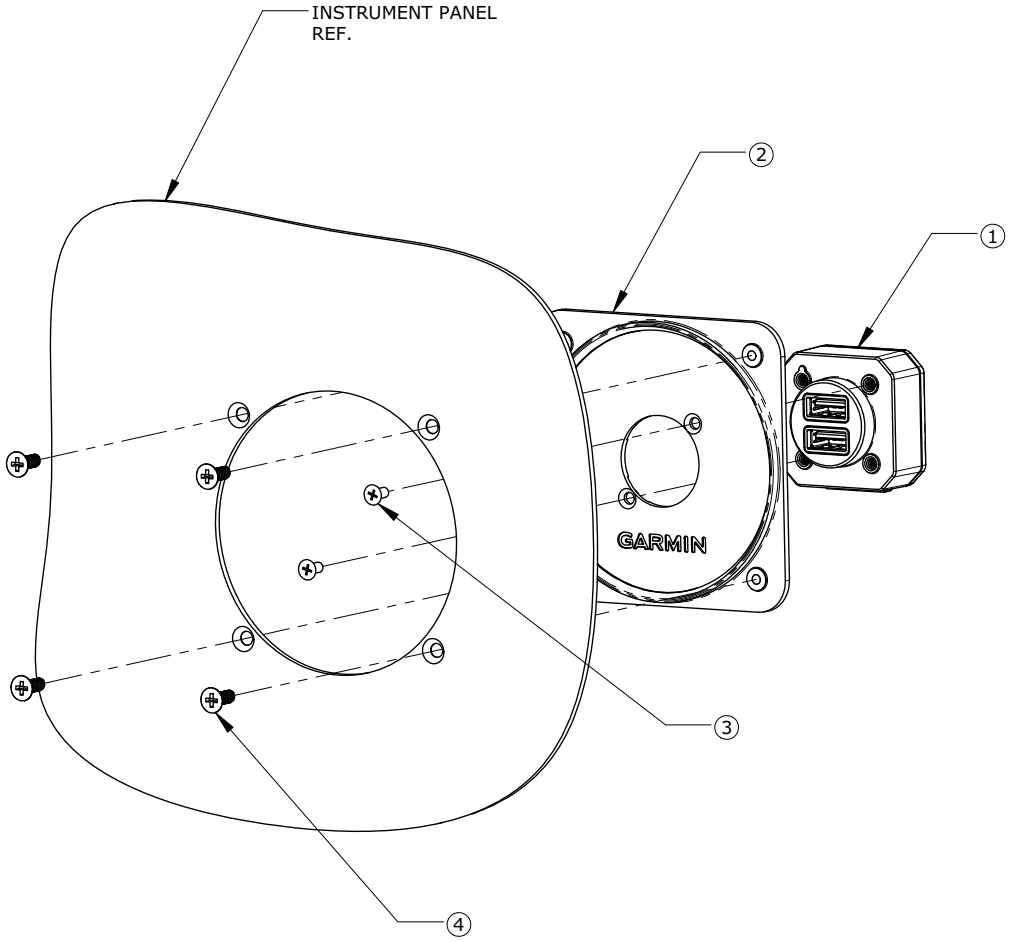
**Notes:**

[1] Screws can be substituted by any other suitable aerospace steel screws.

[2] Torque 0.112-40 UNC-2A screws to 5.0 ± 1.0 in-lbf.

[3] Torque 0.138-32 UNC-2A screws to 8.0 ± 1.0 in-lbf.

**Figure 5-9 GSB 15 Installation with Mounting Kit (2.25-Inch Cutout)**




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 010-02201-00 | GSB 15, VERTICAL, UNIT |
| | | OR | |
| | | 010-02201-01 | GSB 15, RIGHT ANGLE, UNIT |
| 2 | 1 | 011-05043-01 | SUB-ASSY, MOUNTING KIT, 3.125", GSB 15 |
| 3 | 2 | MS24693BB-XX [1] [2] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°, CROSS-RECESSED, BRASS, #4-40 UNC-2A |
| 4 | 4 | MS35214-XX [1] [3] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED BRASS, 0.138-32 UNC-2A |
| | | OR | |
| | | MS24693BB-XX [1] [3] | SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 100°P, CROSS-RECESSED, #6-32 UNC-2A |

**Notes:**

[1] Screws can be substituted by any other suitable aerospace steel screws.

[2] Torque 0.112-40 UNC-2A screws to 5.0 ± 1.0 in-lbf.

[3] Torque 0.138-32 UNC-2A screws to 8.0 ± 1.0 in-lbf.

**Figure 5-10 GSB 15 Installation with Mounting Kit (3.125-Inch Cutout)**

### 5.6.1 GSB 15 Removal

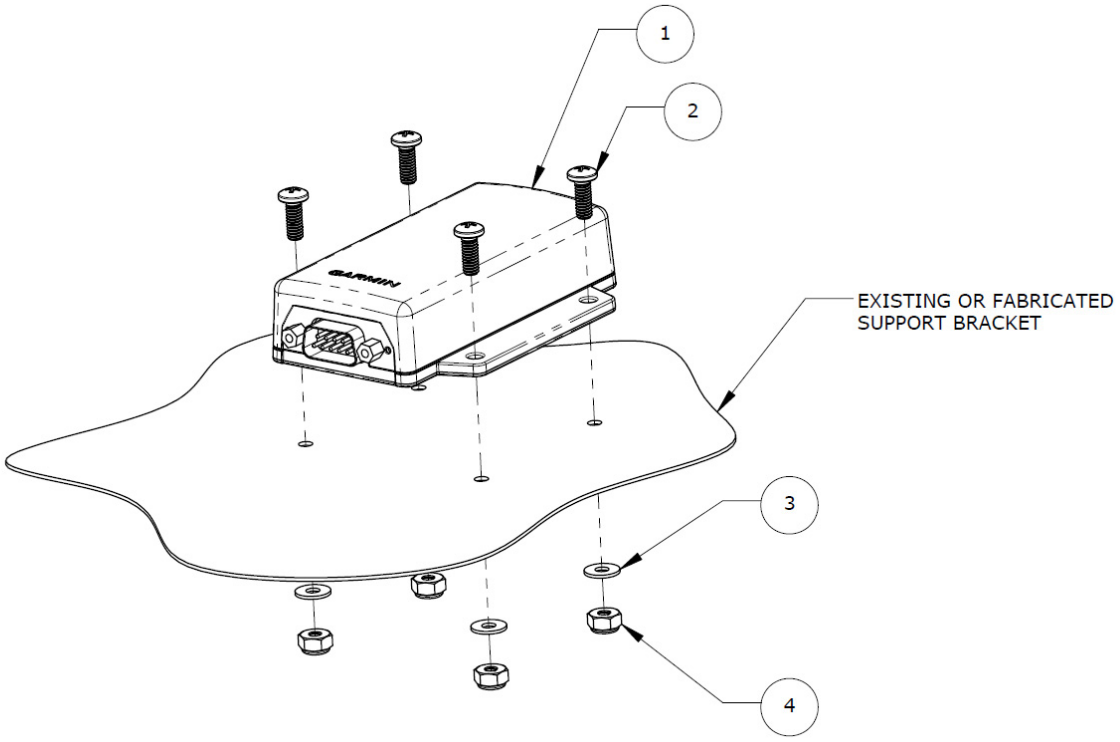
To remove the GSB 15, perform the following procedure:

1. Disconnect the GSB 15 connector.
2. If installed with a mounting kit, remove the four screws securing the mounting plate to the instrument panel (refer to Figure 5-9 or Figure 5-10).
3. Remove the two screws securing the GSB 15 to the instrument panel/mounting plate/mounting surface.

### 5.6.2 GSB 15 Re-installation

To re-install the GSB 15, perform the removal procedure in reverse. Torque all screws in accordance with Figure 5-8, Figure 5-9, or Figure 5-10.

## 5.7 GMU 11




| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 011-04349-01 | GMU 11 MAGNETOMETER UNIT |
| 2 | 4 | MS51957-XX [1] [2] | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED CORROSION RESISTANT STEEL, 0.138-32 UNC-2A |
| 3 | 4 | NAS1149CN632R | WASHER |
| 4 | 4 | MS21044C06 [3] | NUT SELF-LOCKING, HEXAGON REGULAR HEIGHT, 250°F, 125 KSI Ftu AND 60 KSI Ftu |

**Notes:**

[1] MS5195 screws can be substituted by any other equivalent aerospace steel screws.

[2] Torque 0.138-32 UNC-2A screws 8.0 ± 1.0 in-lbf.

[3] Nuts can be substituted by any other equivalent aerospace steel nutplates.

**Figure 5-11 Example GMU 11 Installation**

**NOTE**

*Removal, re-installation, or replacement of the GMU 11 will require a recalibration of the AHRS. Additionally, any removal or addition of electrical components or ferrous materials within 10 feet of the GMU 11 will require recalibration of the AHRS.*

### 5.7.1 GMU 11 Removal

To remove the GMU 11, perform the following procedure:

1. Remove power from the GI 275 directly connected to the GMU 11.
2. Disconnect the GMU 11 connector.
3. Remove the four screws securing the GMU 11 (refer to Figure 5-11).

### 5.7.2 GMU 11 Re-installation

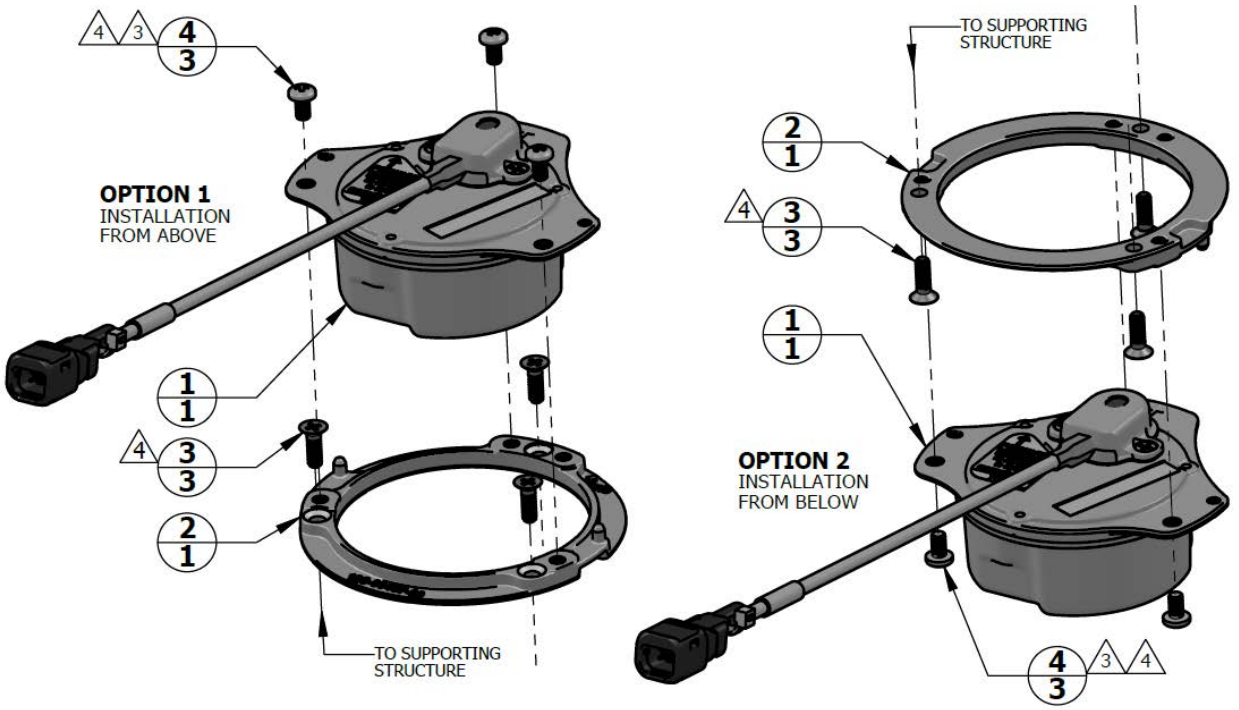
To re-install the GMU 11, perform the removal procedure in reverse. Torque the screws to 8.0 ± 1.0 in-lbf. Perform the checkout procedure in Section 5.7.3.

### 5.7.3 GMU 11 Checkout

Perform the following AHRS ground checks found in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10) to return the aircraft to service:

- Magnetometer Calibration
- Compass Swing
- Heading Offset Compensation (if required by the previous step)
- Engine Run-up Vibration Check

## 5.8 GMU 44B




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 3 | 4 | MS35214-23 | SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, BRASS, 0.1380-32 UNC-2A, 0.25 IN LONG |
| 3 | 3 | MS24693-B27 | SCREW, MACHINE, FLAT, COUNTERSUNK HEAD 100 DEG, CROSS-RECESSED, 0.1380-32UNC-2A, 7/16 LONG |
| 1 | 2 | 125-00437-00 | INSTALL RACK, GMU 44B |
| 1 | 1 | 011-04201-00 | GMU 44B MAGNETOMETER |

**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
2. SUPPORTING STRUCTURE NOT SHOWN. FASTENER HOLES ARE LOCATED TO MATCH GMU 44B INSTALL RACK, ITEM 2

△3 SCREWS ARE PART OF 011-04205-00 GMU 44B CONNECTOR KIT. INSTALL WITH MEDIUM STRENGTH THREADLOCKER.

△4 TORQUE .1380-32 UNC-2A BRASS SCREWS 7.0 ±0.5 LBF-IN.

**Figure 5-12 GMU 44B Installation**

**NOTE**

*Removal, re-installation, or replacement of the GMU 44B will require a recalibration of the AHRS. Additionally, any removal or addition of electrical components or ferrous materials within 10 feet of the GMU 44B will require recalibration of the AHRS.*

### 5.8.1 GMU 44B Removal

To remove the GMU 44B, perform the following procedure:

1. Remove power from the GI 275 directly connected to the GMU 44B.
2. Disconnect the GMU 44B connector.
3. Remove the three screws shown in Figure 5-12.
4. Remove the GMU 44B from the mounting bracket.

### 5.8.2 GMU 44B Re-installation

**NOTE**

*If reusing the original mounting screws, the anti-rotation properties of the mounting screws must be restored. This may be done by replacing the screws with new Garmin P/N 211-60037-08. If original screws are reused, coat screw threads with Loctite 242 (blue) thread-locking compound (Garmin P/N 291-00023-02) or equivalent.*

To re-install the GMU 44B, perform the following procedure:

1. Place the GMU 44B in the mounting bracket.
2. Install the three screws and torque to the specifications shown in Figure 5-12.
3. Connect the GMU 44B electrical connector.
4. Restore power to the GI 275.
5. Perform the checkout procedure in Section 5.8.3.

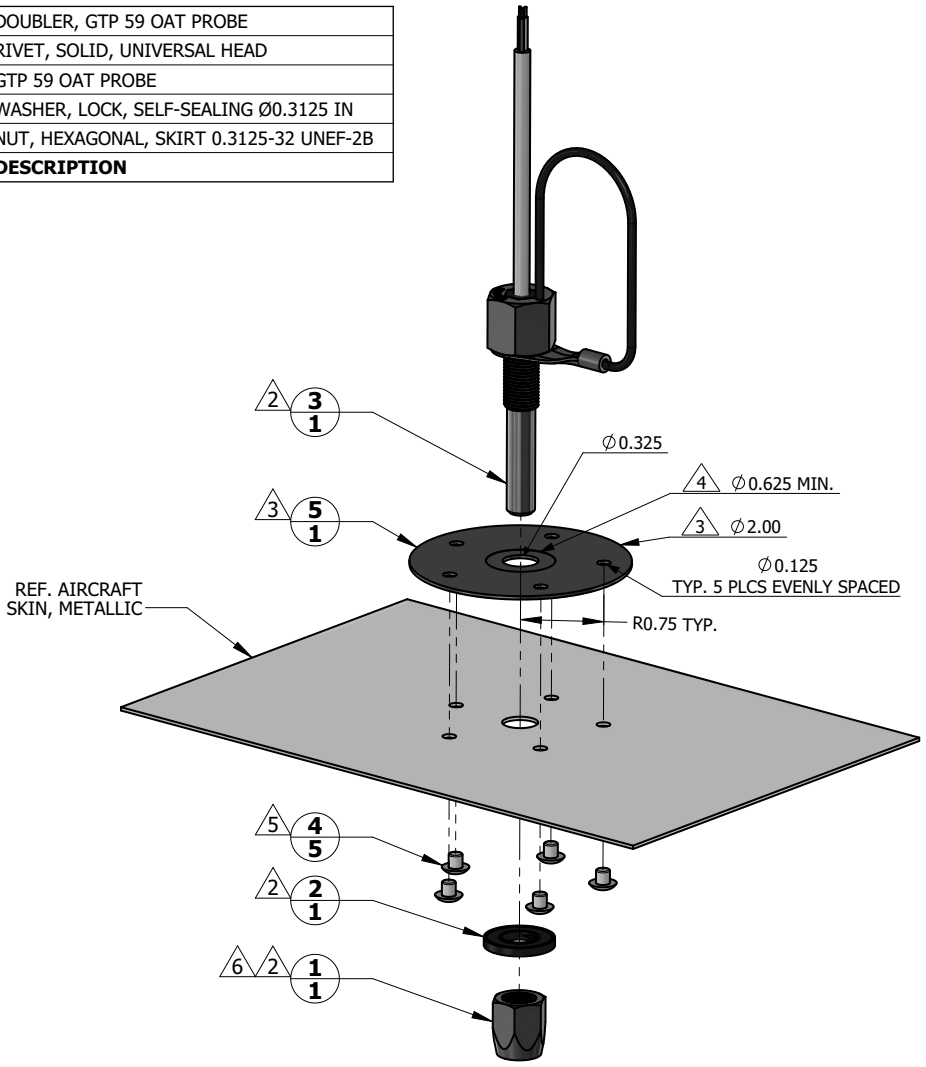
### 5.8.3 GMU 44B Checkout

Perform the following AHRS ground checks found in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10) to return the aircraft to service:

- Magnetometer Calibration
- Compass Swing
- Heading Offset Compensation (if required by the previous step)
- Engine Run-up Vibration Check

## 5.9 GTP 59

| QTY. | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 5 | | DOUBLER, GTP 59 OAT PROBE |
| 5 | 4 | MS20470AD4-2 | RIVET, SOLID, UNIVERSAL HEAD |
| 1 | 3 | 494-00022-00 | GTP 59 OAT PROBE |
| 1 | 2 | 212-00026-00 | WASHER, LOCK, SELF-SEALING Ø0.3125 IN |
| 1 | 1 | 210-00055-00 | NUT, HEXAGONAL, SKIRT 0.3125-32 UNEF-2B |




**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
2. NUT ITEM 1, WASHER ITEM 2, AND PROBE ITEM 3 ARE PART OF GTP 59 OAT PROBE ASSEMBLY (KIT), GARMIN P/N 011-00978-00.
3. MINIMUM DOUBLER SIZE SHOWN. CIRCULAR SHAPE OPTIONAL. DOUBLER THICKNESS IS ONE GAUGE THICKER THAN AIRCRAFT SKIN.
4. SPOT FACE TO REMOVE COATING AS REQUIRED TO MAINTAIN ELECTRICAL BOND.
5. RIVETS ARE INSTALLED PER MIL-R-47196 (NASM47196) RIVET, BUCK TYPE, *PREPARATION FOR AND INSTALLATION,* OR PER MIL-STD-403 *PREPARATION FOR AND INSTALLATION OF RIVETS AND SCREWS, ROCKET, MISSILE, AND AIRFRAME STRUCTURES.*
6. TORQUE .3125-32 UNEF-2B NUT 100.0 ± 20.0 LBF-IN.

**Figure 5-13 GTP 59 Installation (Aircraft with Metallic Skin Example)**

### 5.9.1 GTP 59 Removal

To remove the GTP 59, perform the following procedure:

1. Remove power from the GI 275 that is directly interfaced to the GTP 59.
2. Remove the mounting nut shown in Figure 5-13.
3. Remove the GTP 59 from the hole.

### 5.9.2 GTP 59 Re-installation

1. Place the GTP 59 in the previous installation hole.
2. Install washer and nut and torque to specifications in Figure 5-13.

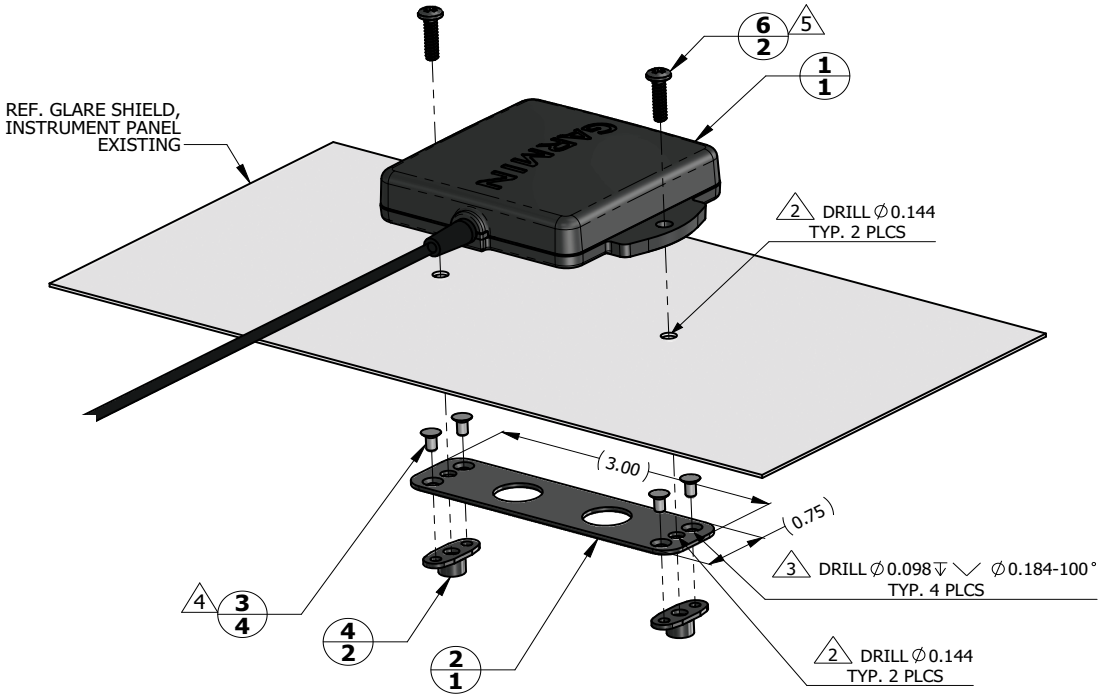
### 5.9.3 GTP 59 Checkout

Perform the Primary ADI checkout procedures in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10).

## 5.10 VFR GPS Antenna

The VFR GPS antenna is designed for installation on top of an existing instrument panel glareshield. The selected location must offer good visibility of the sky through the windshield.

The optimal antenna position is horizontal or as close to horizontal as practical given the shape of the glareshield.




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 2 | 6 | MS35206-229 | SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CAD PLATED .1380- 32 UNC-2A, 0.438 IN LONG |
| | | MS35214-26 | SCREW, MACHINE, PAN-HEAD, CROSS RECESSED, BLACK OXIDE FINISH .1380- 32 UNC-2A, 0.438 IN LONG |
| 2 | 4 | MS21069L06 | NUT, SELF-LOCKING, PLATE, TWO-LUG, REDUCED RIVET SPACING, LOW HEIGHT, STEEL .138-32 UNJC-3B |
| 4 | 3 | MS20426AD3-3 | RIVET, SOLID, COUNTERSUNK 100 DEG, PRECISION HEAD, 3/32 IN OD, 3/16 IN LONG |
| 1 | 2 | PLATE DETAIL | SHEET, 6061-T6 AL, 0.040 INCH THICK PER AMS 4025, AMS 4027, AMS-QQ-A-250/11 |
| 1 | 1 | 011-04036-10 | BACKUP GPS ANTENNA |

**NOTES**

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

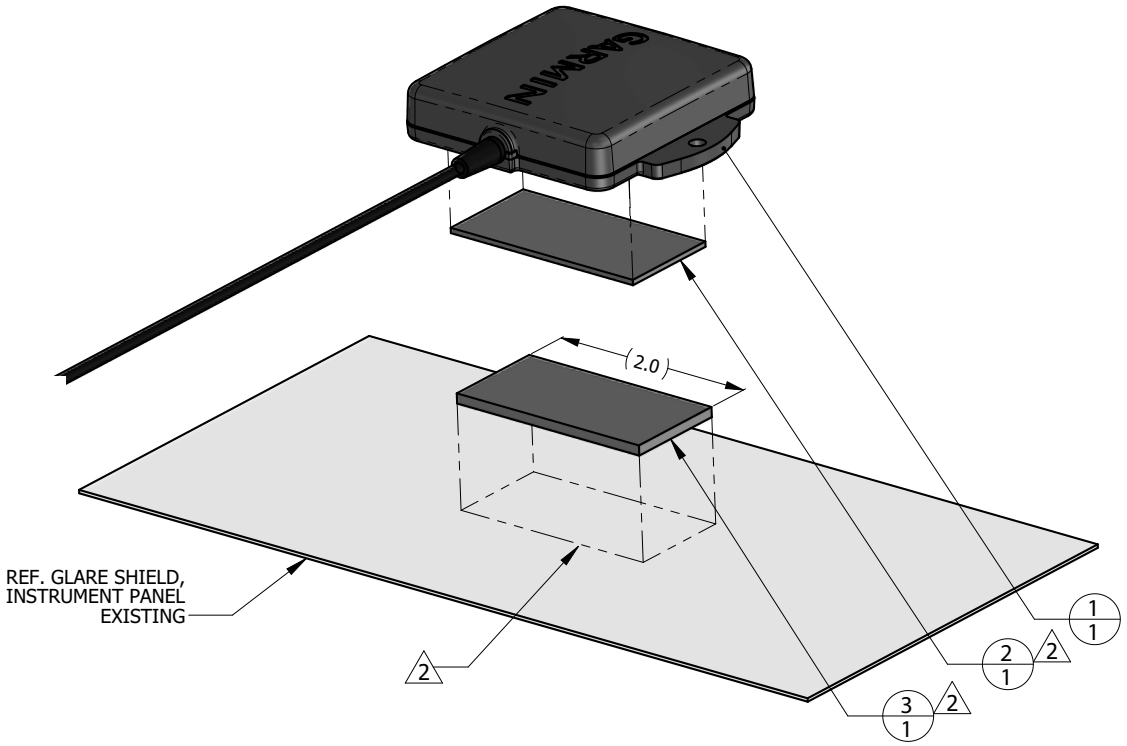
2 FASTENER HOLES ARE LOCATED TO MATCH BACKUP GPS ANTENNA ITEM 1.

3 FASTENER HOLES ARE LOCATED TO MATCH NUTPLATE ITEM 4.

4 RIVETS ARE INSTALLED PER MIL-R-47196 (NASM47196) RIVET, BUCK TYPE, *PREPARATION FOR AND INSTALLATION,* OR PER MIL-STD-403 *PREPARATION FOR AND INSTALLATION OF RIVETS AND SCREWS, ROCKET MISSILE, AND AIRFRAME STRUCTURES.*

5 USE FASTENER WITH BLACK OXIDE FINISH IF ANTENNA LOCATION IS SUCH THAT FASTENERS ARE VISIBLE TO THE PILOT OR COPILOT AND MIGHT BECOME A SOURCE OF ACCIDENTAL GLARE. TORQUE .1380-32 UNC-2A SCREWS HAND TIGHT.

**Figure 5-14 VFR GPS Antenna Installation (Non-removable Installation Example)**




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 3 | A-A-55126 △3 | FASTENER TAPE, SYNTHETIC, ADHESIVE BACKED, A-A-55126 CLASS 1/2, TYPE 1, LOOP 1.0 INCH WIDE |
| | 2 | | FASTENER TAPE, SYNTHETIC, ADHESIVE BACKED, A-A-55126 CLASS 1/2, TYPE 1, HOOK 1.0 INCH WIDE |
| 1 | 1 | 011-04036-10 | BACKUP GPS ANTENNA |

NOTES

1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

△2 PEEL OFF ADHESIVE PROTECTING FILM AND PRESS THE FASTENER TAPE IN TO BOND. SURFACES MUST BE CLEAN AND FREE FROM OIL OR OTHER CONTAMINANTS. LOOP FASTENER IS BONDED TO GLARE SHIELD AND HOOK FASTENER IS BONDED TO ANTENNA. TAPE FASTENER MUST BE 2.0 INCHES OR LONGER.

△3 GPS ANTENNA KIT, GARMIN PART NO. 010-12444-00 INCLUDES DUAL LOCK FASTENER, GARMIN PART NO. 252-00433-00 WHICH CAN BE USED INSTEAD OF A-A-55126 FASTENER TAPE.

**Figure 5-15 VFR GPS Antenna Installation (Removable Installation Example)**

### 5.10.1 VFR GPS Antenna Removal

Use the following procedure to remove the VFR GPS antenna:

1. Remove power from the GI 275 connected to the VFR GPS antenna.
2. Disengage the BNC connector from the GI 275.
3. Remove the two screws securing the antenna (if installed per Figure 5-14 only).
4. Lift up on the VFR GPS antenna to remove it.

### 5.10.2 VFR GPS Antenna Re-installation

Install the VFR GPS antenna in the reverse order of the removal procedure.

### 5.10.3 VFR GPS Antenna Checkout

Perform the Backup GPS Signal Check as described in Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10) or *GI 275 EIS & MFD Installation Manual* (P/N 190-02246-14).

## 5.11 EIS Sensors

In addition to the data in this manual, replacement or re-installation of each probe/sensor and wire must be accomplished in accordance with the sensor manufacturer instructions or as recommended by the engine manufacturer. Wire routing and clamping must follow procedures defined in the aircraft maintenance manual, standard practices manual, or practices defined in Chapter 11, *Electrical Systems*, of AC 43.13-1B *Aircraft Inspection and Repair*.

Sensors must be connected using hoses and fittings approved as part of aircraft or engine type certificated design or standard aircraft parts (AN/MS).

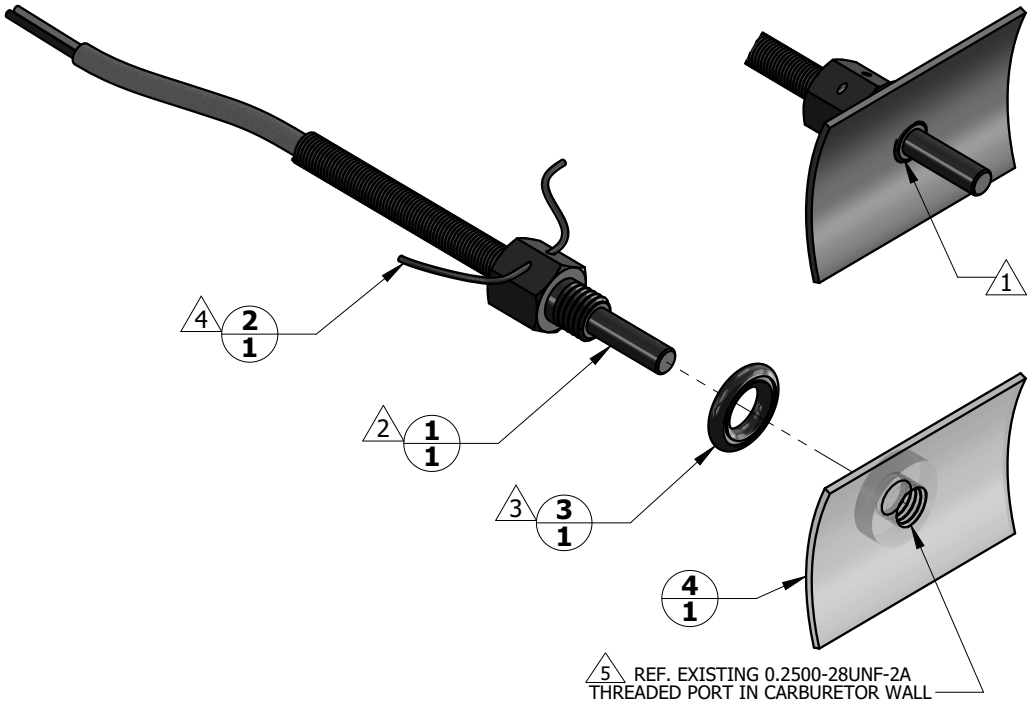
After removing or replacing any EIS sensor, perform the EIS ground checkout procedure in Section 6 of the GI 275 installation manuals (refer to Table 1-1) for the sensor that was affected.

**CAUTION**

*Check hose routing for sharp bends. Check sensors and fittings for leaks during engine run-up and correct prior to flight.*

### 5.11.1 Carburetor/Induction Air Temperature

The sensor location will vary for different carburetors. Refer to the engine or carburetor manufacturer data for temperature sensor location, if required.




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 4 | | CARBURETOR, EXISTING |
| 1 | 3 | MS35769-2 | GASKET, METALLIC, ENCASED, ANNULAR, COPPER, Ø1/4 ID×Ø1/2 OD |
| 1 | 2 | MS20995 | WIRE, SAFETY OR LOCK |
| 1 | 1 | T3B10-SG | PROBE, CARBURETOR TEMPERATURE |

**NOTES**

1. WHEN INSTALLED, FACE OF THE SENSOR THREADED BOSS IS FLUSH WITH THE INSIDE OF CARBURETOR BARREL. USE WASHER(S) IF REQUIRED TO SPACE THE SENSOR ACCORDINGLY.
2. T3B10-SG TEMPERATURE SENSOR HAS 0.2500-28UNF-2A THREAD. INSTALL WITH LOCTITE 242 MEDIUM STRENGTH THREADLOCKER, OR EQUIVALENT. EXERCISE CAUTION TO PREVENT FUEL CONTAMINATION.
3. SPLIT FACE OF THE GASKET FACES NON-ROTATING SURFACE.
4. SAFETY WIRE PROBE IN ACCORDANCE WITH MS33540 *SAFETY WIRING AND COTTER PINNING*.
5. SENSOR INSTALLATION IN EXISTING CARBURETOR PORT ONLY. ADDITION OF NEW TAPPED HOLES TO CARBURETOR BARREL NOT ALLOWED.

**Figure 5-16 Carburetor Temperature Sensor Installation Example**

**CAUTION**

*Fuel and air passages must remain free of contaminants during work near and around the carburetor.*

### 5.11.2 Oil Temperature Sensor

When installing the oil temperature sensor, the unbroken side of the crush washer must face the sensor flange. The sensor is torqued finger tight plus one-half turn and safety wired in accordance with practices defined in Section 7, *Safetying*, of Chapter 7, *Aircraft Hardware, Control Cables and Turnbuckles*, of AC 43.13-1B *Aircraft Inspection and Repair*.

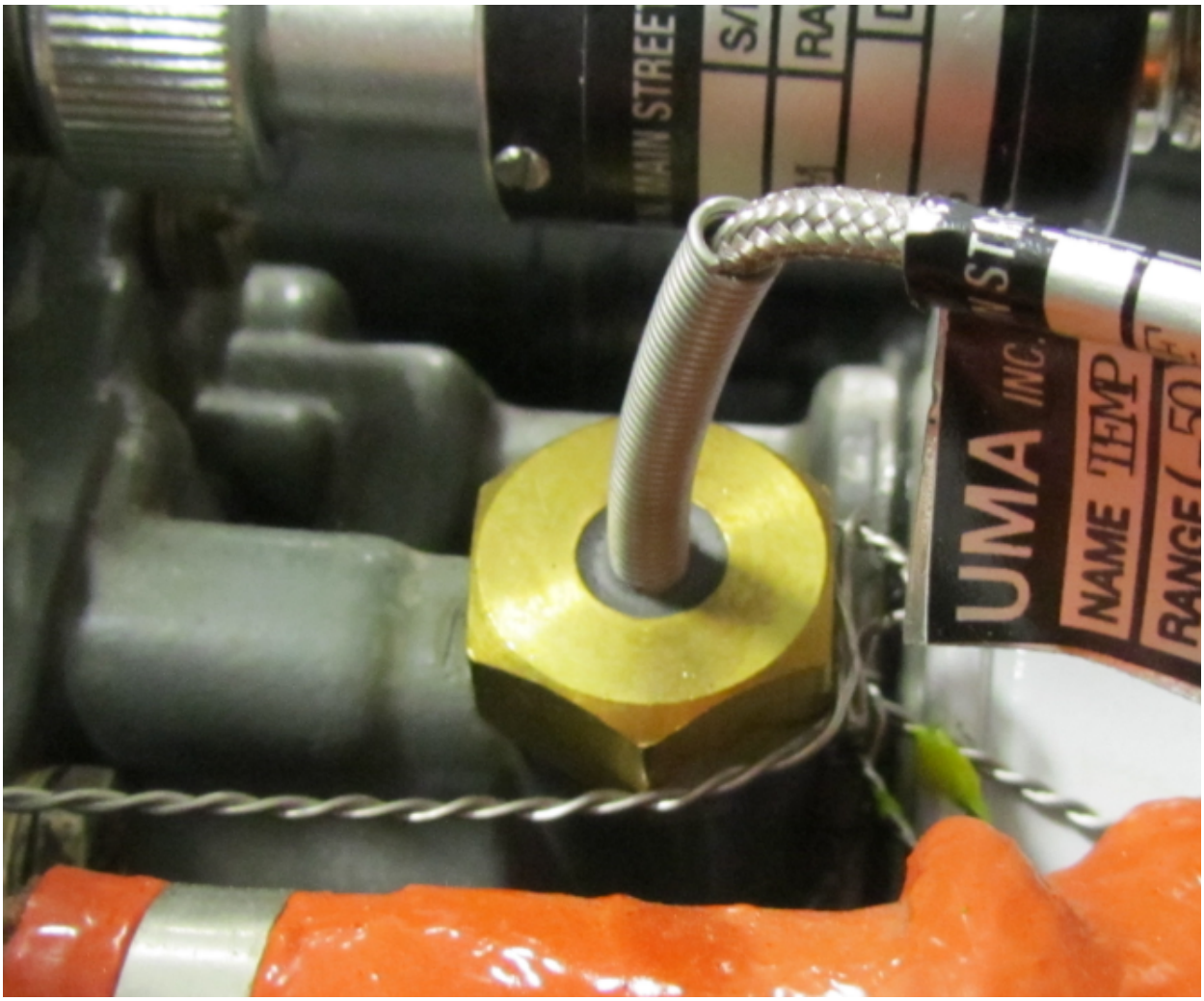



**Figure 5-17 Oil Temperature Sensor Installation Example**

### 5.11.3 Pressure Sensors

Manifold pressure, oil pressure, and fuel pressure sensor installations are similar. Garmin pressure sensors with a brass housing are limited to aircraft with operational ceilings up to 32,000 feet. Garmin pressure sensors with a stainless steel housing may be used on all aircraft on the AML.

When replacing existing sensors:

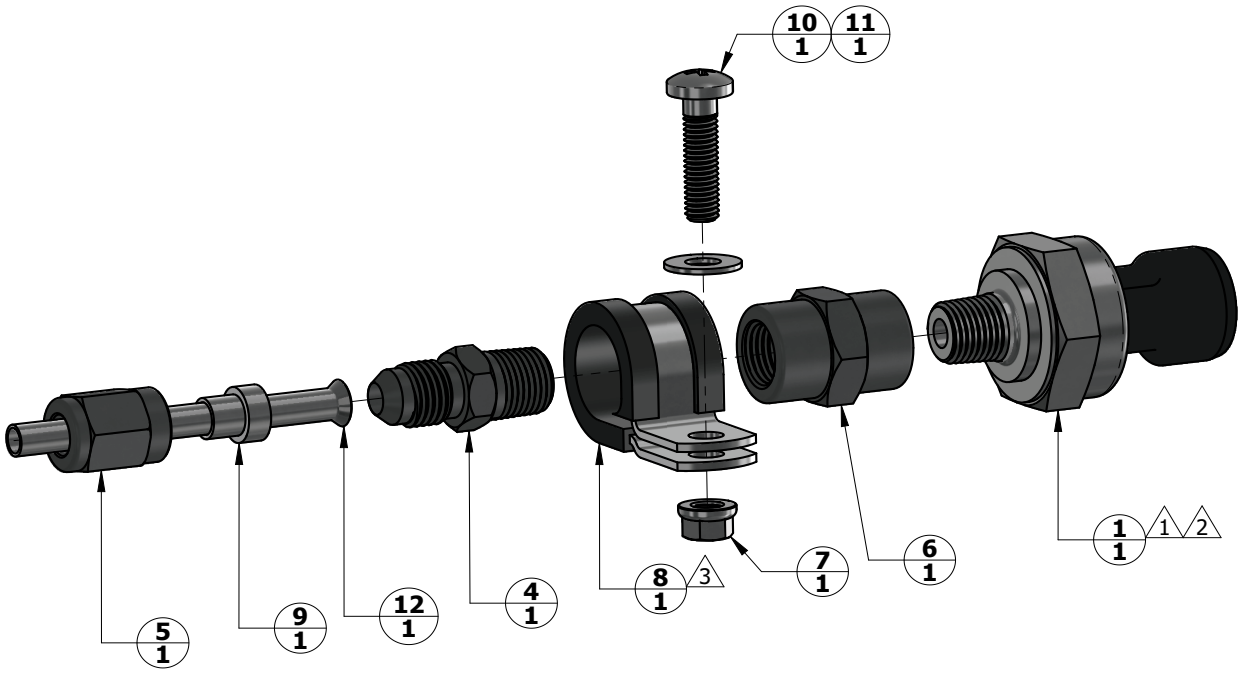
- Do not remove engine and fuel fittings with an intentionally reduced orifice. It may limit fluid loss and fire damage in the event of a hose failure
- Inspect the condition of all existing tubes, hoses, and fittings that are being reused; replace if necessary

When installing pressure sensors:

- Fuel and oil hoses in the engine compartment must meet TSO-C53a Type C or D (fire resistant)
- Do not install sensors directly below fittings or components that may leak flammable fluid
- Thread sealant or tape must be used for the NPT threads. To reduce the risk of system contamination, a minimal amount of sealant should be applied leaving at least two threads at the end of the fitting clear of sealant/tape
- Sensors must be routed as far away from the aircraft exhaust system as practical and no closer than 6 inches

**Table 5-1 Pressure Sensor Equipment List**

| Function | Manufacturer P/N, Description | Garmin P/N | Authorization |
|---|---|---|---|
| Oil Press | Kavlico P4055-5020-4, Press (Brass) | 011-04202-30 (494-30027-30) | GI 275 STC |
| | Kulite APT-20GX-1000-150G, Press (Stainless) | 494-30032-00 | |
| Manifold Press | Kavlico P4055-5020-1, Press (Brass) | 011-04202-00 (494-30027-00) | GI 275 STC |
| | Kulite APT-20GX-1000-25PSIA, Press (Stainless) | 494-30030-00 | |
| Fuel Press | Kavlico P4055-5020-3, Press (Brass) | 011-04202-20 (494-30027-20) | GI 275 STC |
| | Kavlico P4055-5020-2, Press (Brass) | 011-04202-10 (494-30027-10) | |
| | APT-20GX-1000-50PSIG, Press (Stainless) | 494-30031-00 | |
| | APT-20GX-1000-15PSIG, Press (Stainless) | 494-30029-00 | |

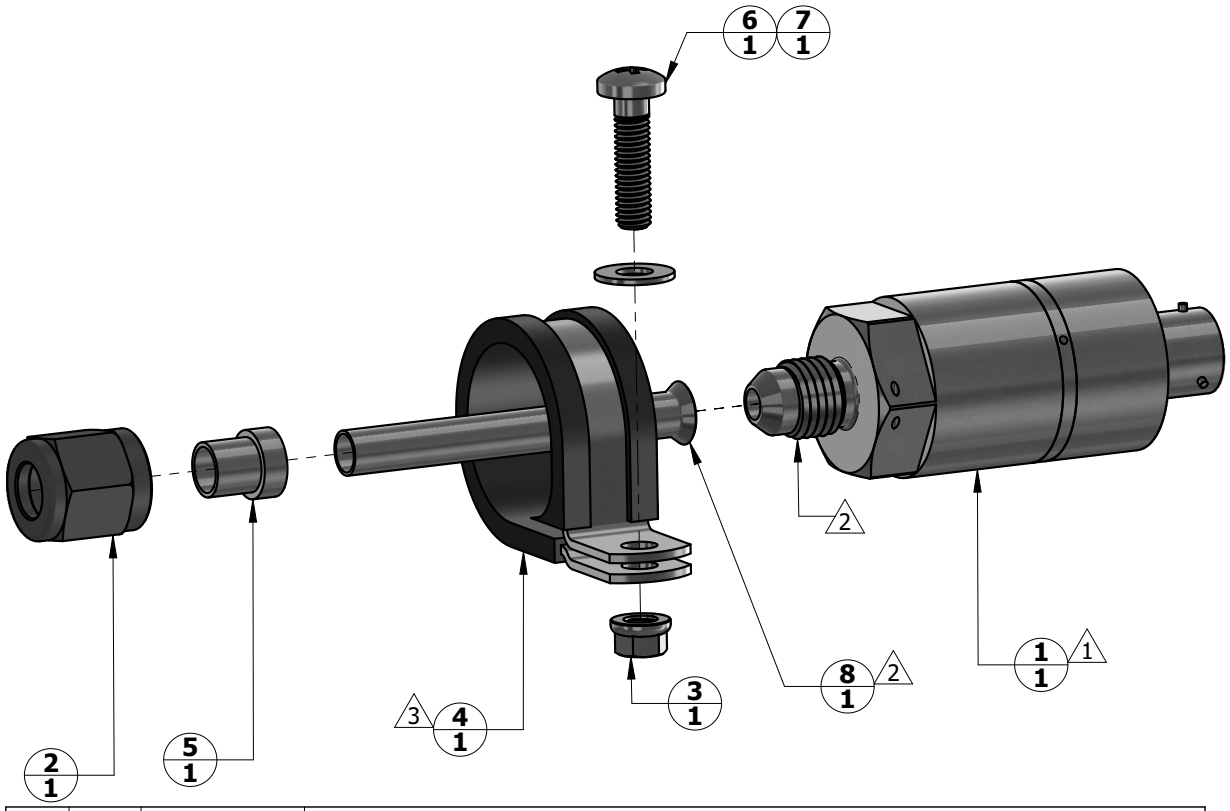



| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 12 | | TUBE, Ø0.190 IN OD |
| 1 | 11 | NAS1149F0332P | WASHER, FLAT, STEEL, CAD PLATED, 0.032 INCH THICK, ID 0.203, OD 0.438 |
| 1 | 10 | MS51958-65 | SCREW, MACHINE, PAN HEAD, CROSS RECESSED .190-32UNF-2A, 3/4 INCH LONG |
| 1 | 9 | MS51533B3 | SLEEVE, COMPRESSION, TUBE FITTING, 37° FLARED, Ø3/16 TUBE OD |
| 1 | 8 | MS21919WDG9 | CLAMP, LOOP TYPE, CUSHIONED, Ø9/16 TUBE |
| 1 | 7 | MS21042L3 | NUT, SELF-LOCKING, REDUCED HEXAGON, REDUCED HEIGHT, RING BASE .1900-32UNJF-3B |
| 1 | 6 | AN910-1W | COUPLING, PIPE, 1/8-27 ANPT |
| 1 | 5 | AN818-3 | NUT, TUBE COUPLING, SHORT, Ø0.1875 TUBE OD .3750-24UNJF-3B |
| 1 | 4 | AN816-3 | ADAPTER, STRAIGHT, PIPE TO TUBE, 1/8-27 NPT TO .3750-24 UNJF-3A |
| | | AN822-3 | ADAPTER, ELBOW 90 DEG, PIPE TO TUBE, 1/8-27 NPT TO 0.3750-24 UNJF-3A |
| | | AN823-3 | ADAPTER, ELBOW 45 DEG, PIPE TO TUBE, 1/8-27 NPT TO 0.3750-24 UNJF-3A |
| 1 | 1 | 011-04202-XX | PRESSURE SENSOR |

**NOTES**

1. TO PREVENT FLUID ENTRAPMENT ORIENT THE SENSOR SO THE ELECTRICAL CONNECTOR OR THE VENT HOLE , IF PRESENT, POINTS DOWNWARDS.
2. FITTING ON 011-04202-XX PRESSURE SENSOR HAS 1/8-27 NPT PIPE THREAD. IF USING SEALANT TAPE, FIRST TWO THREADS TO REMAIN FREE OF SEALANT TAPE.
3. CLAMP THE SENSOR BODY (ITEM 1) OR THE COUPLING (ITEM 6) TO MOUNT THE SENSOR.

**Figure 5-18 Brass Sensor Installation (Coupling Mount Example)**




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 8 | | TUBE, Ø0.250 IN OD |
| 1 | 7 | NAS1149F0332P | WASHER, FLAT, STEEL, CAD PLATED, 0.032 INCH THICK, ID 0.203, OD 0.438 |
| 1 | 6 | MS51958-65 | SCREW, MACHINE, PAN HEAD, CROSS RECESSED .190-32UNF-2A, 3/4 INCH LONG |
| 1 | 5 | MS51533B4 | SLEEVE, COMPRESSION, TUBE FITTING, 37° FLARED, Ø1/4 TUBE OD |
| 1 | 4 | MS21919WDG16 | CLAMP, LOOP TYPE, CUSHIONED, Ø1.00 TUBE |
| 1 | 3 | MS21042L3 | NUT, SELF-LOCKING, REDUCED HEXAGON, REDUCED HEIGHT, RING BASE .1900-32UNJF-3B |
| 1 | 2 | AN818-4 | NUT, TUBE COUPLING, SHORT, Ø0.250 TUBE OD .4375-20UNJF-3B |
| 1 | 1 | 494-30030-XX | PRESSURE TRANSDUCER, VENTED GAGE |

**NOTES**

1. TO PREVENT FLUID ENTRAPMENT ORIENT THE SENSOR SO THE ELECTRICAL CONNECTOR POINTS DOWNWARDS.
2. 494-30030-XX PRESSURE SENSOR HAS A STANDARD FITTING (MS33656) WITH 7/16-20UNJF-3A THREAD AND REQUIRES 37 DEGREE FLARED TUBE CONNECTION.
3. CLAMP THE SENSOR BODY (ITEM 1) TO MOUNT. CLAMP NOT TO BLOCK VENT HOLES IN SENSOR BODY, IF PRESENT

**Figure 5-19 Stainless Steel Sensor Installation (Housing Mount Example)**

### 5.11.4 Fuel Flow

The fuel flow transducer can be mounted using the bracket or clamping hoses connected to the transducer. If mounting with clamps, the placement must be no further than 6 inches from the clamp to the nearest face of the transducer.

- The transducer can be oriented with the wires pointing up, or the cap with five bolts pointing up, or the output port pointing up, or any combination thereof
- The hose connected to the IN port must be straight for a minimum of 4 inches
- The hose connected to the OUT port should be level or slope up. It must not slope down more than 4 inches per foot

Hoses and fittings connected to fuel flow transducer must meet the following:

1. New hoses must have the same internal diameter as the hose being replaced and meet TSO-C53a Type C or D (fire resistant) specifications.
2. Fuel compatible thread sealant or tape must be used for the NPT threads. To reduce the risk of fuel system contamination, a minimal amount of sealant should be applied leaving at least two threads at the end of the fitting clear of sealant/tape.
3. Fitting torque must not exceed 12 ft-lbf **or** two full turns past finger tight, whichever occurs first.
4. The transducer and fuel hoses must be routed as far away from the aircraft exhaust system as practical. The transducer must be protected with Aeroquip AE102-( ) fire-sleeve if within 6 inches of any exhaust component.

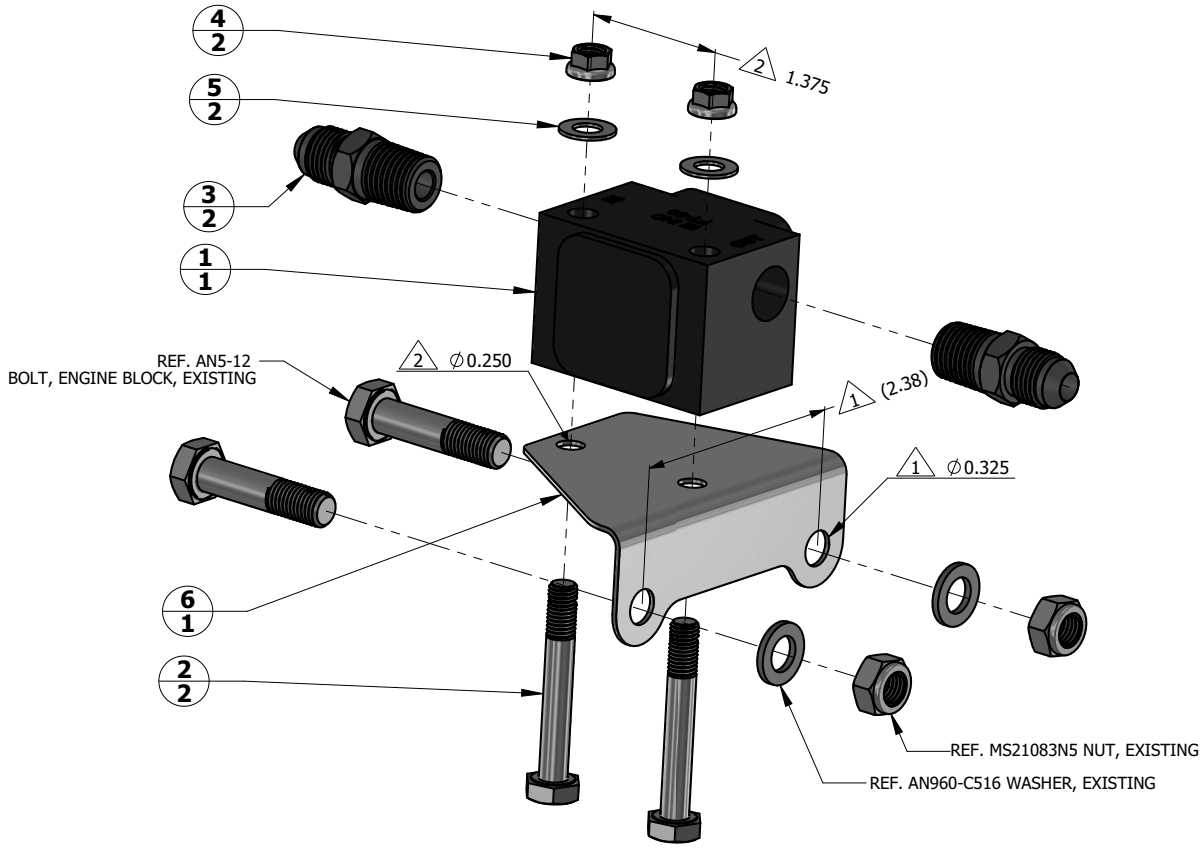
**WARNING**

*Ensure the fuel flow transducer installation does not introduce thread sealant or debris into the fuel system.*

**CAUTION**

*Do not blow pressurized air through the flow transducer.*

If the fuel flow transducer bracket must be replaced, the replacement bracket must be fabricated from 300 series austenitic stainless steel (annealed per AMS 5901 or ½ hard per AMS 5517), sheet thickness 19 gauge minimum (0.044 inches) and installed as provisioned by the aircraft structural repair manual or standard practices manual. Methods, techniques, and practices defined in Chapter 4, *Metal Structure, Welding and Brazing*, of AC 43.13-1B *Aircraft Inspection and Repair* are acceptable.




| QTY | ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 6 | | BRACKET, FUEL FLOW SENSOR |
| 2 | 5 | NAS1149F0432P | WASHER, FLAT, STEEL, CAD PLATED, 0.032 INCH THICK, ID 0.265, OD 0.5 |
| 2 | 4 | MS21042L4 | NUT, SELF-LOCKING, REDUCED HEXAGON, REDUCED HEIGHT, RING BASE .2500-28UNJF-3B |
| 2 | 3 | AN816-5-4 | ADAPTER, STRAIGHT, PIPE TO TUBE, 1/4-18 NPT TO .5000-20 UNJF-3A |
| 2 | 2 | AN4-16 | BOLT, MACHINE, AIRCRAFT, .2500-28 UNF-3A, 1-5/16 IN GRIP, DRILLED SHANK |
| 1 | 1 | 1030032 | FT-60 FUEL FLOW TRANSDUCER, ELECTRONICS INTERNATIONAL |

**NOTES**

1. HOLE SIZE AND SPACING TO MATCH ENGINE CASE BOLTS.
2. HOLE SIZE AND SPACING TO MATCH FUEL FLOW TRANSDUCER.

**Figure 5-20 Fuel Flow Transducer Installation**

### 5.11.5 Engine RPM

The GI 275 system can use the electrical signal generated by the primary magneto coils or "P-Lead" to display RPM. When used, the left and right magneto P-Lead signals must both be connected to the GEA 24/110. The connection can be made at the magneto or the ignition switch.

To replace the P-Lead wire, remove the old section of wire and replace the entire wire and parallel resistors in accordance with the P-Lead installation instructions contained in Section 4 of the GI 275 installation manuals (refer to Table 1-1).

## 5.12 Calibration

This section provides guidance for calibrating the GI 275 system if the previous calibration has become invalid.

### 5.12.1 Attitude/Heading

If it becomes necessary to re-calibrate any installed AHRS, refer to the calibration procedures contained in Section 5 and Section 6 of *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10).

### 5.12.2 Autopilot Calibration

If it becomes necessary to re-calibrate the autopilot, refer to the calibration procedure contained in *GI 275 Part 23 AML STC Installation Manual* (P/N 190-02246-10).

### 5.12.3 Analog NAV Calibration

If it becomes necessary to re-calibrate the Analog NAV, refer to the calibration procedure contained in Section 6 of the GI 275 installation manuals (refer to Table 1-1).

### 5.12.4 Fuel Level Calibration

If it becomes necessary to re-calibrate the fuel level, refer to the calibration procedure contained in the GI 275 installation manuals (refer to Table 1-1).

### 5.12.5 Backup Battery Check

This procedure will analyze the voltage and discharge qualities of the installed backup battery. The procedure is required to be completed on initial installation and every 12 calendar months when a backup battery is installed in the system. A fault indication message will be displayed in Normal mode until this procedure is completed.

**NOTE**

*The battery rundown test may take up to 150 minutes to complete.*

**NOTE**

*The battery rundown test date is reported in UTC.*

To complete the backup battery test, complete the following steps:

1. Power on each GI 275 with an installed backup battery in Configuration mode.
2. Navigate to the ***Backup Battery Test*** page (***Calibration/Test → Backup Battery Test***).
3. Touch the **Before Test Checklist** button.
4. Verify that “Discharging” is not displayed under Battery State.
5. Touch the **Test Date** button and enter the current date.
6. Complete the on-screen checklist. Touch each checklist item once completed. Once all checklist items have a green check mark, touch the **Back** button.
7. Touch the **Start Test** button and follow the on-screen commands.
8. The GI 275 will power off automatically when the test is completed.
9. Power on the GI 275(s) in Configuration mode and navigate to the ***Backup Battery Test*** page.

10. Touch the **Test Results** button and then **Rundown Test Results** button.
    a. The results are displayed the date the test was performed and how many minutes until the battery ran down.
11. For aircraft that are approved for flight over 25,000 feet, a rundown time of at least 60 minutes is required to be considered a PASS.

    For aircraft that are only approved for flight at 25,000 feet or less, a rundown time of at least 30 minutes is required to be considered a PASS.
12. If the test results were not a PASS as described in the previous step, the battery must be replaced using the procedure in Section 5.5.

## 5.13 Uploading Software

The ***SW/Config*** page is used to update the software for the GI 275 and any LRUs directly interfaced to the GI 275. The approved software version and part numbers can be found in the most recent revision of *GI 275 Part 23 AML STC Equipment List* (P/N 005-01208-42). Ensure the Unit ID is properly configured prior to loading software to the GI 275. After loading software to the GI 275, configure all interfaced LRUs.

Software updates can be accomplished via USB using the following procedure:

1. Create a Software Loader Card using the latest software and instructions available on the Garmin Dealer Resource Center.
2. Power on all GI 275s in the system in Configuration mode.
3. Insert the USB drive into the USB dongle or GSB 15 (if installed). A USB icon should appear on the left of the display once the GI 275 has recognized the device. If the icon doesn't appear after 1 minute, remove the drive and re-insert it.
4. Navigate to the ***Loader Card*** page (***SW/Config → Loader Card***).
5. Select the applicable updates or touch the **Select All** button.
6. Touch **Update Packages ( )** and then **Begin Update**. A restart is required when completed.

## 5.14 System Checks

Periodic system checks that do not require a Garmin dealer to perform are contained in this section. For complete system checkout procedures, refer to Section 6 of the GI 275 installation manuals (refer to Table 1-1).

### 5.14.1 Configuration Ground Check

The configuration ground check procedures are intended to verify that each LRU and interface in the GI 275 system has been properly configured. Steps not applicable to a particular installation may be skipped.

**NOTE**

*Throughout the configuration ground check section, references are made to particular functions and screens. If a function or screen is not available, ensure that the system has been configured correctly.*

The configuration ground checks must be performed on every GI 275. Before starting the configuration mode checkout, the following conditions must be met:

1. All GI 275 displays in the system must be powered on in Configuration mode.
2. All system LRUs must be powered on.
3. All installed LRUs must be configured per the printed configuration log contained in Section 5.

#### 5.14.1.1 LRU Status check

The ***System Info*** page contains the ***Devices Online*** page, which reports the status of installed LRUs. The icon next to each LRU reports one of three colored symbols to indicate the status of each LRU, as described in Table 5-2. Verify that all LRUs connected or configured to each display have a green checkmark indicator.

**Table 5-2 LRU Status Indicators**

| Status Color | LRU Condition |
|---|---|
| Green Checkmark | The LRU is online. No faults are detected. |
| Yellow Question Mark | The LRU is configured but not sending any data. |
| Red X | The LRU is online. A fault, warning, and/or error is detected. |
| (Empty) | The LRU is not configured. |

#### 5.14.1.2 Device Info

The ***Device Info*** page (***System Info*** → ***Device Info***) provides information for each configured LRU as part of the GI 275 system.

1. Touch the **Device** button and select an interfaced LRU.
2. Verify that all software versions are up-to-date for the interfaced LRU.
3. Repeat steps 1 and 2 for each interfaced LRU.

### 5.14.2 Pitot-Static and Airspeed Tape Settings Checks

The following section verifies the correct operation of the GI 275 altitude and airspeed tapes, standby altimeter, and standby airspeed indicator using a pitot-static ramp tester. When using a pitot-static ramp tester, only simulate normal aircraft operating conditions as defined in the aircraft Type Data (POH/AFM) or other approved STC to avoid component damage.

**NOTE**

*The ADC may require a warm-up period of 15 minutes to reach full accuracy; however, 30 minutes may be required if the environmental temperature is below 0º C.*

The GI 275 airspeed tape display and settings must be verified using the procedures in Section 5.14.2.1 or Section 5.14.2.2 depending on the airspeed tape configuration (Basic or Advanced, respectively). The airspeeds referenced in the following steps must match those shown in the printed configuration log.

#### 5.14.2.1 Basic Airspeed Tape Setting

If the airspeed Configuration Type is set to *Basic* (***Setup → Airframe Config → Airspeed Configuration***), verify correct operation of the internal ADAHRS as follows:

**NOTE**

*If the internal ADAHRS and standby airspeed indicator are on separate pitot-static systems, it is recommended to set up the test set so that both systems can be tested at the same time, or separate tests must be completed for each system.*

1. Power on the GI 275 system in Normal mode.
2. Using a pitot-static test set, increase the airspeed until the ADI airspeed tape pointer is at the bottom of the white band (Vs0).
3. Verify that the bottom of the white arc/band on the standby ASI and ADI airspeed tape are at the same airspeed value.
4. **For twin-engine aircraft with a minimum control speed:** Increase the airspeed to the lower red radial (Vmca). Verify that the red radial on the standby ASI and ADI airspeed tape are at the same airspeed value.
5. Change the airspeed until the ADI airspeed tape pointer is at the bottom of the green band (Vs1).
6. Verify that the bottom of the green arc/band on the standby ASI and ADI airspeed tape are at the same airspeed value.
7. **For twin-engine aircraft only:** Increase the airspeed to the blue radial (Vyse). Verify that the blue radial on the standby ASI and ADI airspeed tape are at the same airspeed value.
8. Change the airspeed until the ADI airspeed tape pointer is at the top of the white band (Vfe).
9. Verify that the top of the white arc/band on the standby ASI and ADI airspeed tape are at the same airspeed value.
10. Change the airspeed until the ADI airspeed tape pointer is at the top of the green band/bottom of the yellow band (Vno).
11. Verify that the top of the green arc/band on the standby ASI and ADI airspeed tape are at the same airspeed value.
12. Increase the airspeed to the upper red radial/top of yellow arc (Vne).
13. Verify that the red radial on the standby ASI and ADI airspeed tape are at the same airspeed value.

14. Starting at the current airspeed, decrease the airspeed to zero, stopping at each of the airspeeds listed in Table 5-3 (airspeeds above Vne should not be checked), verifying that the ADI and standby ASI airspeed values are within the tolerances indicated in Table 5-3.

**Table 5-3 Airspeed Test Points**

| Test Set Airspeed (kt) | PFD Allowed Tolerance (kt) |
|---|---|
| 50 | ±5.0 |
| 80 | ±3.5 |
| 100 | ±2.0 |
| 120 | ±2.0 |
| 150 | ±2.0 |
| 180 | ±2.0 |
| 210 | ±2.0 |
| 250 | ±2.0 |
| 290 | ±3.0 |

### 5.14.2.2 Advanced Airspeed Tape Setting

If the Configuration Type is set to *Advanced*, verify correct operation of the internal ADAHRS as follows:

**NOTE**

*If the internal ADAHRS and standby airspeed indicator are on separate pitot-static systems, it is recommended to set up the test set so that both systems can be tested at the same time, or separate tests must be completed for each system.*

1. Power on the GI 275 system in Normal mode.
2. Using a pitot-static test set, increase the airspeed until the ADI airspeed tape pointer is at the bottom of the white band (Vs0).
3. Verify that the bottom of the white arc/band on the standby ASI and ADI airspeed tape are at the same airspeed value.
4. Increase the IAS throughout the range of the ASI – stop at the limits of all Arc Ranges, and at all Marking values configured per the instructions in Table 5-4 and Table 5-5 and listed in the printed configuration log.
5. Verify that the ranges and markings on the standby ASI and ADI are located at the same airspeed values. The last value verified should be the beginning of the barber pole (Vne/Vmo/Mmo).
6. The following applies to Variable Vne/Vmo/Mmo aircraft only:
   a. Decrease the IAS to 25 knots below the barber pole on the ADI. Increase the indicated altitude to the maximum operating altitude or service ceiling. Verify that the barber pole on the ADI and standby ASI are at the same airspeed (±5 kt). Decrease the airspeed as needed to ensure the IAS does not exceed the barber pole during the simulated climb.
   b. Decrease the indicated altitude (do not exceed vertical speed limitations) back to ambient static pressure.
7. Starting at the current airspeed, decrease the airspeed to zero, stopping at all of the relevant airspeeds listed in Table 5-3 (airspeeds above Vne should not be checked). Verify that the ADI and standby ASI values are within the tolerances indicated.

**Table 5-4 Advanced Airframe Specific Configuration Data – Arc Ranges**

| Arc Color | Description | POH/AFM Section | Notes |
|---|---|---|---|
| RED (LOW SPEED) | Low speed awareness | 2 - Limitations | If the aircraft has a defined WHITE or GREEN arc, set the RED arc to *ON*. Set the MAX value of the RED arc to the lowest value of the WHITE or GREEN arc (Vs0). A RED low-speed awareness arc will appear below the lowest marked stall speed.<br>If the aircraft does not have defined white or green arc, set the red arc to *OFF*, and enter the lowest stall speed in the STALL SPEED setting at the bottom of the page. |
| WHITE | Full flap operational range | 2 - Limitations | Set the Min value to the bottom of the POH/ AFM defined range.<br>If WHITE and GREEN arcs overlap, set the Max value to the beginning of the WHITE/ GREEN arc.<br>If WHITE and GREEN arcs do not overlap, set the Max value to the top of the POH/ AFM or aircraft specification defined range.<br>If a WHITE arc is not defined by the AFM/ POH or aircraft specifications, set both the Min and Max values to the aircraft stall speed in the landing configuration (Vs0). This setting will not display a white arc, but the system needs it to characterize aircraft performance. |
| HALF WHITE | Standard operational range | 2 - Limitations | If the HALF WHITE arc range is not defined by the AFM/POH or aircraft specification, set to *OFF*.<br>This may sometimes be called a “narrow WHITE arc”. |
| WHITE/ GREEN | Overlap between standard operational and flaps operational ranges | 2 - Limitations | If a WHITE/GREEN arc is not defined by the AFM/POH or aircraft specification, set to *OFF*.<br>If WHITE and GREEN arcs overlap, configure to the range they overlap within. |
| GREEN | Standard operational range | 2 - Limitations | If the GREEN arc is not defined by the AFM/POH or aircraft specification, set to *OFF*.<br>If WHITE and GREEN arcs overlap, set Min value to the Max of WHITE/GREEN.<br>If the YELLOW arc is defined, set to the Min of the YELLOW arc (Vno).<br>If the YELLOW arc is **not** defined, set Max value to Vno/Vne. |

| Arc Color | Description | POH/AFM Section | Notes |
|---|---|---|---|
| YELLOW | Caution / smooth air operational range | 2 - Limitations | If the YELLOW arc is defined by the AFM/ POH or aircraft specification, set to *ON* with Min value equal to Maximum structural speed (Vno). Max value should be configured to Vne, or the highest value of Vne if variable.<br>If the YELLOW arc is not defined, set to *OFF*. |
| Vne/Vmo/Mmo | Never exceed speed/ max operating speed/ max operating mach number | 2 - Limitations | If defined as a fixed value, set to *Fixed*, and enter POH/AFM defined Vne/Vmo as the Min value.<br>If variable with altitude, set to *Variable*, and set overspeeds in accordance with Appendix E in *GI 275 Part 23 AML STC Installation Manual*. |

**Table 5-5 Advanced Airframe Specific Configuration Data – Markings**

| Marking | Description | POH/AFM Section | Note |
|---|---|---|---|
| Vle | Maximum landing gear extended speed | 2 - Limitations | Set to *OFF* for fixed gear aircraft. |
| BLUE BAR | Typically marks the single engine best rate-of-climb speed for a twin-engine aircraft | 3 - Emergency Procedures | Blue radial on ASI of light twins.<br>Set to *OFF* for single-engine aircraft. |
| RED BAR | Typically marks the minimum controllable airspeed for twin-engine aircraft with only one engine operational (Vmca) | 3 - Emergency Procedures | Lower red radial on ASI of light twins.Set to *OFF* for single-engine aircraft. |
| RED/WHITE BAR | Varies – sometimes used as a fixed point Vne marking | 2 - Limitations | If a fixed RED/WHITE bar, (not a barber pole) is shown in the POH/AFM, set to given value. Else, set to *OFF*. |
| WHITE TRIANGLE | A small white triangle – meaning varies by airframe | 2 - Limitations | If defined in POH/AFM, set to given value. Else, set to *OFF*. |

#### 5.14.2.3 Altimeter Check

The GI 275 standby altitude displays must be verified per Title 14 of the CFR 91.411 and Part 43 Appendix E, with the following exception to 14 CFR Part 43 Appendix E, paragraph (b)(1):

- The tests of sub-paragraphs (iv) (Friction) and (vi) (Barometric Scale Error) are not applicable to the GI 275 due to the internal ADAHRS interface and instrument display being digital

#### 5.14.2.4 Calibrate Static Pressure

This procedure is used to perform an altimeter calibration, if required.

The Static Pressure Calibration requires the use of a pressure control system (test set) with an altitude accuracy of at least ±5 feet at sea level and ±20 feet at 30,000 feet. It is necessary to re-calibrate to sea level (0 feet), 10,000 feet, 20,000 feet, and optionally to 30,000 feet. The calibration is allowed to be finished after the 20,000 feet calibration if the aircraft operational ceiling is below 20,000 feet.

**CAUTION**

*To avoid damaging the GI 275 pressure sensors, both the pitot and static ports must be connected to the test set.*

**CAUTION**

*Prior to performing the Calibrate Static Pressure procedure, perform a Static System Leak Test in accordance with 14 CFR Part 43 Appendix E.*

1. Navigate to the ***Calibrate Static Pressure*** page (***Calibration/Test*** → ***Attitude/Heading*** → ***Calibrate Static Pressure***).
2. Ensure the on-screen instructions have been followed. Touch the **OK/Next/Start** buttons to continue to the next screen.
3. At each calibration point, the display will indicate the pressure altitude to set (e.g., “Set pressure to sea level”). Once the altitude is set, touch **Ready** to calibrate.
   a. During the calibration at each pressure, the pressure must be held constant for 30 seconds for the calibration step to be successful. The calibration may be canceled at any point should the test setup require adjustment before repeating.
4. Select **Done** when the calibration is successfully completed.

# APPENDIX A: INSTALLATION SPECIFIC INFORMATION

## A.1 General Information

Date:_____ /_____ /_____ By:_____

**AIRCRAFT**

AIRCRAFT YEAR: _____

AIRCRAFT MAKE: _____

AIRCRAFT MODEL: _____

AIRCRAFT SERIAL #: _____

AIRCRAFT REG. #: _____

| Installed System | | |
|---|---|---|
| ❑ GI 275 | | |
| ☑ GI 1 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |
| ❑ GI 2 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |
| ❑ GI 3 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |
| ❑ GI 4 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |
| ❑ GI 5 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |
| ❑ GI 6 | ❑ Base ❑ ADAHRS ❑ ADAHRS+AP | ❑ ADI ❑ HSI ❑ MFD/Standby ADI ❑ HSI/Standby ADI ❑ MFD ❑ EIS |

## A.2 LRU Information

For each unit included in the installation, record the LRU information in the table below.

| Unit | Part Number | Serial Number | Mod Level |
|---|---|---|---|
| GI 275 #1 | 011-04489- | | |
| GI 275 #2 | 011-04489- | | |
| GI 275 #3 | 011-04489- | | |
| GI 275 #4 | 011-04489- | | |
| GI 275 #5 | 011-04489- | | |
| GI 275 #6 | 011-04489- | | |
| GMU 11 #1 | 011-04349- | | |
| GMU 11 #2 | 011-04349- | | |
| GMU 44B #1 | 011-04201- | | |
| GMU 44B #2 | 011-04201- | | |
| GTP 59 #1 | 011-00978- | | |
| GTP 59 #2 | 011-00978- | | |
| VFR GPS Antenna | 011-04036- | | |
| GEA 24 #1 | 011-02848- | | |
| GEA 24 #2 | 011-02848- | | |
| GEA 110 #1 | 011-03454- | | |
| GEA 110 #2 | 011-03454- | | |
| Backup Battery | 011-04528- | | |
| GSB 15 | 011-04937- | | |

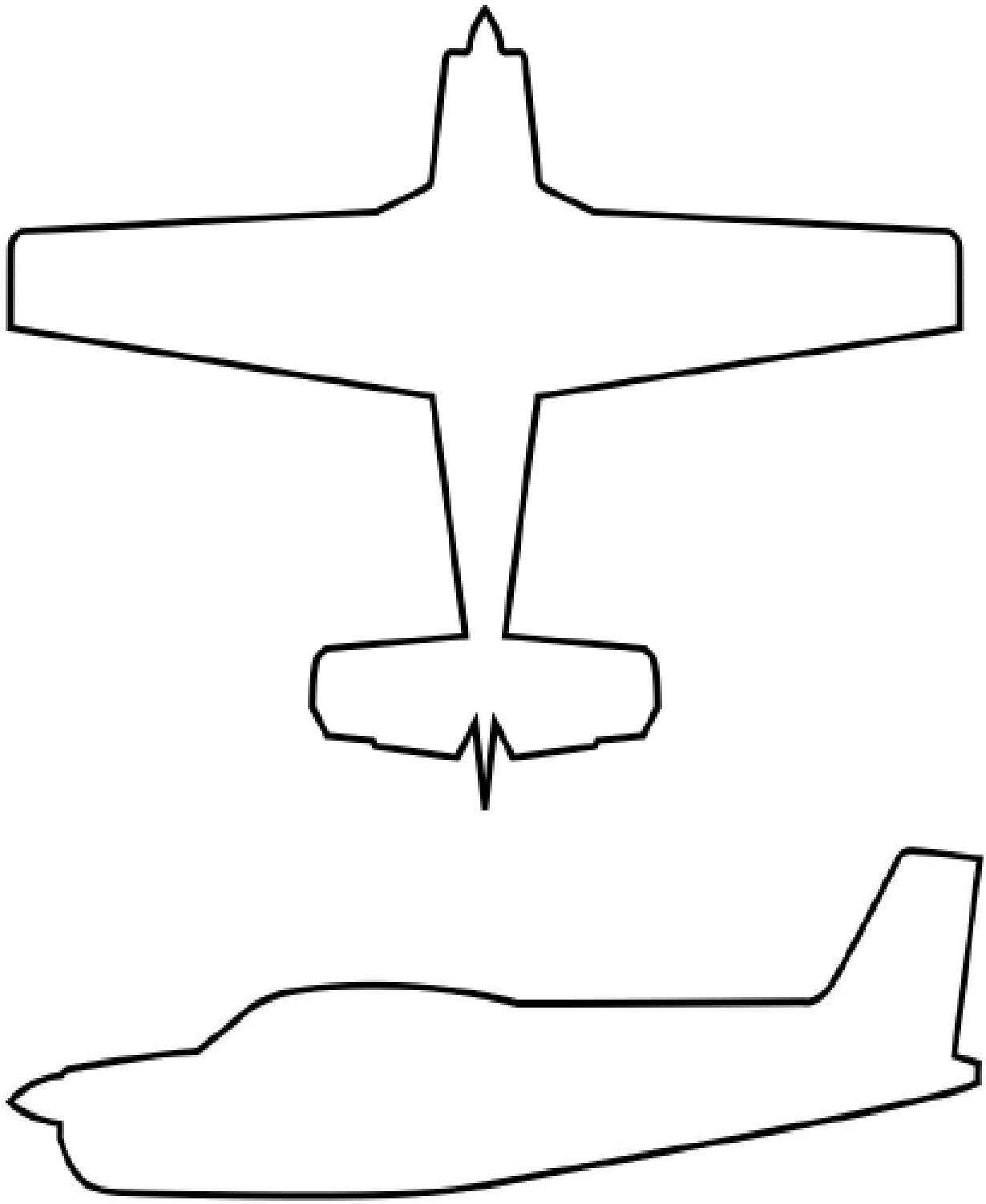
## A.3 Equipment Location

For each unit included in the installation, record the fuselage station and provide a brief description of the location.

| Unit | Station | Description of Location |
|---|---|---|
| GI 275 #1 | in. | |
| GI 275 #2 | in. | |
| GI 275 #3 | in. | |
| GI 275 #4 | in. | |
| GI 275 #5 | in. | |
| GI 275 #6 | in. | |
| GMU 11 #1 | in. | |
| GMU 11 #2 | in. | |
| GMU 44B #1 | in. | |
| GMU 44B #2 | in. | |
| GTP 59 #1 | in. | |
| GTP 59 #2 | in. | |
| GEA 24 #1 | in. | |
| GEA 24 #2 | In. | |
| GEA 110 #1 | in. | |
| GEA 110 #2 | in. | |
| Backup Batt | in. | |
| GSB 15 | in. | |

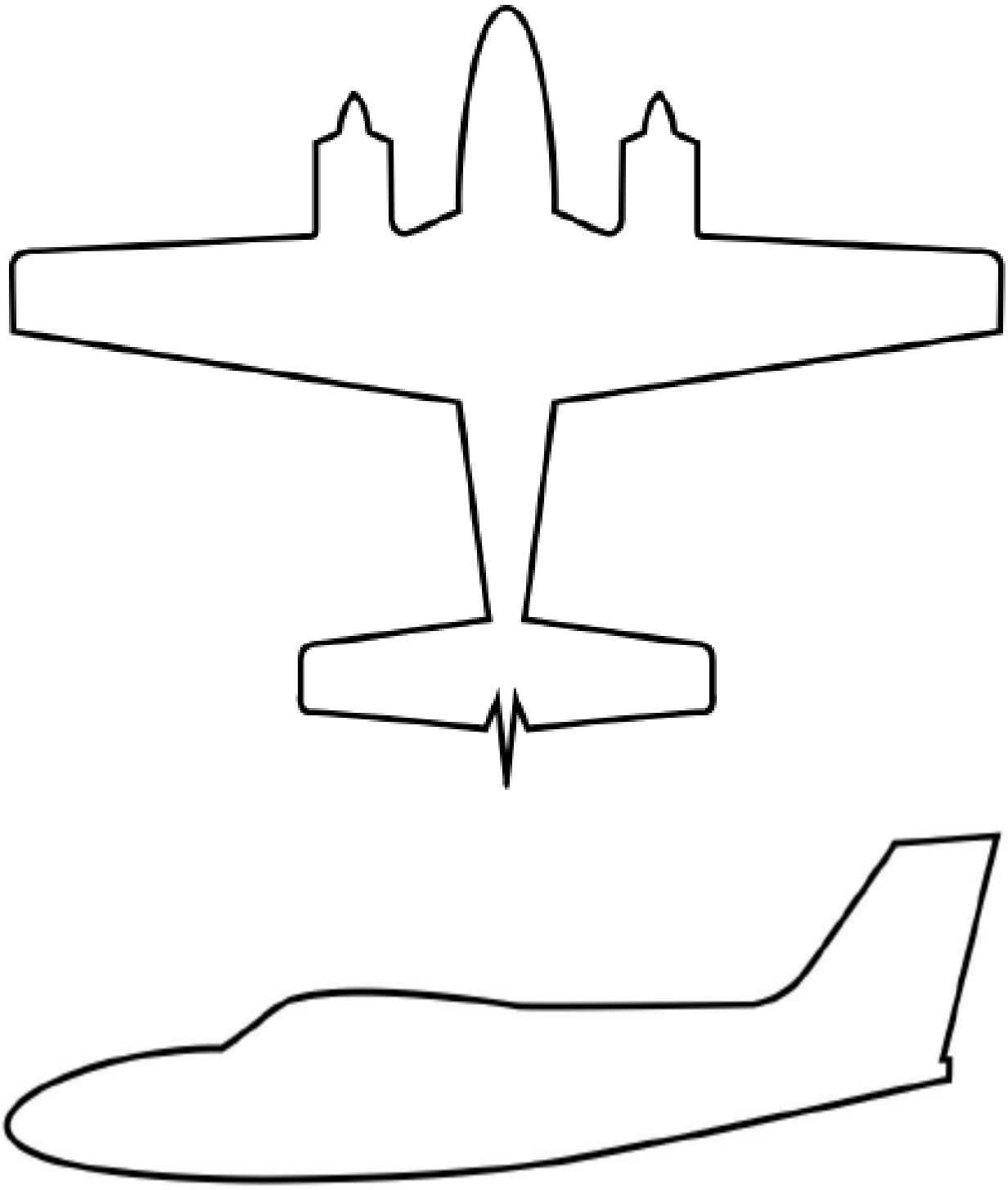
## A.4 Wire Routing – Single-Engine

The following diagram depicts the wire routing for the GI 275 LRUs throughout the aircraft structure for a single-engine aircraft:



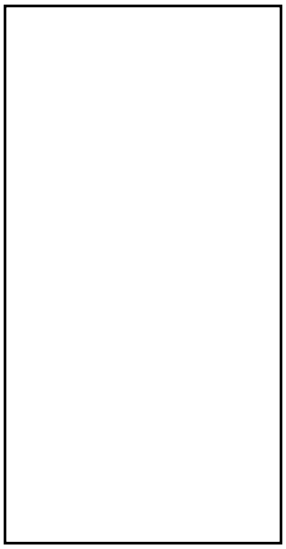
## A.5 Wire Routing – Twin-Engine

The following diagram depicts the wire routing for the GI 275 LRUs throughout the aircraft structure for a twin-engine aircraft:



## A.6 Saved Configuration File

The GI 275 system configuration must be saved to a USB drive and placed with the permanent aircraft maintenance records. For instructions on saving the aircraft configuration file to a USB drive, refer to Section 2.1.10. It is recommended that the USB drive be taped or otherwise secured to this page in the location marked below.



**Aircraft Configuration USB drive**

## A.7 Print Configuration Log

The GI 275 system configuration log must be printed out and included with the permanent aircraft maintenance records. To print the system configuration log, perform the following procedure:

1. Save the aircraft configuration file to a USB drive (refer to Section 2.1.10).
2. Insert the USB drive into a computer.
3. Open the USB drive main directory.
4. Navigate to the “summary” folder.
5. Open the file with the name you entered to save your aircraft configuration.
6. Print the configuration log.

**NOTE**

*It is recommended that the configuration log be attached to the back of this document for continuity and ease of use. It is required that the MM/ICA, USB drive, and configuration log be included in the permanent aircraft maintenance records.*

The configuration log printout contains configuration info for configured EIS gauges, including configured markings and gauge layout for each GI 275 displaying EIS gauges.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