

## GEA 71 ENGINE/AIRFRAME UNIT - MAINTENANCE PRACTICES

### 1. General

- A. The GEA 71 Engine/Airframe Unit is a microprocessor line replaceable unit (LRU). It is used to monitor sensor inputs and operate annunciator outputs for the airframe and engine systems.
- B. The GEA 71 sensor inputs are the engine oil pressure, engine oil temperature, engine torque transducer, ITT probes, engine thermocouple, chip detectors, and inertial separator switch. The fuel flow transducer, Ng tachometer sensor, and Np tachometer sensor supply inputs to the GEA 71 through a signal conditioner.

### 2. GEA 71 Engine/Airframe Unit Removal/Installation

**CAUTION:** Be careful when you remove and install electronic components. Electronic components are extremely sensitive to electrostatic discharge damage. Such damage cannot be seen by visual inspection and can make the component unserviceable. Refer to Chapter 20, Electrostatic Discharge Components - Maintenance Practices and the Model 208 Wiring Diagram Manual Chapter 20, Electrical Safety Precautions - Description and Operation for procedures to correctly work with electronic components.

- A. Remove the Engine/Airframe Unit (Refer to Figure 201).

- (1) Disconnect electrical power from the airplane.
  - (a) Disengage the ENG INTFC circuit breaker.
- (2) Remove the Multi Function Display (MFD) from the instrument panel. Refer to Garmin Display Unit - Removal/Installation.
- (3) Loosen the lock lever screw, but do not remove from the lock lever.

**NOTE:** The lock lever screw is captive.
- (4) Lift the lock lever to release the unit from the avionics rack.
- (5) Remove the unit from the airplane.

- B. Install the Engine/Airframe Unit (Refer to Figure 201).

**CAUTION:** Do not use excessive force when inserting the GEA 71 in the rack. This can cause damage to occur to the connectors, unit, and/or unit rack. If strong resistance is felt during installation, stop! Remove the GEA 71 and identify the source of resistance. The unit is designed with a key and the back plate is designed to float in the unit rack. Check to make sure that the rear plate is not blocked by the connector harness.

- (1) With the lock lever in the up position, carefully install the data link in the avionics rack.
- (2) Lower the lock lever.

**CAUTION:** Carefully use your fingers to start the screw in the screw hole to prevent damage to the screw or the screw hole threads. Do not apply more than 14 inch-pounds (1.6 N-m) to the screw. More than 14 inch-pounds (1.6 N-m) of torque to the screw will cause damage to the screw and the GSD 41.

- (3) Tighten the screw in the lock lever and torque to no more than 14 inch-pounds (1.6 N-m).
- (4) Install the MFD. Refer to Garmin Display Unit - Removal/Installation.
- (5) Engage the ENG INTFC circuit breaker.
- (6) Connect external electrical power to the airplane.
- (7) If a new GEA 71 is installed do the G1000 Baseline Software/Configuration Load. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.

**NOTE:** The above software and configuration procedure must be completed successfully before doing the High-Side Current Monitor Calibration.

- (8) If a new unit is installed, perform the High - Side Current Monitor Calibration. Refer to Table 201 and Garmin G1000 Line Maintenance Manual.

**Table 201. High-Side Current Monitor Calibration**

#### SHUNT ISOLATION PROCEDURE FOR HIGH-SIDE CURRENT MONITOR CALIBRATION

**NOTE:** Engine Start/Run is not required. The procedures below ensure the 208/208B current shunts are conditioned to be energized at normal bus voltage, but with no current flowing through the shunts, as required per the Caravan Line Maintenance Manual, Section 2.7.1, 'In the Aircraft:' paragraph, Step 1.

<p><b>INITIAL CONFIGURATION</b></p> <p><b>NOTE:</b> Perform Battery SHUNT ISOLATION procedure immediately after INITIAL CONFIGURATION. GENERATOR, ALTERNATOR and PROP HEAT SHUNT ISOLATION procedures may be performed in any order thereafter.</p>	<p><b>OUTSIDE COCKPIT</b></p> <p>LINE CONT SENSE Circuit Breaker (HZ001 in Main J-Box) - Pull                  ETM POWER Circuit Breaker (HZ008 in Main J-Box, if installed) - Pull                  EXTERNAL POWER - Power cart connected and external power available                  MAIN BATTERY - Battery connected and charged* (&gt; 26.0 VDC)                  * Charged battery is required for GENERATOR SHUNT ISOLATION test.</p> <p><b>INSIDE COCKPIT</b></p> <p>STBY ALT PWR Switch - OFF                  BATTERY Switch - OFF                  EXTERNAL POWER Switch - BUS                  AVIONICS 1 &amp; 2 Switches - ON                  G1000 Displays - Configuration mode as required for High-Side Current Monitor Calibration, Reference Caravan G1000 LMM, Section 2.7.1</p>
<p><b>BATTERY SHUNT ISOLATION</b>                  GEA HSCM CHANNEL 3A                  BATT AMPS 1                  (Bus Bar HZ014 Unloaded)</p>	<p>Perform Steps in Consecutive Order:</p> <ol style="list-style-type: none"> <li>EXTERNAL POWER Switch - BUS</li> <li>BATTERY Switch - OFF (should already be OFF at start of BATTERY SHUNT ISOLATION procedure).</li> <li>G1000 Displays - Configuration mode as required for High-Side Current Monitor Calibration, Reference Caravan G1000 LMM, Section 2.7.1</li> </ol>
<p><b>GENERATOR SHUNT ISOLATION</b>                  GEA HSCM CHANNEL 1A                  ALTERNATOR AMPS ENG1                  (Bus Bar HZ012 Unloaded)</p>	<p>Perform Steps in Consecutive Order:</p> <ol style="list-style-type: none"> <li>BATTERY Switch - ON</li> <li>EXTERNAL POWER Switch - OFF</li> <li>G1000 Displays - Configuration mode as required for High-Side Current Monitor Calibration, Reference Caravan G1000 LMM, Section 2.7.1</li> </ol>
<p><b>ALTERNATOR SHUNT ISOLATION</b>                  GEA HSCM CHANNEL 2A                  ALTERNATOR AMPS ENG2                  (Bus Bar HZ017 Unloaded)</p>	<ol style="list-style-type: none"> <li>EXTERNAL POWER Switch - BUS</li> <li>BATTERY Switch - ON</li> <li>G1000 Displays - Configuration mode as required for High-Side Current Monitor Calibration, Reference Caravan G1000 LMM, Section 2.7.1</li> </ol>
<p><b>AIRCRAFT SHUTDOWN</b></p>	<ol style="list-style-type: none"> <li>AVIONICS 1 &amp; 2 Switches - OFF</li> <li>BATTERY Switch - OFF</li> <li>EXTERNAL POWER Switch - OFF</li> <li>LINE CONT SENSE Circuit Breaker (HZ001 in Main J-Box) - Engage</li> <li>ETM POWER Circuit Breaker (HZ008 in Main J-Box, if installed) - Engage</li> <li>Power Cart and Battery - As Required</li> </ol>

Figure 201 : Sheet 1 : GEA 71 Engine/Airframe Unit Installation

