GARMIN G1000 VHF COMMUNICATION SYSTEM - TROUBLESHOOTING

1. General

A. This section gives the troubleshooting procedures for the Garmin G1000 VHF Communication System. For a general overview of the Garmin Communication System refer to Garmin G1000 VHF Communication System - Description and Operation.

2. Tools and Equipment

NOTE: For the supplier publication part number and manufacturer data, refer to the Introduction - Supplier Publication List.

- None.
- Multimeter.

3. Reference Material

- Chapter 21, Cowl Deck Cooling Fans Post-Maintenance Checks
- Garmin G1000 VHF Communication System - Description and Operation
- Garmin G1000 VHF Communication System - Adjustment/Test
- Comant VHF Antenna - Removal/Installation
- Chapter 34, Garmin G1000 Integrated Avionics System - Troubleshooting
- Chapter 34, Garmin G1000 Integrated Avionics System - Adjustment/Test
- Chapter 34, Garmin G1000 Integrated Avionics Unit - Removal/Installation
- Model 208 Wiring Diagram Manual.

4. Garmin VHF Communication System Troubleshooting

A. Do the Garmin VHF Communication System Troubleshooting.

(1) Connect external electrical power to the airplane.

(2) Make sure that the circuit breakers given in Table 101 are engaged.

Table 101. Circuit Breakers

Component Location	Circuit Breaker Name	Circuit Breaker Location
Left (No.1) Garmin GIA 63W Integrated Avionics Unit	COM 1	Avionics Circuit Breaker Panel
	NAV 1	Avionics Circuit Breaker Panel
Right (No.2) Garmin GIA 63W Integrated Avionics Unit	COM 2	Avionics Circuit Breaker Panel
	NAV 2	Avionics Circuit Breaker Panel

(3) Refer to Chapter 34, Garmin G1000 Integrated Avionics System - Adjustment/Test G1000 Architecture Verification Check and make sure that:

(a) The correct software and configuration has been installed.

(b) All related systems are serviceable.

(c) The LRU serial number or a version number is not dashed.

(4) Make sure the COM1, COM2, GIA1 and GIA2 have check marks (green) next to their nomenclature on the list.

(a) This indicates the LRU is serviceable.

(5) Make sure that on the System Status List the COM1 and/or COM 2 do not show a red X .

(6) If the Garmin GIA shows an red X on the Avionics Status page, make sure that the electrical power and ground connections to the GIA is serviceable. Refer to the Model 208 Wiring Diagram Manual, Chapter 20, Wiring - Maintenance Practices.

(7) Remove electrical power from the airplane.

(a) Do a visual check and make sure that:

1 There is no physical damage to the applicable wire bundles.

2 There are no bent, broken or pushed back pins at the wire bundle connectors.

(8) When you did the Architecture Verification check, if a serial number or a version number is dashed on the Avionics Status page do the steps that follow:

NOTE: Serial number is not reported for the following equipment: COM1, COM2, GS1, GS2, GTX1, GTX 2 (OPT), NAV1, NAV2, AND WX500.

CAUTION: Do not touch bus wiring to each other or to shield grounds. Damage to equipment or circuits can result.

(a) Do a visual check of the GIA data busses and make sure that:

1 There is no physical damage to the buses.

2 There are no bent, broken or pushed back pins at the data bus connectors.

(b) Use a multimeter to do a continuity check of the bus wires.

NOTE: Check the HSDB and the ARINC 429 bus wiring.

1 Make sure that there is continuity only from each wires' related pin end to end and to no other wires, airplanes grounds, or shields.

(9) If the GIA is incapable of transmitting or receiving communications, do as follows:

(a) Visually inspect the antenna coaxial cables and connectors.

1 Make sure that the coaxial cables have no nicks, kinks or other visible physical damage.

2 Make sure that all connectors are properly secured and connected in their correct places.

(b) Make sure that the VHF navigation antennas are properly grounded.

(c) Interchange the left and the right Garmin GIA 63W Integrated Avionics Unit. Refer to Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

NOTE: The VHF receiver functionality is in the left and the right Garmin GIA 63W Integrated Avionics Units.

NOTE: When redundant line replaceable units (LRUs) are interchanged in the airplane and are kept in the new position, they must be configured again. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.

1 Do the VHF operational check. Refer to Garmin G1000 VHF Communication System - Adjustment/Test.

a If the problem follows the Garmin GIA 63W Integrated Avionics Unit, replace it. Refer to Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

(d) Replace the applicable VHF Comant antenna. Refer to Comant VHF Antenna - Removal/Installation.

1 Do the GPS antenna check again. Refer to Garmin G1000 VHF Communication System - Adjustment/Test

(e) If the problem does not follow the Garmin GIA 63W Integrated Avionics Unit, or replaced antenna does not correct the anomaly, there is a wiring bundle, coaxial, or configuration/software fault. Continue troubleshooting the system fault. Refer to the Model 208 Wiring Diagram Manual, Chapter 20, Wiring - Maintenance Practices.

B. VHF 1 and 2 Communication System Error Message Troubleshooting.

(1) For GIA 63W error message troubleshooting refer to Chapter 34, Garmin G1000 Integrated Avionics System - Troubleshooting

(2) Check the primary flight display crew alert system (CAS) alert window for messages to aid in troubleshooting the anomaly.

(3) Push the rightmost softkey on the PFD and make sure that no Alert messages show in the Alerts window.

(a) For VHF (COM1, COM2) Alert message troubleshooting refer to Table 102.

Table 102. VHF CAS Alert Message Troubleshooting

CAS Alert Message	Potential Cause	Correction Action
COM1 SERVICE – COM1 needs service. Return unit for repair.	The G1000 has determined COM 1 needs service.	1. Replace GIA 1. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

COM2 SERVICE – COM2 needs service. Return unit for repair.	The G1000 has determined COM 2 needs service.	1. Replace GIA 2. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.
COM1 PTT – COM1 push-to-talk key is stuck.	The COM 1 external push-to-talk is stuck in the enabled (or pushed) state.	1. Push the PTT switch again to cycle its operation. Refer to Garmin G1000 VHF Communication System - Adjustment/Test. 2. Check the PTT Switch and wiring. Refer to the Model 208 Wiring Diagram Manual. 3. Replace GIA 1. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation. 4. Replace the GMA Garmin GMA 1347 Audio Panel System Components.
COM2 PTT – COM1 push-to-talk key is stuck.	The COM 2 external push-to-talk is stuck in the enabled (or pushed) state	1. Push the PTT switch again to cycle its operation. Refer to Garmin G1000 VHF Communication System - Adjustment/Test. 2. Check the PTT Switch and wiring. Refer to the Model 208 Wiring Diagram Manual. 3. Replace GIA 1. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation. 4. Replace the GMA. Garmin GMA 1347 Audio Panel System Components.
COM1 TEMP – COM1 over temp. Reducing transmitter power.	COM 1 temperature is too high. Power consumption is being reduced by reducing the transmitter power.	1. Make sure that the Cowl Deck Fans are serviceable. Refer to Chapter 21, Cowl Deck Cooling Fans Post-Maintenance Checks. 2. Replace GIA 1. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.
COM2 TEMP – COM1 over temp. Reducing transmitter power.	COM 2 temperature is too high. Power consumption is being reduced by reducing the transmitter power.	1. Refer to Chapter 21Cowl Deck Cooling Fans Post-Maintenance Checks. 2. Replace GIA 2. Refer to Chapter 34 Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

C. Put the Airplane Back to its Initial Condition.

(1) If necessary, disconnect the external electrical power from the airplane.