GARMIN G1000 VHF NAVIGATION SYSTEM - TROUBLESHOOTING

1. General

A. This section gives the troubleshooting for the Garmin VHF Navigation System. For a general description of the Garmin G1000 VHF Navigation System, refer to Garmin G1000 VHF Navigation System - Description and Operation.

2. Garmin VHF Navigation System Troubleshooting

A. Tools and Equipment

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

(1) Tools and Equipment

- Multimeter.

(2) Special Consumables

- None.

(3) Reference Material

- Garmin G1000 VHF Navigation System - Description and Operation
- Garmin G1000 VHF Navigation System - Adjustment/Test
- VHF Navigation Antenna - Removal/Installation
- VHF Navigation Antenna Coupler - Removal/Installation
- Garmin G1000 Integrated Avionics System - Adjustment/Test
- Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation
- Model 208 Wiring Diagram Manual.

B. Do the Garmin VHF Navigation 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
No. 1 (Left) Garmin GIA 63W Integrated Avionics Unit	COM 1	Avionics Circuit Breaker Panel
	NAV 1	Avionics Circuit Breaker Panel
No. 2 (Right) 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 NAV1 and/or NAV2 do not show a red X .

(6) If the Garmin GIA shows an red X on the System 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) If a serial number or a version number is dashed, carefully examine the electrical wiring and components as follows: Refer to the Model 208 Wiring Diagram Manual, Chapter 20, Wiring - Maintenance Practices.

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

(a) Do a visual check of the electrical connectors and airplane electrical connectors for bent pins and pushed back pins.

1 If necessary, repair the damage.

(b) Make sure that electrical power and ground signals are present.

(c) Make sure that data bus lines are correctly terminated and secure.

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

(d) Remove electrical power from the airplane.

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

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.

(f) Do a visual check of the wiring components and make sure that all applicable strapping is correct and any necessary G1000 system strapping is correct.

(g) Do a visual check of the wiring bundles for damage.

1 If necessary, repair or replace the wiring bundles. Refer to the Model 208 Wiring Diagram Manual, Chapter 20, Wiring - Maintenance Practices.

(h) Do a check of the applicable system wiring for continuity, ground faults, or other unserviceable conditions.

1 If necessary, repair or replace the wiring bundles. Refer to the Model 208 Wiring Diagram Manual, Chapter 20, Wiring - Maintenance Practices.

(i) Do a visual check of the coaxial cable connections to the VHF Navigation antenna and VHF Navigation antenna coupler.

1 Tighten loose coaxial cable connectors as necessary.

2 Repair or replace unserviceable coaxial cable as necessary.

(j) Interchange the left and the right Garmin GIA 63W Integrated Avionics Unit. Refer to Chapter 34, Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

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

NOTE: When redundant line replaceable units (LRU)'s are interchanged in the airplane and are kept in the new position, they must be configured again. Refer to Chapter 34, Garmin G1000 Integrated Avionics System - Adjustment/Test.

1 Do the Garmin VHF Navigation System Functional Check. Refer to Chapter 34, Garmin G1000 VHF Navigation System - Adjustment/Test.

a If the problem follows the Garmin GIA 63W Integrated Avionics Unit, replace it. Refer to Chapter 34, Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.

b Do the Garmin VHF Navigation System Functional Check again. Refer to Chapter 34, Garmin G1000 VHF Navigation System - Adjustment/Test.

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

(8) If the VHF navigation system wiring is serviceable replace the components that follow:

(a) Replace the navigation antenna coupler. Refer to VHF Navigation Antenna Coupler - Removal/Installation.

1 Do an operational check of the VHF navigation system again. Refer to Garmin G1000 VHF Navigation System - Adjustment/Test.

(b) Replace the VHF navigation antennas. Refer to VHF Navigation Antenna - Removal/Installation.

1 Do an operational check of the VHF navigation system again. Refer to Garmin G1000 VHF Navigation System - Adjustment/Test.

2 Do an operational check of the glideslope system. Refer to Landing Aids - Adjustment/Test.

NOTE: The glideslope system closed loop antenna is an integral part of the VHF NAV antennas.

C. VHF Navigation System CAS Message Troubleshooting

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

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

(b) For troubleshooting VHF Navigation System error messages refer to Table 102.

Table 102. VHF Navigation CAS Alert Messages

CAS Alert Message	Potential Cause	Correction Action
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	The G1000 has detected a failure in NAV 1 receiver.	1. Replace GIA 1. Refer to Chapter 34, Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	The G1000 has detected a failure in NAV 2 receiver	1. Replace GIA 2. Refer to Chapter 34, Garmin G1000 GIA 63W Integrated Avionics Unit - Removal/Installation,

D. Put the Airplane Back to its Initial Condition.

(1) Disconnect the external electrical power from the airplane.