

GARMIN G1000 VHF NAVIGATION SYSTEM - ADJUSTMENT/TEST

1. General

- A. This page block gives the operational test procedures for the Garmin G1000 VHF Navigation (NAV) System. The systems the check procedures are given for include, VOR 1 and 2, Localizer 1 and 2, and Glideslope 1 and 2. There is a VHF NAV 1 system and a VHF NAV 2 system installed on the airplane. For a general overview of the Garmin VHF Navigation System refer to Garmin G1000 VHF Navigation System - Description and Operation.
- B. The VHF NAV 1, VHF NAV 2 receiver/transmitter functions are found in the Garmin GIA 63W Integrated Avionics Units No.1 and No. 2, respectively. For a general overview of the GIA 63W unit refer to Garmin G1000 GIA 63W Integrated Avionics Unit - Description and Operation.

2. Garmin G1000 VHF NAV System Operational Check

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
 - IFR 4000 test set.
- (2) Special Consumables
 - None.
- (3) Reference Material
 - Garmin G1000 VHF Navigation System - Description and Operation
 - Garmin G1000 Integrated Avionics System - Adjustment/Test.

B. Prepare the Airplane

- (1) Make sure that the switches that follow are in the OFF position:
 - (a) BATTERY switch.
 - (b) EXTERNAL POWER switch.
 - (c) AVIONICS 1 and 2 switches.
- (2) Connect external electrical power to the airplane.
 - (a) Adjust the ground power unit (GPU) to 28Vdc, +0.5 or -0.5 Vdc.
- (3) Make sure that all the circuit breakers on the Avionics circuit breaker panel are engaged.
- (4) Put the switches that follow in the positions given:
 - (a) External POWER switch to the BUS position.
 - (b) BATTERY switch to the ON position.
 - (c) Avionics 1 and 2 switches to the ON position.
- (5) After the Garmin G1000 system is fully initiated refer to Garmin G1000 Integrated Avionics System - Adjustment/Test and do the steps that follow:
 - (a) Do the Architecture Verification check and make sure all systems are serviceable.
 - (b) Make sure that the correct software and configuration has been installed.

C. VHF NAV 1 Antenna Operational Check (Refer to Figure 501).

CAUTION: Signal generators can be a source of electromagnetic interference (EMI) to communication receivers. Some transmitted signals can cause disruption and interference to communication services out to a distance of several miles. When you use this equipment make sure that you scrutinize system operations that result in signal radiation (directly or indirectly) and take the necessary precautions to prevent communication interference problems that can occur.

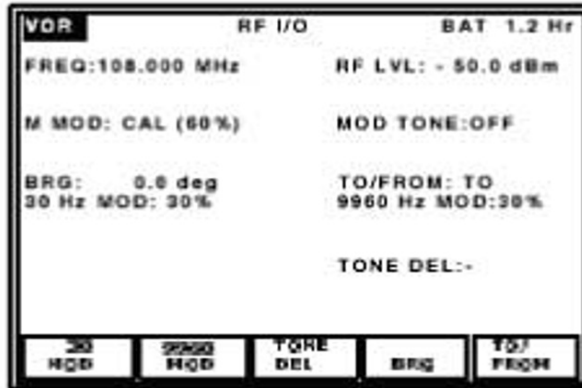
- (1) On the IFR 4000 test set select VOR mode and set:
 - (a) FREQ to 108.00 MHz.
 - (b) BRG to 0.00 degrees (TO).
 - (c) RF LEVEL to the maximum setting.

- (2) On the primary flight display (PFD) 1, tune NAV1 to 108.00 MHz.
 - (3) On PFD 1, push the CDI Softkey on the PFD main menu until the VOR1 arrow and green annunciation shows on the horizontal situation indicator.
 - (4) On PFD 1, push the PFD Softkey then the BRG1 Softkey.
 - (a) The NAV dialog window opens next to the HSI.
 - (5) On PFD 1, push the CRS/BARO knob and make sure that:
 - (a) The PFD 1, NAV1 course deviation indicator (CDI) is centered within +1 or -1 pointer width.
 - (b) The ambiguity flag points toward 360°.
 - (c) The BRG 1 information window shows a frequency of 108.00.
 - (d) The single needle pointer points to 360°, + 2° or -2°.
 - (6) On the IFR 4000 test set, push the RF LEVEL then push the down arrow key again and again to lower the signal level.
 - (a) Reduce the signal level until the NAV1 CDI disappears.
 - (b) Make sure that the frequency readout in the BRG 1 information window changes to NO DATA.
 - (7) On the IFR 4000 test set, push the RF LEVEL then push the up arrow key again and again to increase the signal level.
 - (a) Increase the signal level until the NAV1 CDI appears.
 - (b) Make sure that the frequency readout in the BRG 1 information window shows a frequency of 108.00.
 - (8) Use NAV 2 and do the Antenna Operational Check.
- D. Localizer Operation Check (Refer to Figure 501).
- (1) On the IFR 4000 do the steps that follow:
 - (a) Select LOCALIZER mode.
 - (b) Set frequency to 108.100 MHz.
 - (c) Use the left and right arrow buttons to set LOC DDM to 0.00 CENTER.
 - (2) On the PFD main menu, push the 'CDI' soft key until the LOC 1 arrow and the green annunciation show on the horizontal situation indicator (HSI) display area.
 - (a) Make sure that the PFD course deviation indicator (CDI) is centered within + 1 to -1 pointer width.
 - (3) On the IFR 4000, set LOC DDM to 0.093 LEFT.
 - (a) Make sure that the PFD course deviation indicator deflects left one dot + 1 to - 1 pointer width.
 - (4) On the IFR 4000, set LOC DDM to 0.155 LEFT.
 - (a) Make sure that the PFD course deviation indicator deflects left two dots + 1 to - 1 pointer width.
- E. VHF NAV Audio Check
- (1) On the IFR 4000, set the TONE to 1020 Hz.
 - (2) On the GMA 1347 audio panel:
 - (a) Select NAV 1 as the receiver source.
 - (b) Set the speaker to ON.
 - (c) Push the VOL knob to select the ID Morse code identifier for NAV1 and make sure that:
 - 1 The ID annunciation is shown between the active and standby NAV frequencies in the NAV frequency window.
 - 2 The 1020 Hz tone is heard in the overhead speaker.
 - (3) Use NAV 2 and do the Localizer Operation Check again.
- F. Glideslope 1 Antenna Operational Check (Refer to Figure 501).
- NOTE:** The Glideslope 1 and Glideslope 2 operational tests are typical. When you do the Glideslope 2 test replace Glideslope 1 with Glideslope 2 to configure the IFR 4000 and Primary Flight Display (PFD) for the test steps.
- (1) On the IFR 4000 test set select GLIDESLOPE mode and set:

- (a) FREQ to 108.100 MHz.
 - (b) GS DDM to 0.00 degrees (use the left and right arrow buttons in the bottom right corner of the test set).
 - (2) On PFD 1, tune NAV1 to 108.10 MHz,
 - (3) On PFD 1, press the CDI softkey on the PFD main menu until LOC1 arrow and green annunciation is displayed on the Horizontal Situation Indicator.
 - (a) Make sure that the PFD 1 vertical deviation/glideslope indicator is centered +1 or -1 of pointer width.
 - (4) On the IFR 4000 set the DDM to 0.091 UP.
 - (a) Make sure that the PFD 1, vertical deviation/glideslope indicator deflects up 1 dot +1 or -1 pointer width.
 - (5) On the IFR 4000 set the DDM to 0.175 UP.
 - (a) Make sure that the PFD 1, vertical deviation/glideslope indicator deflects up 2 dots +1 or -1 pointer width.
 - (6) On the IFR 4000 set the DDM to 0.091 DOWN.
 - (a) Make sure that the PFD 1, vertical deviation/glideslope indicator deflects down 1 dot +1 or -1 pointer width.
 - (7) On the IFR 4000 set the DDM to 0.175 DOWN.
 - (a) Make sure that the PFD 1, vertical deviation/glideslope indicator deflects down 2 dots +1 or -1 pointer width.
 - (8) Select Glideslope 2 and do the Antenna Operational Check again.
- G. Put the Airplane Back to its Initial Condition.
- (1) Put the switches that follow to the OFF position:
 - (a) BATTERY switch.
 - (b) EXTERNAL POWER switch.
 - (c) AVIONICS 1 and 2 switches.
 - (2) Disconnect external electrical power from the airplane.

Figure 501 : Sheet 1 : IFR 4000 Screens

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IFR 4000 VOR SCREEN



IFR 4000 LOCALIZER SCREEN



IFR 4000 GLIDE SLOPE SCREEN