## GARMIN GTX SERIES TRANSPONDER SYSTEM - TROUBLESHOOTING

## 1. General

A. This section gives the troubleshooting procedures for the Garmin GTX Series Transponder System. For a general overview of the Garmin GTX Series Transponder System refer to Garmin GTX-Series Transponder System - Description and Operation.

# 2. Garmin GTX Transponder 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
    - Chapter 34, Garmin GTX Series Transponder System Adjustment/Test
    - Chapter 34, Garmin GTX Series Transponder System Removal/Installation
    - Chapter 34, Comant Transponder Antenna Removal/Installation
    - Chapter 34, Global Positioning System (GPS)/XM Antenna Removal/Installation
    - Chapter 34, Garmin G1000 Integrated Avionics System Adjustment/Test
    - Chapter 34, Garmin G1000 GIA 63W/64W Integrated Avionics Unit Removal/Installation
    - Model 208/208B Wiring Diagram Manual.
- B. Do the Garmin GTX Transponder System Troubleshooting.
  - (1) Refer to the Garmin G1000 Line Maintenance Manual in the Supplier Publication List and make sure that:
    - NOTE: The Garmin G1000 Line Maintenance Manual are software specific, make sure to use the correct version for your software configuration.
    - (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.
  - (2) Make sure the GTX has check mark (green) next to its nomenclature on the list.
    - (a) This indicates the line replaceable unit (LRU) is serviceable.
  - (3) Check the primary flight display crew alerting system (CAS) Alerts Window for error messages to aid in troubleshooting the anomaly. For GTX alert message troubleshooting refer to, Table 101.
  - (4) Check for GTX alert messages shown on the CAS annunciation window on the PFDs. For GTX alert message troubleshooting refer to, Table 102.
  - (5) 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, GTX1, GTX2 (Optional) GS2, NAV1, NAV2, AND WX500. Serial Numbers for GTX1 and GTX2 are reported for with Garmin NXi Software Configurations.
    - (a) Do a visual check of the electrical connectors and airplane electrical connectors for bent pins and pushed back pins.
      - <u>1</u> 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.
  - <u>1</u> 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.
  - <u>1</u> 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.
  - <u>1</u> 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 GTX series antenna(s).
  - <u>1</u> Tighten loose coaxial cable connectors as necessary.
  - 2 Repair or replace unserviceable coaxial cable as necessary.
- (6) If the GTX series transponder system wiring is serviceable replace the components that follow:
  - (a) Replace the GTX series transponder. Refer to Garmin GTX Series Transponder System Removal/Installation.
    - <u>1</u> Do an operational check of the Garmin GTX series transponder system again. Refer to Garmin GTX Series Transponder System Adjustment/Test.
  - (b) Replace the applicable antenna. Refer to Garmin GTX Series Transponder System Removal/Installation.
    - <u>1</u> Do an operational check of the GTX series transponder system again. Refer to Garmin GTX Series Transponder System Adjustment/Test.

## C. GTX System Alert Message Troubleshooting.

- (1) For CAS messages and System Alert Messages related to other Garmin LRU's, refer to the applicable LRU section for CAS alert message troubleshooting.
- (2) Push the rightmost softkey on the PFD and make sure that no Alert messages show in the Alerts window.
  - (a) For GTX Alert messages refer to Table 101.

#### Table 101. GTX Alert Messages

GTX Alert Messages	Cause	Corrective Action
XPDR1 CONFIG XPDR1 configuration error. Config service req�d.	The system has detected a transponder 1 configuration mismatch.	<ol> <li>Load correct configuration in XPDR 1. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.</li> <li>Replace PFD 1 master configuration module. Refer to Garmin G1000 Master configuration Module - Removal/Installation.</li> </ol>
XPDR2 CONFIG XPDR1 configuration error. Config service req�d.	The system has detected a transponder 2 configuration mismatch.	<ol> <li>Load correct configuration in XPDR 2. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.</li> <li>Replace PFD 1 master configuration module. Refer to Garmin G1000 Master configuration Module - Removal/Installation.</li> </ol>
MANIFEST <b></b> XPDR1 software mismatch. Communication halted.	The system has detected an incorrect software version loaded in XPDR 1.	1. Load correct software into XPDR 1. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.

MANIFEST XPDR2 software mismatch. Communication halted.	The system has detected an incorrect software version loaded in XPDR 2.	1. Load correct software into XPDR 1. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.
XPDR1 SERVICE XPDR1 needs service. Return unit for repair	A failure has been detected in XPDR 1. Transponder functionality may still be available.	1. If problem continues replace XPDR 1. Refer to Garmin GTX Series Transponder System - Removal/Installation.
XPDR2 SERVICE XPDR2 needs service. Return unit for repair	A failure has been detected in XPDR 2. Transponder functionality may still be available.	1. If problem continues replace XPDR 1. Refer to Garmin GTX Series Transponder System - Removal/Installation.
XPDR1 FAIL � XPDR1 is inoperative.	A failure has been detected in XPDR 1. Transponder functionality is not available.	<ol> <li>Troubleshoot XPDR 1 wiring and make sure that it is serviceable. Refer to the Model 208 Wiring Diagram Manual.</li> <li>Replace XPDR 1. Refer to Garmin GTX Series Transponder System - Removal/Installation.</li> </ol>
XPDR2 FAIL � XPDR2 is inoperative.	A failure has been detected in XPDR 2. Transponder functionality is not available.	<ol> <li>Troubleshoot XPDR 2 wiring and make sure that it is serviceable. Refer to the Model 208 Wiring Diagram Manual.</li> <li>Replace XPDR 2. Refer to Garmin GTX Series Transponder System - Removal/Installation.</li> </ol>

# Table 102. GTX Alert Messages

GTX Alert Messages	Cause	Corrective Action
XPDR1 ADS-B FAIL	GTX-33ES, GTX-335R, GTX 345R only. ADS-B Out does not operate. The transponder is possibly not receiving a valid GPS signal. Other transponder functionality may still be avialable.	<ol> <li>Make sure that at least one of the two GIA 63W/64W units is receiving a GPS solution of 3D DIFF NAV. (ADS-B out is dependent on a GPS solution).</li> <li>Make sure the transponder antenna coaxial cables and connectors are serviceable. Refer to the Model 208 Wiring Diagram manual.</li> <li>Replace the GTX Series transponder. Refer to Garmin GTX Series Transponder System - Removal/Installation.</li> <li>Replace each of the two GIA 63W/64W units. Refer to Garmin Integrated Avionics Unit (GIA 63W/64W)- Removal/Installation.</li> <li>Replace each of the two GPS/XM antennas. Refer to Global Positioning System (GPS)/XM Antenna - Removal/Installation.</li> </ol>

If the master configuration module is replaced the unlock cards for optional systems (TAWS, Jeppesen Aviation Database, Terrain Database card, ect.) must be replaced.

- D. Put the Airplane Back to its Initial Condition.
  - (1) Disconnect the external electrical power from the airplane.