

## 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

- Garmin GTX Series Transponder System - Adjustment/Test
- Garmin GTX Series Transponder System - Removal/Installation
- Comant Transponder Antenna - Removal/Installation
- Global Positioning System (GPS)/XM Antenna - Removal/Installation
- Garmin G1000 Integrated Avionics System - Adjustment/Test
- Garmin G1000 GIA 63W 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 alert 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, GS2, GTX1, GTX 2 (OPT), NAV1, NAV2, AND WX500.

**NOTE:** The components that follow are not listed on the System Status List page: KR 87 ADF, KN 63 DME, KTA 870 TAS, KRA 405B, KHF 1050 HR Radio System, ME406 ELT, and the C406-N ELT.

- (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 GTX series antenna(s).
  - 1 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.
    - 1 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.
    - 1 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 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**

| <b>GTX Alert Messages</b>                                       | <b>Cause</b>  | <b>Corrective Action</b>  |
|---|---|---|
| XPDR1 CONFIG – XPDR1 configuration error. Config service req'd. | The system has detected a transponder 1 configuration mismatch.         | 1. Load correct configuration in XPDR 1. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.<br>2. Replace PFD 1 master configuration module. Refer to Garmin G1000 Master configuration Module - Removal/Installation. |
| XPDR2 CONFIG – XPDR1 configuration error. Config service req'd. | The system has detected a transponder 2 configuration mismatch.         | 1. Load correct configuration in XPDR 2. Refer to Garmin G1000 Integrated Avionics System - Adjustment/Test.<br>2. Replace PFD 1 master configuration module. Refer to Garmin G1000 Master configuration Module - Removal/Installation. |
| MANIFEST – 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<br>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<br>1. Transponder functionality may still be available. | 1. If problem continues replace XPDR<br>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<br>2. Transponder functionality may still be available. | 1. If problem continues replace XPDR<br>1. Refer to Garmin GTX Series Transponder System - Removal/Installation.  |
| XPDR1 FAIL – XPDR1 is inoperative.                          | A failure has been detected in XPDR<br>1. Transponder functionality is not available.       | 1. Troubleshoot XPDR 1 wiring and make sure that it is serviceable. Refer to the Model 208 Wiring Diagram Manual.<br>2. Replace XPDR 1. Refer to Garmin GTX Series Transponder System - Removal/Installation. |
| XPDR2 FAIL – XPDR2 is inoperative.                          | A failure has been detected in XPDR<br>2. Transponder functionality is not available.       | 1. Troubleshoot XPDR 2 wiring and make sure that it is serviceable. Refer to the Model 208 Wiring Diagram Manual.<br>2. Replace XPDR 2. Refer to Garmin GTX Series Transponder System - Removal/Installation. |

**Table 102. GTX Alert Messages**

| <b>GTX Alert Messages</b> | <b>Cause</b>   | <b>Corrective Action</b>   |
|---------------------------|--|--|
| 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 available. | 1. Make sure that at least one of the two GIA 63 units is receiving a GPS solution of 3D DIFF NAV. (ADS-B out is dependent on a GPS solution).<br>2. Make sure the transponder antenna coaxial cables and connectors are serviceable. Refer to the Model 208 Wiring Diagram manual.<br>3. Replace the GTX Series transponder. Refer to Garmin GTX Series Transponder System - Removal/Installation.<br>4. Replace each of the two GIA 63 units. Refer to Garmin Integrated Avionics Unit (GIA 63)- Maintenance Practices.<br>5. Replace each of the two GPS/XM antennas. Refer to Global Positioning System (GPS)/XM Antenna - Removal/Installation. |

|                             |   |  |
|-----------------------------|---|--|
| <p>XPDR2 ADS-B FAIL</p>     | <p>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 available.</p> | <ol style="list-style-type: none"> <li>1. Make sure that at least one of the two GIA 63 units is receiving a GPS solution of 3D DIFF NAV. (ADS-B out is dependent on a GPS solution).</li> <li>2. Make sure the transponder antenna coaxial cables and connectors are serviceable. Refer to the Model 208 Wiring Diagram manual.</li> <li>3. Replace the GTX series transponder. Refer to Garmin GTX Series Transponder System - Removal/Installation.</li> <li>4. Replace each of the two GIA 63 units. Refer to Garmin Integrated Avionics Unit (GIA 63)- Maintenance Practices.</li> <li>5. Replace each of the two GPS/XM antennas. Refer to Global Positioning System (GPS)/XM Antenna - Removal/Installation.</li> </ol> |
| <p>XPDR 1 ADS-B In FAIL</p> | <p>GTX-345R only. ADS-B In does not operate. The transponder is possibly not receiving a valid input signal. Other transponder functionality may still be available.</p>                    | <ol style="list-style-type: none"> <li>1. Make sure the transponder antenna coaxial cables and high speed data bus connectors are serviceable. Refer to the Model 208 Wiring Diagram manual.</li> <li>2. Do the GTX-345R ADS-B In configuration Refer to G1000 NXi GTX-345 Transponder ADS-B In Configuraion.</li> <li>3. Replace the GTX-345R transponder. Refer to Garmin GTX Series Transponder System - Removal/Installation.</li> <li>4. Replace each of the two GIA 63 units. Refer to Garmin Integrated Avionics Unit (GIA 63)- Maintenance Practices.</li> <li>5. 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.