INDEPENDENT POSITION DETERMINING

1. DESCRIPTION

This section covers that portion of the system which provides information to determine position from sources which are mainly independent of ground installations. This includes the Stormscope, SkyWatch, Terrain Awareness and Warning System (TAWS), Synthetic Vision System, and Garmin Traffic System (GTS 800).

A. Stormscope System

The Stormscope system consists of an antenna located on top of the fuselage and a processor unit mounted under the aft baggage floor. The antenna detects the electrical and magnetic fields generated by intra-cloud, inter-cloud, or cloud to ground electrical discharges occurring within 200 nm of the airplane and sends the “discharge” data to the processor. The processor digitizes, analyzes, and converts the “discharge” signals into range and bearing data and communicates the data to the MFD every two seconds.

Serials 22-0002 thru 22-1086: The Stormscope system is powered by 28 VDC through the 3-amp STORMSCOPE circuit breaker on the Avionics Non-Essential Bus.

Serials 22-1087 & subs w/o Perspective Avionics: The Stormscope system is powered by 28 VDC through the 3-amp WEATHER/STORMSCOPE circuit breaker on the Avionics Non-Essential Bus.

Serials w/ Perspective Avionics: The Stormscope system is powered by 28 VDC through the 3-amp WEATHER circuit breaker on the Avionics Bus.

For additional information on the Stormscope system, refer to the Stormscope WX-500 User's Guide. (Refer to 05-10)

B. SkyWatch System

Serials w/o Perspective Avionics: The SkyWatch system consists of an antenna located on top of the fuselage and a Transmitter Receiver Computer (TRC) box installed below either the RH (Serials 22-0002 thru 22-1601, 22-1603 thru 22-1820, 22-1822 thru 22-1839, 22-1841 thru 22-1862) or LH cabin seat (Serials 22-1602, 22-1821, 22-1840, 22-1863 & subs, 22T-0001 & subs). SkyWatch is an airborne Traffic Advisory System (TAS) that monitors airspace by interrogating transponder-equipped aircraft in the area and determining if a collision threat exists. Traffic advisories are indicated on the MFD and GNS 430 displays. Aural “Traffic, Traffic” warnings are announced in the headphones and cabin speaker.

Serials 22-0002 thru 22-1601, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18, 22-1602, 22-1644, 22-1663 & subs, 22T-0001 & subs: To minimize distractions during critical phases of flight, the SkyWatch aural warnings are inhibited and system sensitivity is decreased when the flap switch is set to either the 50% or 100% positions. For maintenance practices pertinent to the flap switch, see Flaps. (Refer to 27-50)

Serials 22-0002 thru 22-1035: The SkyWatch system is powered by 28 VDC through the 5-amp SKYWATCH circuit breaker on the Avionics Non-Essential Bus.

Serials 22-1036 & subs w/o Perspective Avionics: The SkyWatch system is powered by 28 VDC through the 5-amp SKYWATCH/TAWS circuit breaker on the Avionics Non-Essential Bus.

Serials w/ Perspective Avionics: The L-3 Skywatch HP system consists of an antenna located on top of the fuselage and a Transmitter Receiver Computer (TRC) box installed on bulkhead 222 in the empenage. Skywatch is an airborne Traffic Advisory System (TAS) that advises the pilot of transponder-equipped aircraft that may pose a collision threat. Traffic advisory information is displayed on the MFD and indicates the relative range, bearing, and altitude of intruder aircraft. The system utilizes inputs from the secondary Integrated Avionics Units via the primary Air Data Computer and is controlled via the MFD or Flight Management System Keyboard. The SkyWatch system is powered by 28 VDC through the 5-amp TRAFFIC circuit breaker on the Avionics Bus.
For additional information on the SkyWatch system, refer to the SkyWatch SKY497 Installation Manual and the SkyWatch SKY497 Pilot's Guide. (Refer to 05-10)

C. Terrain Awareness and Warning System (TAWS)

Serials w/o Perspective Avionics: The Honeywell KGP 560 Terrain Awareness and Warning System (TAWS) consists of the TAWS Processor mounted on the underside of the pilot-side kick plate, a Terrain/Obstacle Database integral to the processor, the Configuration Module integral to the system's wire harness, and the TAWS annunciation LEDs and control switches mounted on the lower LH portion of the instrument panel. The system compares GPS information from the Garmin Navigator to the integrated Terrain/Obstacle Database to produce a real-time model of the surrounding terrain. To enhance the situational awareness to the pilot, color-coded terrain display is overlayed on the MFD and aural alerts are communicated to the pilot via the Garmin GMA 340 Audio System.

The TAWS Processor is powered by 28 VDC through the 5-amp SKYWATCH/TAWS circuit breaker on the Avionics Non-Essential Bus. For additional information on the TAWS system, refer to the KGP 560 & 860 EGPWS Pilot's Guide. (Refer to 05-10)

Serials w/ Perspective Avionics: The Terrain Awareness/Warning System receives data from the GPS receiver to determine horizontal position and altitude and compares this information to the onboard terrain and obstacle databases to calculate and “predict” the aircraft’s flight path in relation to the surrounding terrain and obstacles. In this manner, TAWS provides advanced alerts of predicted dangerous terrain conditions via aural alerts communicated through the pilot’s headset and color-coded terrain annunciations displayed on the PFD.

D. Synthetic Vision System

Serials w/ Perspective Avionics: The Synthetic Vision System (SVS) is intended to provide the pilot with enhance situational awareness by placing a three dimensional depiction of terrain, obstacles, traffic, and the desired flight path on the PFD so that proximity and location is more easily understood during instrument scanning. The SVS database is created from a digital elevation model with a 9 arc-sec (approx. 885 ft (270m)) horizontal resolution.

The synthetic vision system is not intended to be used independently of traditional attitude instrumentation. Consequently, SVS is disabled when traditional attitude instrumentation is not available. Otherwise, the traditional attitude instrumentation will always be visible in the foreground with SVS features in the background. The PFD with SVS installed includes:

- Perspective depiction of surrounding terrain,
- Zero pitch line,
- Perspective depiction of runways,
- Perspective depiction of large bodies of water,
- Perspective depiction of obstacles,
- Flight path marker,
- Terrain warning system,
- Field of view depiction on the MFD Navigation Page.
E. Garmin Traffic System (GTS 800)

Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics: The Garmin Traffic System (GTS 800) consists of an antenna located on top and bottom of the fuselage and a Line Replaceable Unit (LRU) box installed below the LH cabin seat.

GTS 800 is an airborne Traffic Advisory System (TAS) that advises the pilot of transponder-equipped aircraft that may pose a collision threat. Traffic advisory information is displayed on the PFD and indicates the relative range, bearing, and altitude of intruder aircraft. The system utilizes inputs from the secondary Integrated Avionics Units via the primary Air Data Computer and is controlled via the MFD or Flight Management System Keyboard. The GTS 800 system is powered by 28 VDC through the 5-amp TRAFFIC circuit breaker on the Avionics Bus.

For additional information on the GTS 800 system, refer to the Cirrus Perspective Integrated Avionics System Pilot's Guide. (Refer to 05-10)
2. TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Unit does not power up - Data failed message.</strong></td>
<td>Improper wiring; circuit breaker open.</td>
<td>Ensure power is properly wired to the GTS 8XX and the circuit breaker is closed.</td>
</tr>
<tr>
<td></td>
<td>Improper configuration.</td>
<td>Verify using the USB Install Tool that the GTS 8XX is configured correctly for the desired display.(^a)</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): GTS 8XX Install Tool won't display any pages.</strong></td>
<td>Improper wiring; circuit breaker open.</td>
<td>Ensure USB is properly wired to the GTS 8XX and the circuit breaker is closed.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): No Audio alerts.</strong></td>
<td>Improper wiring; Volume not set correctly.</td>
<td>Ensure the audio is properly wired from the GTS 8XX and volume is not set too low.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Configuration Fault.</strong></td>
<td>Both internal and external configuration checks failed.</td>
<td>Verify the configuration via the GTS 8XX Install Tool.(^a) Verify wiring to the configuration module and replace if necessary.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): FPGA Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): ROM Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Execution Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Electrical Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Whisper Shout Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Transmit Power Fault.</strong></td>
<td>Internal voltages are out of tolerance.</td>
<td>Verify input voltage and if it continues return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): 1030 MHz Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): 1090 MHz Fault.</strong></td>
<td>Internal Fault.</td>
<td>Return to Garmin for service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Receiver Fault.</strong></td>
<td>Antenna connections or internal fault.</td>
<td>Ensure all antenna connections are correct otherwise return to Garmin for Service.</td>
</tr>
<tr>
<td><strong>Serials w/ Garmin Traffic System (GTS 800): Transmitter Fault.</strong></td>
<td>Antenna connections or internal fault.</td>
<td>Ensure all antenna connections are correct otherwise return to Garmin for Service.</td>
</tr>
<tr>
<td>Trouble</td>
<td>Probable Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Serials w/ Garmin Traffic System (GTS 800): Baro Altitude Fault.</td>
<td>Baro Altimeter is not powered on or improper wiring.</td>
<td>Verify that the baro altimeter has power and is properly wired.</td>
</tr>
<tr>
<td></td>
<td>Improper configuration settings.</td>
<td>Verify the configuration is set correctly using the GTS 8XX Install Tool.a</td>
</tr>
<tr>
<td>Serials w/ Garmin Traffic System (GTS 800): Temperature Fault.</td>
<td>Fan is not operating, Poor ventilation at the mounting location.</td>
<td>Verify the fan is running and the unit is getting adequate ventilation</td>
</tr>
<tr>
<td>Serials w/ Garmin Traffic System (GTS 800): Red 'X' on a data port on the configuration page.</td>
<td>Improper wiring; wrong port or speed selected.</td>
<td>Ensure the port is properly wired to the GTS 8XX and the correct settings are selected on the configuration page.</td>
</tr>
</tbody>
</table>

a. Call Cirrus Design for information on obtaining the GTS 8XX Install Tool.
3. MAINTENANCE PRACTICES

A. Stormscope Processor and Tray (See Figure 34-401)

(1) Removal - Stormscope Processor and Tray

(a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
(b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
(c) Remove processor.
   1. Remove baggage compartment access panel CF5. (Refer to 06-00)
   2. Remove safety wire securing knurled nut to mounting tray, then loosen and swing knurled nut away from clasp.
   3. Pull processor straight out of mounting tray and remove from airplane.
(d) Serials 22-0002 & subs w/o PFD: Remove processor tray.
   1. Remove cabin headliner. (Refer to 25-10)
   2. Remove LH rear headliner trim. (Refer to 25-10)
   3. Remove LH baggage trim. (Refer to 25-10)
   4. Remove cable ties securing antenna cable to fuselage wall.
   5. Disconnect antenna cable from antenna and remove cable from access panel CF5.
   6. Remove carpet and access panels CF4C, CF3C, and CF2R. (Refer to 06-00)
   7. Remove cable ties securing heading input cable to fuselage floor.
   8. Disconnect heading input cable from HSI slave amplifier and remove cable through access panel CF5.
   9. Remove fasteners securing tray to baggage floor and remove from airplane.
(e) Serials 22-0435 & subs w/ PFD, 22T-0001 & subs: Remove processor tray.
   1. Remove cabin headliner. (Refer to 25-10)
   2. Remove LH rear headliner trim. (Refer to 25-10)
   3. Remove LH baggage trim. (Refer to 25-10)
   4. Remove cable ties securing antenna cable to fuselage wall.
   5. Disconnect antenna cable from antenna and remove cable from access panel CF5.
   6. Remove fasteners securing tray to baggage floor and remove from airplane.

(2) Installation - Stormscope Processor and Tray

(a) Serials 22-0002 & subs w/o PFD: Install processor tray.
   1. Acquire necessary tools, equipment, and supplies.
   2. Position mounting tray washers over floor mounting holes, then secure washers to underside of the floor with masking tape.
   3. Position mounting tray assembly against the taped washers, then secure with Loctite and fasteners. Remove tape. (Refer to 20-40)
   4. At access panel CF5, route heading input cable beneath cabin floor and connect cable to HSI slave amplifier. Secure cable with cable ties as required.
   5. At access panel CF5, route antenna cable along cabin wall and connect cable to antenna. Secure cable with cable ties as required.
   6. Install access panels CF4C, CF3C, CF2R, and carpet. (Refer to 06-00)
   7. Install cabin headliner. (Refer to 25-10)
   8. Install LH rear headliner trim. (Refer to 25-10)
   9. Install LH baggage trim. (Refer to 25-10)

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loctite</td>
<td>-</td>
<td>Loctite Corp.</td>
<td>Lock threads.</td>
</tr>
</tbody>
</table>
(b) **Serials 22-0435 & subs w/ PFD, 22T-0001 & subs:** Install processor tray.

1. Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
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<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loctite</td>
<td>-</td>
<td>Loctite Corp.</td>
<td>Lock threads.</td>
</tr>
</tbody>
</table>

2. Position mounting tray washers over floor mounting holes, then secure washers to underside of the floor with masking tape.

3. Position mounting tray assembly against the taped washers, then secure with Loctite and fasteners. Remove tape. *(Refer to 20-40)*

4. At access panel CF5, route antenna cable along cabin wall and connect cable to antenna. Secure cable with cable ties as required.

5. Install cabin headliner. *(Refer to 25-10)*

6. Install LH rear headliner trim. *(Refer to 25-10)*

7. Install LH baggage trim. *(Refer to 25-10)*

(c) Install processor.

1. With medium pressure, push processor into mounting tray to engage connectors, then secure with knurled nut.

2. Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.

3. Perform Functional Test - Stormscope System. *(Refer to 34-40)*

4. Perform Functional Test - Engine Run-Up with Stormscope System. *(Refer to 34-40)*

5. Safety wire knurled nut to processor handle.

6. Install access panel CF5 and baggage floor carpet. *(Refer to 06-00)*

(3) **Functional Test - Stormscope System**

(a) Set BAT 1, BAT 2, and AVIONICS switches to ON positions.

(b) Pull STARTER RELAY and FUEL PUMP RELAY circuit breakers.

(c) **Serials w/ ARNAV MFD:** Perform Self-Test procedure.

1. Press [Self-Test], then wait approximately 10 seconds.

2. Verify TEST COMPLETE and PASSED is displayed.

3. Press RH top button.

4. Press [Noise Monitor].

5. A small number of triggers and/or random noise points inside display ring is acceptable. Call Cirrus Design Customer Service if electrical noise indications are persistent.

6. While monitoring MFD for electrical noise, toggle NAV, STROBE, LANDING LIGHT, and PITOT HEAT switches to ON and OFF positions.

7. Deploy FLAPS to full deflection, then retract.

8. Operate ROLL and PITCH TRIM.

9. Press [Exit].

(d) **Serials w/ ARNAV MFD:** Perform Strike Test procedure.

1. Press [Strike Test].

2. During Strike Test, a strike should display and clear inside of box every 2-3 seconds. Call Cirrus Design Customer Service if the Strike Test fails.

3. Verify test strikes are inside of box. A strike should be displayed and cleared inside of box every 2-3 seconds.

4. Press [Exit].

5. Press [End].

6. Press [Mapping], then verify that software exits to the Main Map page.
(e) **Serials w/ Avidyne MFD:** Perform Lightning Self-Test procedure.

1. Confirm selected ranges:

<table>
<thead>
<tr>
<th>MFD</th>
<th>30NM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANDEL</td>
<td>30NM</td>
</tr>
<tr>
<td>GNC 420</td>
<td>35NM</td>
</tr>
<tr>
<td>or</td>
<td>GNS 430</td>
</tr>
</tbody>
</table>

2. On MFD, rotate left knob to select Setup page.
3. Press [Lightning Self Test].
   For Avidyne MFD, a strike should be displayed every 2-3 seconds, in the 2 o'clock position-relative to aircraft heading.
   For PFD, heading must be available with ADAHRS operational.
   For Sandel, STST should flash on the display indicating Stormscope is in test mode.
   For GNS 430 on 2nd Nav page, strikes should be displayed in the 2 o'clock position-relative to aircraft heading.
4. When test is complete, verify LIGHTNING SENSOR IS OPERATING NORMALLY is displayed at bottom of MFD display.

(f) **Serials w/ Garmin MFD:** Perform Self-Test and Strike Test procedures.

1. Pull PFD#1, PFD#2, MFD#1, MFD#2 circuit breakers.
2. While holding far right softkey on PFD and MFD, restore power to displays by resetting PFD and MFD circuit breakers.
3. When the words INITIALIZING SYSTEM appear in the upper left corner of the displays, release the softkeys.
4. On PFD, use [FMS] knob to select Other page group.
5. On Stormscope page, use [FMS] knob to activate cursor and move to the MODE field (default to Weather) in the test window.

   **Note:** If processor has been repaired or is a new or different unit from originally installed unit, the words ANTENNA ON TOP? YES OR NO may appear. Select YES to proceed with test.

7. Select STRIKE TEST and press [ENT] to initiate a STRIKE TEST. Verify test passes.
8. Pull PFD#1, PFD#2, MFD#1, MFD#2 circuit breakers.
9. Reset PFD and MFD circuit breakers to restart displays in normal operating mode.

(g) Reset STARTER RELAY and FUEL PUMP RELAY circuit breakers.

(h) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.

(4) **Functional Test - Engine Run-Up with Stormscope System**

   **Note:** The Engine Run-up Test must be performed when thunderstorms are not present within 200 nautical miles.

(a) Set BAT 1, BAT 2, and AVIONICS switches to ON positions.
(b) With the airplane secured outdoors, start engine.
(c) Set ALT 1 and ALT 2 switches to ON positions.
(d) **Serials w/ ARNAV MFD:** Select range.
   1 Press [LT OFF] to select “Strike mode”.
   2 Press [120] to select “360°”.
   3 Press [25 Nautical Mile] repeatedly to select “200 Nautical Mile”.

(e) **Serials w/ Avidyne MFD:** Select range.
    1 Set [Range] knob to select “200”.

(f) **Serials w/ Garmin MFD:** Select range.
    1 Set [Range] knob to select “200”.

(g) Run engine up to 1,500 RPMs, with one or both alternators operating, then verify MFD display is free from erroneous strikes.

   **Note:** Call Cirrus Design Customer Service if test fails.

(h) Stop engine, then set all switches to OFF positions.
B. Stormscope Antenna *(See Figure 34-401)*

1. Removal - Stormscope Antenna
   a. Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   b. Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   c. Remove cabin headliner. *(Refer to 25-10)*
   d. Disconnect antenna cable from antenna.
   e. Remove nuts and washers securing antenna to fuselage.
   f. Remove antenna and gasket from top of fuselage.
   g. Peel off remaining sealant from fuselage.

2. Installation - Stormscope Antenna
   a. Acquire necessary tools, equipment, and supplies.
   b. Position antenna gasket and antenna over installation holes, then insert washers and screws.
   c. Loosely install the antenna with washers and nuts.
   d. Route antenna cable up through installation hole, then connect cable to antenna connector.
   e. Place the antenna ground wire terminal ring on the forward mounting screw, then secure both antenna-mounting screws.
   f. Install center headliner. *(Refer to 25-10)*
   g. Fillet seal antenna perimeter. *(Refer to 20-10)*
   h. Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   i. Perform Functional Test - Stormscope System. *(Refer to 34-40)*
   j. Perform Functional Test - Engine Run-Up with Stormscope System. *(Refer to 34-40)*

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caulk Sealant</td>
<td><em>(Refer to 51-30)</em></td>
<td><em>(Refer to 51-30)</em></td>
<td>Weather sealant.</td>
</tr>
</tbody>
</table>
Figure 34-401
Stormscope System Installation - Serials 22-0002 & subs, 22T-0001 & subs w/o AC (Sheet 1 of 2)

EFFECTIVITY:
Serials 22-0002 & subs, 22T-0001 & subs w/o AC

Serials 22-0002 thru 22-0820.

LEGEND
1. Screw
2. Washer
3. Antenna
4. Antenna Gasket
5. Terminal Ring
6. Nut
7. Countersunk Washer
8. Standoff
9. Mounting Tray
10. Knurled Nut
11. Processor

DETAIL A
FUSELAGE (REF)

DETAIL B
AFT CABIN FLOOR (REF)

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Stormscope Installation - Serials 22-1863 & subs, 22T-0001 & subs w/ AC (Sheet 2 of 2)

DETAIL C

Serials 22-1602, 22-1821, 22-1840, 22-1863 & subs, 22T-0001 & subs w/ Air Conditioning.

LEGEND
1. Screw
2. Washer
8. Standoff
9. Mounting Tray
10. Knurled Nut
11. Processor

Figure 34-401

CIRRUS AIRPLANE MAINTENANCE MANUAL MODELS SR22 AND SR22T

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C. SkyWatch Transmitter Receiver Computer (TRC) - *Serials w/o Perspective Avionics* (See Figure 34-402)

(1) Removal - SkyWatch Transmitter Receiver Computer (TRC)

(a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.

(b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.

(c) **Serials 22-0002 thru 22-1601, 22-1603 thru 22-1820, 22-1822 thru 22-1839, 22-1841 thru 22-1862:** Remove RH crew seat. *(Refer to 25-10)*

(d) **Serials 22-1602, 22-1821, 22-1840, 22-1863 & subs:** Remove LH crew seat. *(Refer to 25-10)*

(e) Remove screws securing cover panel and lanyard assembly to fuselage floor.

   **Note:** Nutplate may be secured to cabin floor surface with 5-minute epoxy.

(f) **Serials 22-0002 thru 22-0820:** Remove screw, spacer, and nutplate securing retainer bracket to fuselage floor.

(g) **Serials 22-0821 & subs:** Remove screws and nutplate securing retainer bracket to fuselage floor.

(h) Disconnect cables and wiring from TRC.

(i) Slide TRC off tapered mounting pins and remove from airplane.

(2) Installation - SkyWatch Transmitter Receiver Computer (TRC)

(a) Slide TRC onto tapered mounting pins.

(b) Connect cables and wiring to TRC.

   **Note:** Nutplate may be secured to cabin floor surface with 5-minute epoxy.

(c) **Serials 22-0002 thru 22-0820:** Position TRC to fuselage floor and secure with retainer bracket, spacer, nutplate, and screw.

(d) **Serials 22-0821 & subs:** Position TRC to fuselage floor and secure with retainer bracket, nutplate, and screws.

(e) Position cover panel and lanyard assembly to fuselage floor and secure with screws.

(f) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.

(g) Perform Functional Test - SkyWatch System. *(Refer to 34-40)*

(h) **Serials 22-0002 thru 22-1601, 22-1603 thru 22-1820, 22-1822 thru 22-1839, 22-1841 thru 22-1862:** Install RH crew seat. *(Refer to 25-10)*

(i) **Serials 22-1602, 22-1821, 22-1840, 22-1863 & subs:** Install LH crew seat. *(Refer to 25-10)*

(3) Functional Test - SkyWatch System

**CAUTION:** SkyWatch Ground Test should be performed using BF Goodrich Model TT391 Flightline Tester. SkyWatch Ground Test must be performed outside and as far away as possible from buildings and other obstructions.

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flightline Tester</td>
<td>TT391</td>
<td>BFGoodrich</td>
<td>Perform SkyWatch ground test.</td>
</tr>
</tbody>
</table>
(b) Connect 28 ±1 VDC external power to external power receptacle.
(c) Set BAT 1, BAT 2, and AVIONICS switches to ON positions.
(d) Pull STARTER RELAY and FUEL PUMP RELAY circuit breakers.
(e) Connect serial communication cable to COM 1 port of laptop computer and SkyWatch setup port on front of SkyWatch box.
(f) Turn on computer, then select "Programs/Accessories/Communications/HyperTerminal" from the [Start] menu.
(g) Set your HyperTerminal connection as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laptop Computer</td>
<td>HyperTerminal Software</td>
<td>Any Source</td>
<td>Setup and Calibrate SkyWatch Installation.</td>
</tr>
<tr>
<td>Serial Communication Cable</td>
<td>-</td>
<td>Any Source</td>
<td>Calibrate SkyWatch.</td>
</tr>
<tr>
<td>Calibrated Pitot/Static Test Set</td>
<td>Model 393</td>
<td>Aircraft Instrument Support Services, Inc. Round Rock, TX 78664 800-593-2096</td>
<td>Simulate static air pressure.</td>
</tr>
<tr>
<td>Sealant Tape</td>
<td>GS 100</td>
<td>General Sealants Industry, CA 91745 800-762-1144</td>
<td>Cover pitot tube.</td>
</tr>
</tbody>
</table>

(h) When prompt appears, type "?", then press [Enter] on keyboard for a list of commands.
(i) Type "config", then press [Enter] on keyboard.
(j) Verify configuration as follows:

SKY497 CONFIGURATION STRAPS:

HDG. (XYZ/STEP/429) XYZ
- Serials 22-0002 thru 22-0820 w/o PFD

HDG. (XYZ/STEP/429) 429
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 & subs w/o Perspective Avionics

P1-70 GND
P1-69
- Serials 22-0002 thru 22-0820 w/o PFD

P1-69
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 & subs w/o Perspective Avionics

HEADING FLAG SENSE
- Serials 22-0002 thru 22-0820 w/o PFD

HEADING FLAG SENSE
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 & subs w/o Perspective Avionics

P1-68
- Serials 22-0002 thru 22-0820 w/o PFD

P1-68
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 & subs w/o Perspective Avionics

DR/ALT.422 (DR/422)

DR

P1-67
OPEN

ANT. POS. (TOP/BOT)

TOP

P1-100
OPEN

ANTENNA NY (164/156)

NY164

P1-99
OPEN

AIRFRAME (FIX/ROT)

FIX

P1-98
OPEN

Ext Audio (EN/DIS)
- Serials 22-0002 thru 22-2437

P1-94
- Serials 22-0002 thru 22-2437

Ext Audio (EN/DIS)
- Serials 22-2438 & subs w/o Perspective Avionics

P1-94
- Serials 22-2438 & subs w/o Perspective Avionics

ALTERNATE DISPLAY TYPE

ARINC735 Type 1

P1-80
GND

P1-79
OPEN

P1-78
OPEN

P1-77
OPEN

STP_CONFIG4P1-97
OPEN

STP_CONFIG5P1-96
OPEN
STP_CONFIG6P1-95

STP SOFT SWITCHES:

Ext Audio (ON/OFF)
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18, 22-1602, 22-1644, 22-1663 thru 22-2437
  OFF

P1-86
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18, 22-1602, 22-1644, 22-1663 thru 22-2437
  OPEN

Ext Audio (ON/OFF)
- Serials 22-2438 & subs w/o Perspective Avionics
  ON

P1-86
- Serials 22-2438 & subs w/o Perspective Avionics
  GND

IOP SOFT SWITCHES:

SQUAT (ON GND/FLY)
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 before SB 2X-34-18
  OFF

P1-88
GND

GEAR (UP/DOWN)
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18
  DOWN

GEAR (UP/DOWN)
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18, 22-1602, 22-1644, 22-1663 & subs w/o Perspective Avionics
  UP

P1-87
- Serials 22-0002 thru 22-1610, 22-1603 thru 22-1643, 22-1645 thru 22-1662 before SB 2X-34-18
  OPEN

P1-87
GND

GPWS (ACT/INACT)
INACT

P1-32
OPEN

BAROMETRIC ENCODED ALTITUDE:

D4 0
C4C2C1 0 1 0
B4B2B1 0 1 1
A4A2A1 0 0 0
ALTIMETER

### feet (Altitude should be field elevation ±300 feet and agree with transponder)

(k) **Serials 22-0002 thru 22-1601, 22-1603 thru 22-1643, 22-1645 thru 22-1662 after SB 2X-34-18, 22-1602, 22-1644, 22-1663 & subs w/o Perspective Avionics:** Verify flap switch audio inhibit feature functions properly.

1. Set flap switch to “UP” position.

   **Note:** Ensure small hole on forward, bottom portion of the pitot tube is covered by the pitot line sleeve or sealant tape.

2. Connect pitot line from pitot/static test set to pitot mast on airplane.

   **CAUTION:** Verify pump is turned off before connecting test set to electrical outlet.

3. Connect test set to electrical outlet.

4. Close pitot, static and cross feed control valves.

5. Close pitot and static bleed/vent valves.

6. Set vacuum pressure selector to pressure source.

7. Set pump power switch to ON position.

8. Slowly open pitot control valve until airspeed indicator displays greater than 40kts and SkyWatch speed switch opens.

9. Type “config”, then press [Enter] on keyboard.

10. Verify configuration as follows:

    **IOP SOFT SWITCHES:**

    **Squat (ON GND/FLY)**
    - FLYING
    - P1-88 OPEN

    **Gear (UP/DOWN)**
    - UP
    - P1-87 OPEN

11. Maintaining simulated speed of greater than 40kts, set flap switch to “50%” position.

12. Type “config”, then press [Enter] on keyboard.

13. Verify configuration as follows:

    **IOP SOFT SWITCHES:**

    **Squat (ON GND/FLY)**
    - FLYING
    - P1-88 OPEN

    **Gear (UP/DOWN)**
    - DOWN
    - P1-87 GND

14. Maintaining simulated speed of greater than 40kts, set flap switch to “100%” position.

15. Type “config”, then press [Enter] on keyboard.
16 Verify configuration as follows:

**IOP SOFT SWITCHES:**

- **Squat (ON GND/FLY)**: FLYING
- P1-88: OPEN
- **Gear (UP/DOWN)**: DOWN
- P1-87: GND

17 Close pitot control valve to allow speed switch to close and simulated airspeed to return to 0kts.

18 Type "config", then press [Enter] on keyboard.

19 Verify configuration as follows:

**IOP SOFT SWITCHES:**

- **Squat (ON GND/FLY)**: ON GND
- P1-88: GND
- **Gear (UP/DOWN)**: DOWN
- P1-87: GND

20 Set flap switch to "50%" position.

21 Type "config", then press [Enter] on keyboard.

22 Verify configuration as follows:

**IOP SOFT SWITCHES:**

- **Squat (ON GND/FLY)**: ON GND
- P1-88: GND
- **Gear (UP/DOWN)**: DOWN
- P1-87: GND

23 Set flap switch to "UP" position.

24 Type "config", then press [Enter] on keyboard.

25 Verify configuration as follows:

**IOP SOFT SWITCHES:**

- **Squat (ON GND/FLY)**: ON GND
- P1-88: GND
- **Gear (UP/DOWN)**: DOWN
- P1-87: GND

26 Set pump power switch to OFF position.
27 Disconnect test set from electrical outlet.
28 Disconnect test set pitot line from pitot mast.

(l) Type "cal", then press [Enter] on keyboard. Verify the following information is displayed:
ASKING FOR CURRENT CALIBRATION VALUE.
STARTING CALIBRATION. PLEASE WAIT...
RE-CALIBRATION SUCCESSFUL!
OLD CAL VALUE: XXX DEGREES
NEW CAL VALUE: XXX DEGREES

(m) Type "save", then press [Enter] on keyboard. Verify the following information is displayed:

SAVING SKY497 CONFIG STRAPS:
Configuration P1-70 Heading set to Ground
Configuration P1-69 Heading set to Open
- Serials 22-0002 thru 22-0820 w/o PFD
Configuration P1-69 Heading set to Ground
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 &
  subs w/o Perspective Avionics
Configuration P1-68 HeadFlgSen set to High
- Serials 22-0002 thru 22-0820 w/o PFD
Configuration P1-68 HeadFlgSen set to Low
- Serials 22-0435 thru 22-0820 w/ PFD, 22-0821 &
  subs w/o Perspective Avionics
Configuration P1-67 DR/Alt.422 set to Data Rec.
Configuration P1-100 Ant.Pos set to Top
Configuration P1-99 Ant.Type set to NY-164
Configuration P1-98 Airframe set to Fixed Wing
Configuration P1-80 AltDispType set to Ground
Configuration P1-79 AltDispType set to Open
Configuration P1-78 AltDispType set to Open
Configuration P1-77 AltDispType set to Open

(n) Type "sensors", then press [Enter] on keyboard. Verify the following information is displayed:

HEADING SOURCE Synchro XYZ
- Serials 22-0002 thru 22-0820 w/o PFD
HEADING SOURCE ARINC 429
- Serials 22-0435 thru 22-0820 w/ PFD,
  22-0821 & subs w/o Perspective Avionics
HEADING IS VALID  ## degrees (Heading should be ±2° of PFD heading)

BAROMETRIC ALTITUDE SOURCE  Encoded Inputs

BAROMETRIC ALTITUDE IS VALID  ###### feet (Altitude should be field elevation ±300 ft and agree with transponder)

RADIO ALTITUDE SOURCE  ARINC 429

RADIO ALTITUDE  Invalid

(o) Type "say 4", then press [Enter] on keyboard.
1  “Traffic, Traffic” should be heard in the headsets and over the speaker.
2  If enabled for extended audio, “Traffic, Traffic, 12 o’clock, same altitude, less than a mile” should be heard in the headsets and over the speaker.

(p) If Flightline Tester is available, perform Ground Test.
1  Type "ground test", then press [Enter] on keyboard.
2  Verify the following information is displayed:

SYSTEM IN GROUND TEST MODE
SIMULATING BAROMETRIC ALTITUDE:  50,000 FT.
SIMULATING RADAR ALTIMETER:        2,500 FT.
SIMULATING HEADING:         0 DEG
GEAR AND SQUAT SWITCH OVERRIDE IN EFFECT
3  Set Flightline Tester power switches to ON positions. If LOW indicator is displayed, replace internal batteries or plug tester into AC power.
4  Set SELF-TEST switch to 1030 position, then verify 1030 indicator blinks on for about a half second every 5 seconds.
5  Set SELF-TEST switch to 1090 position, then verify 1090 indicator blinks on for about a half second every 5 seconds.
6  Set SELF-TEST switch to OFF position.
7  Separate Flightline Tester cover (antenna) from tester chassis.
8  Connect Flightline Tester coax cable to J3 on Antenna and J1 in chassis.
9  Move to a position approximately 30-40 feet in front of airplane at bearing 0°.
10  With antenna about 4 feet above ground level, point antenna towards airplane.

Note: Both targets will be displayed in level flight at same aircraft altitude; "00” displayed above traffic symbol.

11  Verify GNC 250 XL/GNC 420/GNS 430 and Avidyne MFD (if installed) display direction (±30°) of Flightline Tester and two target information as follows:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>solid circle</td>
<td>A Traffic Advisory at ¼ nm</td>
</tr>
<tr>
<td>open diamond</td>
<td>Other Traffic at 4.5 nm</td>
</tr>
</tbody>
</table>

12  Set Flightline Tester power switches to OFF positions or position antenna away from aircraft.
13 Perform test at 30° intervals: 0°, 30°, 60°, 90°, 120°, 150°, 180°, 210°, 240°, 270°, 300°, and 330°.
14 Set Flightline Tester power switches to OFF positions.
15 To exit Ground Test mode and return SkyWatch to normal operating mode, type "ground off", then press [Enter] on keyboard.

(q) Reset STARTER RELAY and FUEL PUMP RELAY circuit breakers.
(r) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
(s) Disconnect 28 ±1 VDC external power from external power receptacle.
D. SkyWatch Transmitter Receiver Computer (TRC) - *Serials w/ Perspective Avionics* (See Figure 34-402)

1. Removal - SkyWatch Transmitter Receiver Computer (TRC)
   a. Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   b. Pull TRAFFIC circuit breaker.
   c. Remove empennage access panel RE3. *(Refer to 06-00)*
   d. Disconnect cables and wiring from TRC.

   **Note:** TRC removal requires two technicians.

   e. Remove bolts and washers securing upper TRC bracket to bulkhead.
   f. Remove bolt and washer securing inboard end of lower TRC bracket to bulkhead.
   g. Remove screw securing outboard end of lower TRC bracket to bulkhead.
   h. Remove TRC from airplane.

2. Installation - SkyWatch Transmitter Receiver Computer (TRC)
   a. Position TRC to bulkhead and secure upper TRC bracket with screws and washers. Torque bolts to 15 in-lb (1.69 Nm).
   b. Secure inboard end of lower TRC bracket to bulkhead with bolt and washer. Torque bolt to 15 in-lb (1.69 Nm).
   c. Secure outboard end of lower TRC bracket to bulkhead with screw. Torque screw to 15 in-lb (1.69 Nm).
   d. Connect cables and wiring to TRC.
   e. Install empennage access panel RE3. *(Refer to 06-00)*
   f. Reset TRAFFIC circuit breaker.
   g. Perform Functional Test - SkyWatch System. *(Refer to 34-40)*

3. Adjustment/Test - SkyWatch System

   **CAUTION:** SkyWatch Ground Test should be performed using BFGoodrich Model TT391 Flightline Tester. SkyWatch Ground Test must be performed outside and as far away as possible from buildings and other obstructions.

   a. Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flightline Tester</td>
<td>TT391</td>
<td>BFGoodrich</td>
<td>Perform ground test.</td>
</tr>
<tr>
<td>Laptop Computer (IBM Compatible)</td>
<td>HyperTerminal Software</td>
<td>Any Source</td>
<td>Setup and Calibrate SkyWatch Installation.</td>
</tr>
<tr>
<td>Serial Communication Cable</td>
<td>-</td>
<td>Any Source</td>
<td>Calibrate SkyWatch.</td>
</tr>
<tr>
<td>Calibrated Pitot/Static Test Set</td>
<td>Model 393</td>
<td>Aircraft Instrument Support Services, Inc. Round Rock, TX 78664 800-593-2096</td>
<td>Simulate static air pressure.</td>
</tr>
</tbody>
</table>
(b) Connect 28 ±1 VDC external power to external power receptacle.
(c) Pull STARTER RELAY and FUEL PUMP RELAY circuit breakers.
(d) Set BAT 1, BAT 2, and AVIONICS switches to ON positions.
(e) Connect serial communication cable to COM 1 port of laptop computer and SkyWatch setup port on front of SkyWatch box.
(f) Turn on computer, then select "Programs/Accessories/Communications/HyperTerminal" from the [Start] menu.
(g) Set your HyperTerminal connection as follows:

<table>
<thead>
<tr>
<th>Connecting Using</th>
<th>COM1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bits Per Second</td>
<td>19200</td>
</tr>
<tr>
<td>Data Bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
</tr>
<tr>
<td>Flow Control</td>
<td>X on/X off</td>
</tr>
</tbody>
</table>

Computer should connect to SkyWatch box automatically using HyperTerminal.

(h) When prompt appears, type "?", then press [Enter] on keyboard for a list of commands.
(i) Type "config", then press [Enter] on keyboard.
(j) Verify configuration as follows:

**SKY497 CONFIGURATION STRAPS:**

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealant Tape</td>
<td>GS 100</td>
<td>General Sealants Industry, CA 91745 800-762-1144</td>
<td>Cover pitot tube.</td>
</tr>
</tbody>
</table>

15 Jun 2010
<table>
<thead>
<tr>
<th>Switch/Setting</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ext Audio (EN/DIS)</td>
<td>EN</td>
</tr>
<tr>
<td>P1-94</td>
<td>GND</td>
</tr>
<tr>
<td>ALTERNATE DISPLAY TYPE</td>
<td>ARINC735 Type 1</td>
</tr>
<tr>
<td>P1-80</td>
<td>GND</td>
</tr>
<tr>
<td>P1-79</td>
<td>OPEN</td>
</tr>
<tr>
<td>P1-78</td>
<td>OPEN</td>
</tr>
<tr>
<td>P1-77</td>
<td>OPEN</td>
</tr>
<tr>
<td>STP_CONFIG4 P1-97</td>
<td>OPEN</td>
</tr>
<tr>
<td>STP_CONFIG5 P1-96</td>
<td>OPEN</td>
</tr>
<tr>
<td>STP_CONFIG6 P1-95</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

**STP SOFT SWITCHES:**

<table>
<thead>
<tr>
<th>Switch/Setting</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ext Audio (ON/OFF)</td>
<td>ON</td>
</tr>
<tr>
<td>P1-86</td>
<td>GND</td>
</tr>
</tbody>
</table>

**IOP SOFT SWITCHES:**

<table>
<thead>
<tr>
<th>Switch/Setting</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQUAT (ON GND/FLY)</td>
<td>ON GND</td>
</tr>
<tr>
<td>P1-88</td>
<td>GND</td>
</tr>
<tr>
<td>GEAR (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
<tr>
<td>GPWS (ACT/INACT)</td>
<td>INACT</td>
</tr>
<tr>
<td>P1-32</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

**BAROMETRIC ENCODED ALTITUDE:**

```
D4 0
C4C2C1 0 0 0
B4B2B1 0 0 0
A4A2A1 0 0 0
```

**ALTITUDE** 

```
#### feet (Altitude should be field elevation ±300 feet and agree with transponder)
```

(k) Verify flap switch audio inhibit feature functions properly.

1. Set flap switch to "UP" position.

   **Note:** Ensure small hole on forward, bottom portion of the pitot tube is covered by the pitot line sleeve or sealant tape.

2. Connect pitot line from pitot/static test set to pitot mast on airplane.
CAUTION: Verify pump is turned off before connecting test set to electrical outlet.

3 Connect test set to electrical outlet.
4 Close pitot, static and cross feed control valves.
5 Close pitot and static bleed/vent valves.
6 Set vacuum pressure selector to pressure source.
7 Set pump power switch to ON position.
8 Slowly open pitot control valve until airspeed indicator displays greater than 50kts and SkyWatch speed switch opens.
9 Type “config”, then press [Enter] on keyboard.
10 Verify configuration as follows:

IOP SOFT SWITCHES:

<table>
<thead>
<tr>
<th>Description</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squat (ON GND/FLY)</td>
<td>FLYING</td>
</tr>
<tr>
<td>P1-88</td>
<td>OPEN</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>UP</td>
</tr>
<tr>
<td>P1-87</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

11 Maintaining simulated speed of greater than 50kts, set flap switch to “50%” position.
12 Type “config”, then press [Enter] on keyboard.
13 Verify configuration as follows:

IOP SOFT SWITCHES:

<table>
<thead>
<tr>
<th>Description</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squat (ON GND/FLY)</td>
<td>FLYING</td>
</tr>
<tr>
<td>P1-88</td>
<td>OPEN</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
</tbody>
</table>

14 Maintaining simulated speed of greater than 50kts, set flap switch to “100%” position.
15 Type “config”, then press [Enter] on keyboard.
16 Verify configuration as follows:

IOP SOFT SWITCHES:

<table>
<thead>
<tr>
<th>Description</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squat (ON GND/FLY)</td>
<td>FLYING</td>
</tr>
<tr>
<td>P1-88</td>
<td>OPEN</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
</tbody>
</table>

17 Close pitot control valve to allow speed switch to close and simulated airspeed to return to 0kts.
18 Type “config”, then press [Enter] on keyboard.
19 Verify configuration as follows:

**IOP SOFT SWITCHES:**

<table>
<thead>
<tr>
<th>Squat (ON GND/FLY)</th>
<th>ON GND</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-88</td>
<td>GND</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
</tbody>
</table>

20 Set flap switch to "50%" position.

21 Type "config", then press [Enter] on keyboard.

22 Verify configuration as follows:

**IOP SOFT SWITCHES:**

<table>
<thead>
<tr>
<th>Squat (ON GND/FLY)</th>
<th>ON GND</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-88</td>
<td>GND</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
</tbody>
</table>

23 Set flap switch to "UP" position.

24 Type "config", then press [Enter] on keyboard.

25 Verify configuration as follows:

**IOP SOFT SWITCHES:**

<table>
<thead>
<tr>
<th>Squat (ON GND/FLY)</th>
<th>ON GND</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-88</td>
<td>GND</td>
</tr>
<tr>
<td>Gear (UP/DOWN)</td>
<td>DOWN</td>
</tr>
<tr>
<td>P1-87</td>
<td>GND</td>
</tr>
</tbody>
</table>

26 Set pump power switch to OFF position.

27 Disconnect test set from electrical outlet.

28 Disconnect test set pitot line from pitot mast.

(l) Type "cal", then press [Enter] on keyboard. Verify the following information is displayed:

*ASKING FOR CURRENT CALIBRATION VALUE.*

*STARTING CALIBRATION. PLEASE WAIT…*

*RE-CALIBRATION SUCCESSFUL!*

*OLD CAL VALUE: XXX DEGREES*

*NEW CAL VALUE: XXX DEGREES*

(m) Type "save", then press [Enter] on keyboard. Verify the following information is displayed:

**SAVING SKY497 CONFIG STRAPS:**
(n) Type "sensors", then press [Enter] on keyboard. Verify the following information is displayed:

**HEADING SOURCE**
ARINC 429

**HEADING IS VALID**
### degrees (Heading should be ±2° of PFD heading)

**BAROMETRIC ALTITUDE SOURCE**
ARINC 429

**BAROMETRIC ALTITUDE IS VALID**
#### feet (Altitude should be field elevation ±300 ft and agree with transponder)

**RADIO ALTITUDE SOURCE**
ARINC 429

**RADIO ALTITUDE**
Invalid

(o) Type "say 4", then press [Enter] on keyboard.
1 "Traffic, Traffic" should be heard in the headsets and over the speaker.

(p) Perform system test.
1 On MFD, select Traffic Map page.
2 On MFD, verify the following softkeys are available: [STANDBY], [OPERATE], [TEST] (only when in standby mode), and [ALT MODE].
3 Verify that a TAS mode (not TAS FAIL) is displayed in upper left corner of traffic map.
4 On MFD, verify that “NO DATA” is not displayed.
5 Press [OPERATE] softkey and verify that OPERATING is displayed in upper left corner of traffic map.
6 Press [STANDBY] softkey and verify that STANDBY is displayed in upper left corner of traffic map.
7 Press [TEST] softkey and verify that TEST is displayed in upper left corner of traffic map and a traffic test pattern is displayed. Upon completion of the test, verify that “SKYWATCH SYSTEM TEST PASSED” is heard over cockpit speaker.
8 Pull TRAFFIC circuit breaker.

Configuration P1-70  Heading  set to Ground
Configuration P1-69  Heading  set to Ground
Configuration P1-68  HeadFlgSen  set to Low
Configuration P1-67  DR/Alt.422  set to Data Rec.
Configuration P1-100  Ant.Pos  set to Top
Configuration P1-99  Ant.Type  set to NY-164
Configuration P1-98  Airframe  set to Fixed Wing
Configuration P1-94  ExtAudioCfg  set to Ext Audio
Configuration P1-80  AltDispType  set to Ground
Configuration P1-79  AltDispType  set to Open
Configuration P1-78  AltDispType  set to Open
Configuration P1-77  AltDispType  set to Open

Configuration P1-70  Heading  set to Ground
Configuration P1-69  Heading  set to Ground
Configuration P1-68  HeadFlgSen  set to Low
Configuration P1-67  DR/Alt.422  set to Data Rec.
Configuration P1-100  Ant.Pos  set to Top
Configuration P1-99  Ant.Type  set to NY-164
Configuration P1-98  Airframe  set to Fixed Wing
Configuration P1-94  ExtAudioCfg  set to Ext Audio
Configuration P1-80  AltDispType  set to Ground
Configuration P1-79  AltDispType  set to Open
Configuration P1-78  AltDispType  set to Open
Configuration P1-77  AltDispType  set to Open
9 On MFD, verify that NO DATA is displayed in yellow after several seconds.
10 Reset TRAFFIC circuit breaker.
11 On MFD, verify that NO DATA is removed after several seconds.
(q) Reset STARTER RELAY and FUEL PUMP RELAY circuit breakers.
(r) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
(s) Disconnect 28 ±1 VDC external power from external power receptacle.
E. SkyWatch Antenna (See Figure 34-402)

1. Removal - SkyWatch Antenna
   a. Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   b. Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   c. Remove cabin headliner. (Refer to 25-10)
   d. Disconnect antenna cables from antenna.
   e. Remove screws, washers, and nuts securing antenna to fuselage.
   f. Remove antenna and gasket from top of fuselage.
   g. Remove remaining sealant from fuselage.

2. Installation - SkyWatch Antenna
   a. Acquire necessary tools, equipment, and supplies.
   b. To improve cosmetic appearance of gasket installation, use utility knife to remove 0.2 inch (0.5 cm) from perimeter of new gasket.
   c. With arrow on antenna facing forward, place antenna and gasket into position.
   d. Secure antenna using screws, washers, and nuts. Tighten each screw until gasket material starts to squeeze out evenly from all sides of antenna.
   e. Apply a continuous bead of sealant around perimeter of antenna and fuselage mating surfaces.
   f. Using sealant, fill screw recesses flush to top surface.
   g. Connect cables to antenna.
      1. Connect blue tagged antenna cable to blue colored forward antenna connector.
      2. Connect black tagged antenna cable to black colored middle antenna connector.
      3. Connect red tagged antenna cable to red colored aft antenna connector.
   h. Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   i. Perform Functional Test - SkyWatch System. (Refer to 34-40)
   j. Install cabin headliner. (Refer to 25-10)

---

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caulk Sealant</td>
<td>(Refer to 51-30)</td>
<td>(Refer to 51-30)</td>
<td>Weather sealant.</td>
</tr>
<tr>
<td>Utility Knife</td>
<td>-</td>
<td>Any Source</td>
<td>Trim gasket.</td>
</tr>
</tbody>
</table>

---
F. SkyWatch Differential Pressure Switch - Serials w/o Perspective Avionics (See Figure 34-402)

(1) Removal - SkyWatch Differential Pressure Switch
   (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   (b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   (c) Remove LH kick plate. (Refer to 25-10)
   (d) Disconnect electrical terminals from switch.
   (e) Remove spring clip securing pitot line to switch.
   (f) Remove spring clip securing static line to switch.
   (g) Remove switch from airplane.

(2) Installation - SkyWatch Differential Pressure Switch
   (a) Position pitot line to switch and secure with spring clip.
   (b) Position static line to switch and secure with spring clip.
   (c) Connect electrical terminals to switch.
   (d) Perform Functional Test - Pitot System Plumbing. (Refer to 34-10)
   (e) Perform Functional Test - Static System Plumbing. (Refer to 34-10)
   (f) Install LH kick plate. (Refer to 25-10)
   (g) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
Figure 34-402
SkyWatch System - Serials 22-0002 thru 22-1862 (Sheet 1 of 4)

DETAIL A

NOTE
May be secured to cabin floor surface with 5-minute epoxy.

LEGEND
1. TRC Box
2. Cover Panel
3. Dual Lock
4. Screw
5. Spacer
6. Inboard Retainer Bracket
7. Outboard Retainer Bracket
8. Rubber Spacer
9. Tapered Mounting Pin
10. Bolt
11. Nutplate
12. Washer

EFFECTIVITY:
Serials 22-0002 thru 22-1862

34-40
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Figure 34-402  
SkyWatch System - Serials 22-1863 thru 22-3150 w/o Perspective Avionics (Sheet 2 of 4)

**NOTE**

⚠️ May be secured to cabin floor surface with 5-minute epoxy.

**LEGEND**

1. TRC Box  
2. Cover Panel  
3. Dual Lock  
4. Screw  
5. Inboard Retainer Bracket  
6. Outboard Retainer Bracket  
7. Rubber Spacer  
8. Tapered Mounting Pin  
9. Bolt  
10. Nutplate  
11. Washer

**DETAIL B**

Serials 22-1602, 22-1821, 22-1840, 22-1863 thru 22-3150 w/o Perspective Avionics.
Figure 34-402
SkyWatch System - Serials w/ Perspective Avionics, Serials 22-3151 & subs (Sheet 3 of 4)

EFFECTIVITY:
Serials w/ Perspective Avionics, Serials 22-3151 & subs

LEGEND
1. TRC Box
4. Screw
10. Bolt
12. Washer
13. Upper Bracket
14. Lower Bracket
15. Bridge

Serials 22-3026 thru 22-3150 w/ Perspective Avionics, Serials 22-3151 thru 22-3402.
Serials 22-3403 & subs, Serials 22T-0001 & subs.

CIRRUSS AIRPLANE MAINTENANCE MANUAL MODELS SR22 AND SR22T

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Figure 34-402
SkyWatch System (Sheet 4 of 4)

Serials 22-0002 thru 22-3025, 22-3026 & subs w/o Perspective Avionics.

NOTE
To improve cosmetic appearance of gasket installation, use utility knife to remove 0.2 inch (0.5 cm) from perimeter of new gasket.
G. Terrain Awareness & Warning (TAWS) Processor - Serials w/o Perspective Avionics (See Figure 34-403)

(1) Removal - Terrain Awareness & Warning (TAWS) Processor
   (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   (b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   (c) Remove LH Kick Plate. (Refer to 25-10)
   (d) Disconnect electrical connector from TAWS processor.
   (e) Remove screws, washers, and nuts securing TAWS processor to kick plate.

(2) Installation - Terrain Awareness & Warning (TAWS) Processor

   Note: Install terminal ring under aft RH screw head.

   (a) Position TAWS processor to kick plate, then secure with screws, washers, and nuts.
   (b) Connect electrical connector to TAWS processor.
   (c) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   (d) Perform Functional Test - TAWS Processor Setup. (Refer to 34-40)
   (e) Perform Operational Test - TAWS Processor. (Refer to 34-40)
   (f) Install LH Kick Plate. (Refer to 25-10)

(3) Functional Test - Terrain Awareness & Warning (TAWS) Processor Setup

   (a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laptop Computer (IBM Compatible)</td>
<td>-</td>
<td>Any Source</td>
<td>Setup TAWS Processor.</td>
</tr>
<tr>
<td>Honeywell WinViews Software</td>
<td>998-2846-500</td>
<td>Honeywell Phoenix, AZ</td>
<td>Setup TAWS Processor.</td>
</tr>
<tr>
<td>Serial Communication Cable</td>
<td>-</td>
<td>Any Source</td>
<td>Setup TAWS Processor.</td>
</tr>
</tbody>
</table>

   (b) Connect serial communication cable to COM 1 port on computer and P715 connector stowed next to TAWS processor.
   (c) Set BAT 1, BAT 2, and AVIONICS switches to ON positions.
   (d) Turn on computer, then launch WinViews software.
   (e) Select "COM1", then "Connect" on the WinViews Connect dialog box.
   (f) Hold [Ctrl] and press [Z] for prompt.
   (g) Type "PS", then press [Enter] for Present Status.
   (h) Press [Y].
   (i) If configuration module is not initialized, verify that one of the messages read CONFIGURATION MODULE NOT INITIALIZED.
   (j) At WinViews prompt, type "CFG", then press [Enter].

   Note: Place a space after each category and after each number if there is no separator.

   (k) Type in pre-configured STRING as follows: CUW 0/11 1 14 1 0 0 0 0 0 0 4 2/
   (l) Press [Enter].
   (m) Press [Y].
   (n) After system comes back up, hold [Ctrl] and press [Z] for prompt.
(o) Type "PS", then press [Enter] for Present Status.
(p) Press [Y].
(q) Verify CUW code to confirm configuration input is correct.
(r) Exit WinViews software and shut down computer.
(s) Disconnect serial communication cable from COM 1 port on computer and P715 connector stowed next to TAWS processor.

(4) Operational Test - Terrain Awareness & Warning (TAWS) Processor
(a) Perform Level 1 Self-Test.
1. Verify TERR INHIBIT push-button switch is not engaged and TERR INOP light on instrument panel is not illuminated.
2. **Serials w/ SkyWatch:** Initiate the SkyWatch Self-Test by selecting "Traffic Self Test" on the MFD Setup page.
3. **Serials w/ SkyWatch:** When test is complete, "Traffic advisory system test-passed" is heard over the headset and speaker.

*Note:* **Serials w/ SkyWatch:** Verify TAWS Self-Test audio over-rides SkyWatch Self-Test audio during the "Traffic advisory..." message.

4. Press and hold SELF TEST push-button switch for less than 2 seconds to initiate Level 1 Self-Test.
5. Select TAWS display screen on MFD.
6. Initiate Level 1 Self-Test to verify the following sequences:
   - The yellow TERR INOP light illuminates.
   - The red TERR WARN light illuminates.
   - An aural "EGPWS SYSTEM OK" message is heard over the headset and speaker.
   - The red TERR WARN light extinguishes.
   - A terrain self-test pattern appears on MFD.
   - The yellow TERR CAUT & TERR INOP lights extinguish when test is complete.

*Note:* Terrain display may remain on for approximately 10 seconds after the lights extinguish.

   The terrain self-test pattern disappears after several sweeps.

(b) Perform Level 2 Self-Test.

*Note:* The TERR INOP light will be illuminated throughout this test.

   If TAWS processor or system faults exist, the faults will be annunciated as EGPWS internal faults and/or EGPWS external faults. The aural message will provide a description of the faults. Any faults that are annunciated must be cleared prior to continuing the tests.

1. Press and hold SELF TEST push-button switch for less than 2 seconds to initiate Level 1 Self-Test.
2. Once Level 1 audio sequence begins, press and hold SELF TEST push-button switch for less than 2 seconds to initiate Level 2 Self-Test.
3. Verify the following aural messages are enunciated:
   - "Current Faults"
   - "No Faults"
"Press to Continue"

(c) Perform Level 3 Self-Test.

**Note:** The TERR INOP light will be illuminated throughout this test.

"X" denotes a number, letter, the word "point" or no annunciation. Any of these annunciations are acceptable where "X" is listed below. (For example, the serial number may be enunciated as "Serial Number 22-316")

1. Press and hold SELF TEST push-button switch for less than 2 seconds to initiate Level 1 Self-Test.
2. Once Level 1 audio sequence begins, press and hold SELF TEST push-button switch for less than 2 seconds to initiate Level 2 Self-Test.
3. Within 3 seconds after "Press to Continue" message is enunciated at end of Level 2 Self-Test, press and hold the SELF TEST push-button switch for less than 2 seconds to initiate Level 3 Self-Test.
4. Verify the following aural messages are correct and enunciated:
   - "System Configuration"
   - "Part Number 965-1198-XXX"
   - "Mod Status X"
   - "Serial Number XXXX"
   - "Application Software Version XXX"
   - "Terrain Database Version XXXX"
   - "Boot Code Version XXXX"
   - "Aircraft Type 1"
   - "Air Data Type 14"
   - "Position Input Type 1"
   - "Terrain Display Type 0"
   - "I/O Discrete Type 0"
   - "Audio Menu 0"
   - "Volume Select 0"
   - "Altitude Monitor Type 0"
   - "Options Select 0"
   - "Attitude Heading Type 4"
   - "Display Option Type 2"
   - "Press to Continue"

(d) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
H. TAWS Annunciation LEDS - Serials w/o Perspective Avionics (See Figure 34-403)

(1) Removal - TAWS Annunciation LEDS
   (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   (b) Pull ANNUNCIATOR PANEL circuit breaker.
   (c) Remove glareshield. (Refer to 25-10)
   (d) Disconnect P725 connector from J725 connector.
   (e) Disconnect J703 connector from wire harness.

   CAUTION: Label all wires and pins before disconnecting to facilitate re-installation.

   (f) At J703 connector, depin wires at pin locations 1 and 5.
   (g) Remove nuts and LED sleeves securing LEDs to instrument panel.

(2) Installation - TAWS Annunciation LEDS
   (a) Position LEDs to instrument panel and secure with LED sleeves and nuts.
   (b) At J703 connector, repin wires at pin locations 1 and 5.
   (c) Connect J703 connector to wire harness.
   (d) Connect P725 connector to J725 connector.
   (e) Reset ANNUNCIATOR PANEL circuit breaker.
   (f) Perform Functional Test - Annunciator Indication. (Refer to 31-50)
   (g) Install glareshield. (Refer to 25-10)
I. TAWS Control Switches - Serials w/o Perspective Avionics (See Figure 34-403)

(1) Removal - TAWS Control Switches
   (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   (b) Pull ANNUNCIATOR PANEL circuit breaker.
   (c) Remove glareshield. (Refer to 25-10)
   (d) Disconnect P725 connector from J725 connector.
   (e) Disconnect J703 connector from wire harness.

   CAUTION: Label all wires and pins before disconnecting to facilitate re-installation.

   (f) At J703 connector, depin wires at pin locations 1 and 5.
   (g) At J725 connector, depin wires at pin locations 1, 2, and 3.
   (h) Remove nuts securing TAWS control switches to instrument panel. Pull switches through front of instrument panel and remove from airplane.

(2) Installation - TAWS Control Switches
   (a) Position switches to instrument panel and secure with nuts.
   (b) At J703 connector, repin wires at pin locations 1 and 5.
   (c) At J725 connector, repin wires at pin locations 1, 2, and 3.
   (d) Connect J703 connector to wire harness.
   (e) Connect P725 connector to J725 connector.
   (f) Reset ANNUNCIATOR PANEL circuit breaker.
   (g) Perform Operational Test - TAWS Processor. (Refer to 34-40)
   (h) Install glareshield. (Refer to 25-10)
Figure 34-403
TAWS System Installation - Serials w/o Perspective Avionics

LEGEND
1. TAWS Processor
2. Screw
3. Washer
4. Nut
5. Connector
6. Terminal Ring
7. Switch
8. LED
9. LED Sleeve

DETAIL A

DETAIL B

KICK PLATE (REF)

INSTRUMENT PANEL (REF)
J. Terrain Awareness & Warning (TAWS) - Serials w/ Perspective Avionics

(1) Operational Test - Terrain Awareness & Warning (TAWS)
   (a) On MFD, select **TAWS** page from MAP group.
   (b) Verify title at top of page reads “MAP - TAWS”. If TAWS has not been enabled, the title will read “MAP - TERRAIN PROXIMITY” or “MAP - TERRAIN”.
   (c) Press [MENU] then select “Test TAWS” from pop-up menu.
   (d) After TAWS test has completed, verify “TAWS system test OK” is heard over cockpit speaker.
   (e) Press [MENU], select “Inhibit TAWS” from pop-up menu, then press [ENT]. Verify “TAWS INHB” is displayed on PFD.
   (f) With a GPS position acquired, shield or disconnect GPS antennas to remove GPS signal. Verify “DR” is displayed on MFD and “TAWS N/A” annunciation is displayed on both MFD and PFD.
   (g) Remove shield or reconnect GPS antennas. Verify MFD indications and PFD annunciation are removed and verify that “TAWS Available” is heard over cockpit speaker after about 10 seconds from the moment a 3D GPS solution is reacquired.
K. Garmin GTS 800 Line Replaceable Unit (LRU) - Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics (See Figure 34-404)

(1) Removal - Garmin GTS 800 Line Replaceable Unit (LRU)
(a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
(b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
(c) Remove LH crew seat. (Refer to 25-10)
(d) Remove screws securing cover panel and lanyard assembly to fuselage floor.

Note: Nutplate may be secured to cabin floor surface with 5-minute epoxy.
(e) Remove screws and nutplate securing retainer bracket to fuselage floor.
(f) Disconnect cables and wiring from LRU.
(g) If reinstalling existing LRU, maintain QMA termination plug installations on J2 BTM, J3 BTM, and J4 BTM connectors.
(h) If installing new LRU, remove and retain QMA termination plugs from J2 BTM, J3 BTM, and J4 BTM connectors.
(i) Loosen knurled nut on retainer bracket to detach LRU and remove from airplane.

(2) Installation - Garmin GTS 800 Line Replaceable Unit (LRU)
(a) Slide LRU onto retainer bracket and hand tighten knurled nut.
(b) Connect wiring harnesses to LRU.
(c) Connect upper antenna cables to LRU.
   1. Connect yellow tagged upper antenna cable to yellow colored J1 TOP LRU connector.
   2. Connect black tagged upper antenna cable to black colored J2 TOP LRU connector.
   3. Connect blue tagged upper antenna cable to blue colored J3 TOP LRU connector.
   4. Connect red tagged upper antenna cable to red colored J4 TOP LRU connector.
(d) Connect lower antenna cable/QMA termination plugs to LRU.
   1. Connect yellow tagged lower antenna cable to yellow colored J1 BTM LRU connector.
   2. If not already installed, connect QMA termination plug to black colored J2 BTM LRU connector.
   3. If not already installed, connect QMA termination plug to blue colored J3 BTM LRU connector.
   4. If not already installed, connect QMA termination plug to red colored J4 BTM LRU connector.

Note: Nutplate may be secured to cabin floor surface with 5-minute epoxy.
(e) Position LRU to fuselage floor and secure with nutplate and bolts.
(f) Position cover panel and lanyard assembly to fuselage floor and secure with bolts.

(g) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
(h) If LRU is a different unit from the originally installed LRU:
   1. Perform Functional Test - Garmin GTS 800 System Setup. (Refer to 34-40)
   2. Perform Functional Test - Garmin GTS 800 System. (Refer to 34-40)
(i) If LRU is the same unit as the originally installed LRU:
   1. Perform Functional Test - Garmin GTS 800 System. (Refer to 34-40)

(j) Install LH crew seat. (Refer to 25-10)
(3) Functional Test - Garmin GTS 800 System Setup
(a) Connect 28 ±1 VDC external power to external power receptacle.
(b) Pull STARTER and FUEL PUMP circuit breakers.

CAUTION: Failure to remove database cards may result in cards becoming corrupted.
(c) Remove SD cards from top and bottom slots of MFD and PFD.
(d) Insert Cirrus Perspective software loader card into top slot of PFD.
(e) Power on PFD and MFD in Configuration mode.
1 While holding far right softkey on PFD and MFD, set BAT 1 and AVIONICS switches to ON positions.
2 When “INITIALIZING SYSTEM” appears in upper left corner of displays, release softkeys.
3 On PFD, press [NO] softkey at “DO YOU WANT TO UPDATE SYSTEM FILES?” prompt.
4 On PFD, press [NO] softkey at “DO YOU WANT TO UPDATE SYSTEM SPLASH SCREEN?”
(f) After System Status page appears on PFD, use inner [FMS] knob to select System Upload page.
(g) Press inner [FMS] knob to activate cursor.
(h) Rotate inner [FMS] knob to display list of AIRFRAME choices, highlight appropriate airframe model in pop-up window, and press [ENT] key.
(i) In FILE window, rotate inner [FMS] knob to display list of FILE choices, highlight appropriate airframe configuration file in pop-up window, and press [ENT] key.
(j) Load the following configuration files:
1 Press [CLR ALL] softkey.
2 Using [FMS] knob and [ENT] key, select AIRFRAME, SYSTEM, MANIFEST and PFD Configuration box.
4 When upload is complete, press [ENT] key to select OK in UPLOAD COMPLETE window.

Note: Pressing [ENT] key will check and uncheck highlighted software and configuration boxes.
(k) Once files are selected, press [LOAD] softkey.
(l) When upload is complete, press [ENT] key to select OK in UPLOAD COMPLETE window.
(m) Move cursor to AIRFRAME window, rotate inner [FMS] knob to display list of AIRFRAME choices, highlight “Options” in pop-up window, and press [ENT] key.
(n) In FILE box, rotate inner [FMS] knob to display list of FILE choices. Load appropriate Files based on aircraft optional equipment:
   • For installations equipped with GTX 33 ES transponder, select GTS 8XX (WITH ADS-B) INSTALLATION OPTION and press [ENT] key.
   • For installations equipped with GTX 32 or GTX 33 transponder, select GTS 8XX (WITHOUT ADS-B) INSTALLATION OPTION and press [ENT] key.
(o) View SUMMARY field and ensure all items indicate COMPLETE.
(p) Verify PASS appears in green at all available checkboxes.
(q) For aircraft equipped with a GTX 33 or GTX 33 ES transponder only, the following procedure is required to be performed any time the GTS 800 Software and Configuration Loading procedure has been performed.
Note: This procedure assumes a valid Mode S address has already been entered into the GTX 33’s configuration.

1. On PFD, while remaining in configuration mode, rotate [FMS] knob to select GTX page group, then select Transponder Configuration page.
2. Ensure ADDRESS TYPE indicates “US TAIL” under SET and ACTIVE columns.
3. Activate cursor and highlight MODE S ADDRESS field.
5. Verify that aircraft registration number is still entered correctly.
6. Press [ENT] key, then deactivate cursor.
7. Verify existing registration number is cross-filled to GTS 800 by selecting GTS Configuration page and confirming contents of MODE S ADDRESS field.

Note: The Mode S Address is displayed in ICAO hexadecimal format on GTS Configuration page. The aircraft’s registration number may be converted to hex format for verification using a conversion utility available from web sites such as www.airframes.org.

(4) Functional Test - Garmin GTS 800 System

Note: Serials w/ Perspective System Software Version 0764.08 or prior: To perform Functional Test - Garmin GTS 800 System, GTS 800 must be in ground test mode. This requires GTSSupportApp.exe tool and Garmin USB drivers, available by download from Garmin Dealer website.

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laptop PCa</td>
<td>-</td>
<td>Any Source</td>
<td>Run Tool.</td>
</tr>
<tr>
<td>USB Cablea</td>
<td>-</td>
<td>Any Source</td>
<td>Connect PC to GTS 800.</td>
</tr>
<tr>
<td>Garmin Toola (GTSSupportApp.exe)</td>
<td>(Refer to Garmin Dealer website)</td>
<td>Garmin</td>
<td>Run ground test.</td>
</tr>
<tr>
<td>Garmin USB Driversa (Refer to Garmin Dealer website)</td>
<td></td>
<td>Garmin</td>
<td>Provide compatibility for interface.</td>
</tr>
<tr>
<td>TAS/TCAS-Capable Ramp Tester</td>
<td>TIC TR-220 (or equivalent)</td>
<td>Tel-Instrument Electronics Corporation Carlstadt, NJ 07072 201-933-1600</td>
<td>Test GTS 800.</td>
</tr>
</tbody>
</table>

a. Serials w/ Perspective System Software Version 0764.08 or prior only.

(b) With PFD and MFD in normal operating mode, ensure GTS 800 system is in standby mode.
   1. On MFD, select MAP – Traffic page.
   2. Verify softkey configuration indicates standby mode.

(c) Serials w/ Perspective System Software Version 0764.08 or prior: Enable Ground Test Mode.
   1. Use USB cable to connect laptop PC to GTS 800.
2 Open GTSSupportApp.exe file on PC and allow it to communicate with GTS 800 unit.
3 Click ‘Normal’ tab, if not already selected and allow GTSSupportApp.exe tool to reboot GTS 800 unit.
4 Once communication with GTS 800 is established, click ‘Enable’ check box for Ground Test Mode selection.

(d) **Serials w/ Perspective System Software Version 0764.09 or later:** Enable Ground Test Mode.

1 To activate GND TEST softkey on MFD, press MFD bezel buttons in the following sequence: ‘3’, ‘4’, ‘4’, ‘3’.

   **Note:** Leftmost bezel button on MFD is ‘1’.

2 Press bezel button labeled GND TEST to place GTS 800 in ground test mode.

(e) Position test set directional antenna with a clear line of sight to the GTS 800 antenna at 000° relative bearing (directly in front of aircraft).

(f) Configure ramp tester to simulate following traffic intruder scenario:

   1 Set Intruder Type as ATCRBS.
   2 Set Intruder Start Distance to 10 nm.
   3 Set Intruder Start Altitude to 50,000 ft.
   4 Set Vertical Speed to 0 fpm.
   5 Set Velocity to 360 kts.

(g) On MFD, press OPERATE softkey, and initiate intruder scenario on ramp tester.

(h) Verify Traffic is acquired at approximately 10 NM at 000° relative bearing and co-altitude.

(i) Verify intruder closes in on own aircraft at a rate of ~0.1 NM/sec on MFD display.

(j) Verify traffic symbol is visible on PFD synthetic vision display, if equipped.

   **Note:** Traffic symbol may be temporarily hidden behind PFD data such as airspeed and altitude tapes. Additionally, ensure Synthetic Vision traffic display function is activated via appropriate softkeys.

(k) Verify that as intruder display symbol is within approximately 6 mile range, it transitions from ‘Other Traffic’ (displayed as an open diamond with 00 displayed above), to ‘Proximate Traffic’ (displayed as a filled white diamond with 00 displayed above).

(l) Verify that as intruder display symbol is within approximately 3 mile range, it transitions from ‘Proximate Traffic’ symbol to a ‘Traffic Advisory’ (TA) symbol (solid yellow circle with 00 displayed above).

(m) Verify that once Traffic Advisory condition is set, TRAFFIC annunciation is displayed on PFD.

   **Note:** No aural alert will be given during traffic advisory, as Perspective system airborne status will be ‘on ground’.

(n) On MFD, press STANDBY softkey.

(o) Configure ramp tester to simulate following traffic intruder scenario:

   1 Set Intruder Type as ATCRBS.
   2 Set Intruder Start Distance to 2 nm.
   3 Set Intruder Start Altitude to 0 Relative altitude.
   4 Set Vertical Speed to 0 fpm.
   5 Set Velocity to 0 kts.

(p) On MFD, press OPERATE softkey, and initiate intruder scenario on ramp tester.
(q) Position test set directional antenna momentarily at each cardinal position (12, 3, 6, and 9 o’clock) and observe the following conditions:

1. Verify that intruder is displayed at ~2 nm range at approximate cardinal position as a ‘Traffic Advisory’ (TA) symbol (solid yellow circle with 00 displayed above).

2. Verify that once Traffic Advisory condition is set, TRAFFIC annunciation is displayed on PFD.

Note: No aural alert will be sounded during Traffic Advisory, as Perspective system airborne status will be ‘On Ground’.

(r) Open TRAFFIC circuit breaker on circuit breaker panel.

(s) On MFD, verify that DATA FAIL is displayed in yellow after several seconds.

(t) Close TRAFFIC circuit breaker on avionics circuit breaker panel and verify that DATA FAIL is removed (may take 2 to 3 minutes).
L. Garmin GTS 800 Upper Antenna - Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics (See Figure 34-404)

(1) Removal - Garmin GTS 800 Upper Antenna
(a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
(b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
(c) Remove cabin headliner. (Refer to 25-10)
(d) Disconnect antenna cables from antenna.
(e) Remove screws, washers, and nuts securing antenna to fuselage.
(f) Remove antenna and gasket from top of fuselage.
(g) Remove remaining sealant from fuselage.

(2) Installation - Garmin GTS 800 Upper Antenna
(a) Acquire necessary tools, equipment, and supplies.
(b) To improve cosmetic appearance of gasket installation, use utility knife to remove 0.2 inch (0.5 cm) from perimeter of new gasket.
(c) With arrow on antenna facing forward, place antenna and gasket into position.

Note: Install longer screws on RH side of upper antenna.

(d) Secure antenna using screws, washers, and nuts. Tighten each screw until gasket material is evenly compressed on all sides of antenna.
(e) Apply a continuous bead of sealant around perimeter of antenna and fuselage mating surfaces.
(f) Using sealant, fill screw recesses flush to top surface.
(g) Connect cables to antenna.
  1 Connect blue tagged antenna cable to blue colored aft antenna connector (J3).
  2 Connect black tagged antenna cable to black colored aft antenna connector (J2).
  3 Connect red tagged antenna cable to red colored forward antenna connector (J4).
  4 Connect yellow tagged antenna cable to yellow colored forward antenna connector (J1).
(h) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
(i) Perform Functional Test - Garmin GTS 800 System. (Refer to 34-40)
(j) Install cabin headliner. (Refer to 25-10)

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caulk Sealant</td>
<td>(Refer to 51-30)</td>
<td>(Refer to 51-30)</td>
<td>Weather sealant.</td>
</tr>
<tr>
<td>Utility Knife</td>
<td>-</td>
<td>Any Source</td>
<td>Trim gasket.</td>
</tr>
</tbody>
</table>

P/N or Spec.: Parts Number or Specification
Supplier: Supplier Information
Purpose: Purpose of the material.
M. Garmin GTS 800 Lower Antenna - Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics (See Figure 34-404)

(1) Removal - Garmin GTS 800 Lower Antenna
   (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
   (b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   (c) Remove aft passenger seats. (Refer to 25-10)
   (d) Remove cabin floor covering. (Refer to 25-10)
   (e) Remove access panel CF4C. (Refer to 06-00)
   (f) Disconnect antenna cable from antenna.
   (g) Remove washers and nuts securing antenna to fuselage.
   (h) Remove antenna and gasket from bottom of fuselage.
   (i) Remove remaining sealant from fuselage.

(2) Installation - Garmin GTS 800 Lower Antenna
   (a) Acquire necessary tools, equipment, and supplies.

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<tr>
<td>Utility Knife</td>
<td>-</td>
<td>Any Source</td>
<td>Trim gasket.</td>
</tr>
</tbody>
</table>

   (b) To improve cosmetic appearance of gasket installation, use utility knife to remove 0.2 inch (0.5 cm) from perimeter of new gasket.
   (c) With arrow on antenna facing forward, place antenna and gasket into position.
   (d) Secure antenna using washers and nuts. Tighten each nut until gasket material is evenly compressed on all sides of antenna.
   (e) Apply a continuous bead of sealant around perimeter of antenna and fuselage mating surfaces.
   (f) Connect cable to antenna.
   (g) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
   (h) Perform Functional Test - Garmin GTS 800 System. (Refer to 34-40)
   (i) Install access panel CF4C. (Refer to 06-00)
   (j) Install cabin floor covering. (Refer to 25-10)
   (k) Install aft passenger seats. (Refer to 25-10)
Figure 34-404
Garmin GTS 800 System - Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics (Sheet 1 of 2)

NOTE
⚠️ May be secured to cabin floor surface with 5-minute epoxy.
⚠️ QMA termination plugs installed at J2 BTM, J3 BTM, and J4 BTM.

LEGEND
1. LRU Box
2. Cover Panel
3. Inboard Mounting Bracket
4. Outboard Mounting Bracket
5. Retainer Bracket
6. Retainer Plate
7. Bolt
8. Nutplate
9. QMA Termination Plugs
10. Antenna Cable
11. Screw
12. Washer

May be secured to cabin floor surface with 5-minute epoxy.
QMA termination plugs installed at J2 BTM, J3 BTM, and J4 BTM.
NOTE

⚠️ Install longer screws on RH side of upper antenna.

**Figure 34-404**
Garmin GTS 800 System - Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics (Sheet 2 of 2)

**EFFECTIVITY:**
Serials 22-3665 & subs, 22T-0004 & subs w/ Perspective Avionics