GTN 725/750 SOFTWARE VERSION 6.00
PILOT'S GUIDE UPGRADE SUPPLEMENT

This supplement contains the pages revised in the GTN 725/750 Pilot's Guide, P/N 190-01007-03, Rev J, regarding the new features of Software Version 6.00. Change bars are placed adjacent to the revised information as described in the revision summary table.

This supplement, in combination with the GTN 725/750 Pilot's Guide, P/N 190-01007-03, Rev H, is equivalent to the GTN 725/750 Pilot's Guide, P/N 190-01007-03, Rev J.

Current documents are available at https://fly.garmin.com/fly-garmin/support/ for free download. Printed copies may be purchased by contacting Garmin Customer Support.

***NOTE**: Depending what software version is installed and its configuration, the actual features and screen images may differ from what is shown. Refer to the GTN 725/750 Pilot's Guide, P/N 190-01007-03, for more information regarding feature availability for specific software versions.*

This manual reflects the operation of System Software Version 6.00, or later. Some differences in operation may be observed when comparing the information in this manual to later software versions.

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This part shall comply with Garmin Banned and Restricted Substances document, 001-00211-00.

REVISION SUMMARY TABLE		
SECTION	**PAGE**	**DESCRIPTION**
Section 1 - Getting Started		
Forward	vi	Added note regarding moisture on the touchscreen.
1.5.2	1-11	Added, "User Fields," "Connext Setup," and "Voice Commands" to the list of features. Updated figure 1-19, System Page, with new screenshot reflecting additional features.
1.5.3	1-15	"Units" under system setup revised to "Units (NAV angle, Fuel, and Temperature)."
Section 2 - Audio and Transponder Controls (Optional)		
2.2	2-9	Added Bluetooth Audio to the Intercom Setup in Figure 2-14, Audio Panel Functional Diagram.
2.3	2-17	Added Bluetooth key to Figure 2-20, Intercom Setup.
2.3.5	2-24	Added "Bluetooth Setup" section.
Section 4 - Flight Plans		
4	4-1	Added "Load SAR" and "Hold at Waypoint" under "Active FPL" in Figure 4-1, Flight Plan Functional Diagram.
4.2.3	4-16	Added "Load Hold at Waypoint" section.
4.2.3.1	4-16	Added "Hold at Waypoint" section.
4.2.3.2	4-17	Added "Removing a Hold" section.
4.2.4	4-18	Added "Load Search and Rescue Patterns (Optional)" section.
4.2.4.1	4-20	Added "Creating a Parallel Track Pattern" section.
4.2.4.2	4-22	Added "Creating a Sector Search Pattern" section.
4.2.4.3	4-23	Added "Creating an Expanding Square Pattern" section.
4.2.4.4	4-24	Added "Creating an Orbit Pattern" section.
Section 5 - Direct-To		
5.8	5-8	Added "Direct-To a User-Defined Hold" section.
5.9	5-11	Added "Direct-To a Search and Rescue Pattern" section.
Section 6 - Procedures		
6.1	6-3	Added LP +V annunciation to Table 6-1, Phase of Flight Annunciations.
6.4	6-13	Added note regarding loading an approach with software v6.00.
6.5	6-14	Added note to ensure approaches with procedure turns are flown within the charted procedure.
6.9	6-16	Added "Radial-to-Fix (RF) Approaches" section.
6.10	6-17	Added note regarding software v6.00 behavior to the "Vectors to Final" section.
6.12	6-19	Added LP +V to Table 6-2, RNAV Approach Annunciations.
6.12.2	6-21	Added LP +V information to the "Flying an LP Approach" section.
Section 9 - Map		
9	9-1	Added fuel range ring to bulleted list of information that can be displayed on the Map page.
9	9-2	Added "Airspace" under Map Setup in Figure 9-2, Map Page Functional Diagram.
9.1.1.1	9-4	Added "Fuel Range Ring" as number 9 to Table 9-2, Data Overlay Priority.

REVISION SUMMARY TABLE		
SECTION	**PAGE**	**DESCRIPTION**
9.1.2	9-13	Added "Fuel Range Ring" and "Fuel Reserve Time" under Map in Figure 9-13, Map Setup Functional Diagram.
9.1.2.1	9-15	Added "Fuel Range Ring" and "Fuel Reserve Time" features to Table 9-1, Map Setup Map Options.
9.1.2.1	9-18	Added "Fuel Range Ring" section.
9.1.3	9-31	Added "Time to TOD - Time to Top of Descent" to Table 9-14, Map Data Field Types of Information.
Section 10 - Traffic		
10.5.1	10-20	Added "Traffic Applications – SURF, AIRB, etc." section.
Section 11 - Terrain		
11.5.3.6	11-29	Added obstacle legend to Figure 11-21, HTAWS Terrain and Obstacle Legend.
11.5.4	11-32	Clarified that all obstacles at or above the aircraft altitude are red in Figure 11-23, HTAWS Obstacle Altitude Colors and Symbology.
Section 12 - Weather		
12.1.5.3	12-12	Added "Animating NEXRAD" section for SiriusXM Weather.
12.5.7.1	12-64	Added "Animating Precipitation Data" section for Connext Weather.
12.6.2.4	12-79	Added "Animating NEXRAD FIS-B" section for FIS-B Weather.
Section 15 - Utilities		
15.9	15-36	Added "chklist.ace"as the Garmin Checklist Editor file name. Updated note pertaining to software v6.00.
Section 16 - System		
16	16-1	Added "Voice Commands" key to Figure 16-1, System Home Page.
16	16-2	Added "Voice Commands" to Figure 16-2, System Function Summary.
16.4.5.2	16-30	Added note to GTN-GNS Crossfilling section.
16.6	16-34	Added "Altitude/Vertical Speed," "Distance/Speed," "Pressure," and "Imperial Gallons" to Table 16-6, System Units Setup.
16.7	16-41	Added "Time to TOD – Time to Top of Descent" to Table 16-7, Data User Field Selections.
16.12	16-48	Added "Connext Setup – GMA 35c" section.
16.13	16-50	Added "Voice Command" section.
Section 17 - Messages		
17	17-14	Added "Hold Expired" message.
17	17-16	Added "Magnetic North Approach" message.
17	17-21	Added "Remote Key Stuck - Pilot/Co-Pilot voice command push-to-command key is stuck" message.
17	17-24	Added "VCALC – Approaching top of descent" message.
17	17-24	Added "VCALC – Arriving at VCALC target altitude" message.
Section 18 - Symbols		
18.5	18-5	Clarified that all obstacles at or above the aircraft attitude are red in Figure 18-2, HTAWS Obstacle Altitude Correlation.

NOTE: *The GTN touchscreen may not respond to touch commands if condensation or moisture accumulate on the touchscreen.*

NOTE: This device complies with Part 15 of the FCC limits for Class B digital devices. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Furthermore, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit than the affected equipment. Consult an authorized dealer or other qualified avionics technician for additional help if these remedies do not correct the problem.

Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To obtain accessories for your unit, please contact your Garmin dealer.

Help us better support you by completing our on-line registration form today! Registration ensures that you will be notified of product updates and new products and provides lost or stolen unit tracking. Please, have the serial number of your unit handy, connect to our web site (www.garmin.com) and look for our Product Registration link on the Home page.

The display surface is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes and abrasive cleaners. It is very important to clean the lens using an eyeglass lens cleaner which is specified as safe for anti-reflective coatings and a clean, lint-free cloth.

AC 90-100A Statement of Compliance:
The Garmin navigational unit meets the performance and functional requirements of AC 90-100A.

1.5 System Operation

1.5.1 Using the Touchscreen Key Controls

Except for the knobs, the **HOME**, and **Direct-To** keys on the bezel, the controls for the GTN 7XX are located on the display and activated by touch.

Figure 1-18 On-Screen Keys and Active Display Areas

1.5.2 System Page

GTN 7XX system settings are managed on the System page. The following features are available:

- System Status
- GPS Status
- External LRUs
- Setup
- Alerts Settings
- User Fields
- Units Settings
- Audio
- Backlight
- Connext Setup
- Voice Commands

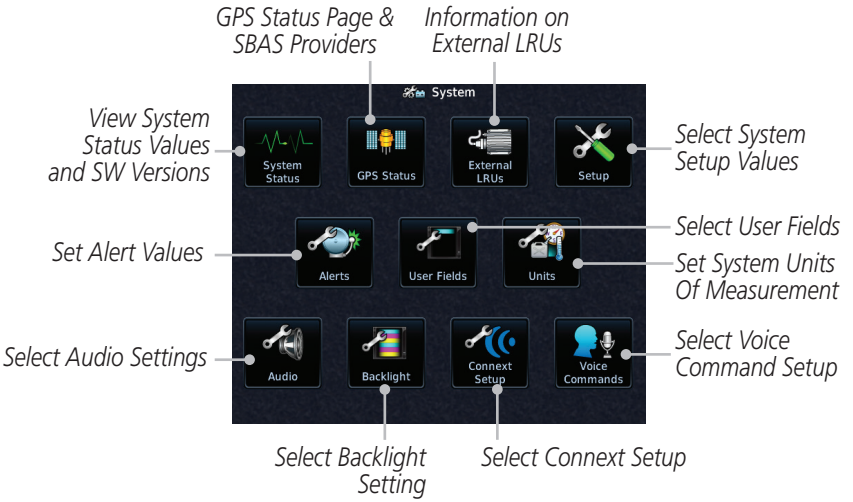
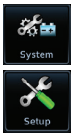
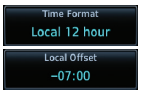


Figure 1-19 System Page

1.5.2.1 System Setup Values

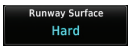


1. From the Home page, touch **System** and then **Setup**.



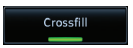
2. Select the desired Time Format and Local Offset by touching the Time Format (**12 Hour, 24 Hour,** and/or **UTC**) keys and selecting the appropriate Local Time Offset after touching the **Local Offset** key.

3. Touch the **Com Channel Spacing** key to toggle between 8.33 and 25.0 kHz channel spacing.



4. For Nearest Airport filtering, touch the **Runway Surface** key and select the desired type of surface that will appear in the Nearest Airport list.

5. Touch the **Minimum Runway Length** key to select the minimum runway length allowed for the Nearest Airport. Selecting 0 feet will show all airports regardless of runway length.



6. Touch the **Crossfill** key to enable or disable crossfill with a second GTN unit.

7. Select the CDI and ILS CDI Capture method with the **Selected CDI** and **ILS CDI Capture** keys.

1.5.3 Dual GTN Installations

Dual GTN units when connected in the aircraft may be set up to communicate and share information by "Crossfilling" or synchronizing information between the two units.

The following Crossfill information is always synchronized between both GTN units:

- User Waypoints
- Flight Plan Catalog
- Alerts (traffic pop-up acknowledgement, missed approach waypoint pop-up acknowledgement, altitude leg pop-up acknowledgement)
- External sensors (transponder status and commands, synchro heading)
- System setup:
  - User-defined NAV frequencies to store favorites
  - Date/Time convention
  - Nearest airport criteria
  - Units (NAV Angle, Fuel, and Temperature)
  - User-defined COM frequencies to store favorites
  - CDI Scale setting
  - ILS CDI Capture setting

This data is crossfilled only if crossfill is turned on by the pilot:

- Active navigation (flight plan)

NOTE: *In dual GTN installations with crossfill on, the OBS course will only be updated in real time on the GTN that is receiving the new OBS course. The course will be transferred to the other GTN when OBS is exited.*

NOTE: *There is an installer option to turn on a system message that will be provided anytime crossfill is turned off to alert the pilot that flight plans are not being crossfilled.*

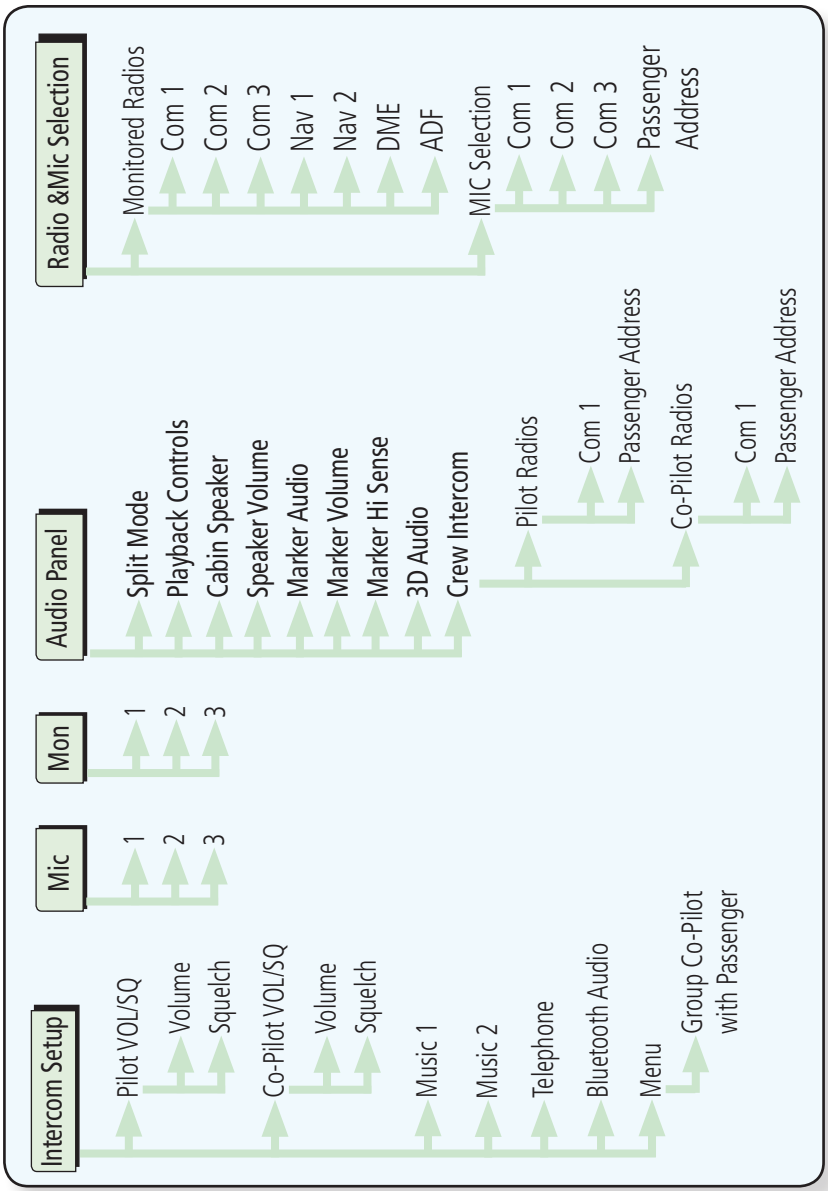


Figure 2-14 Audio Panel Functional Diagram

2.3 Intercom Setup

The GTN 7XX can operate as a control head for remotely connected compatible intercom equipment. The Internal Communication System (ICS) has several modes of operation that are selected on the display of the GTN 7XX to control communication in the aircraft. Passengers cannot transmit over the active Com radio, even if equipped with a PTT key.

Depending on the installation and aircraft, the pilot and co-pilot positions on this page may be reversed (such as configured for rotorcraft).

1. Touch the **Intercom** window at the top of the display to display the Intercom Setup page.

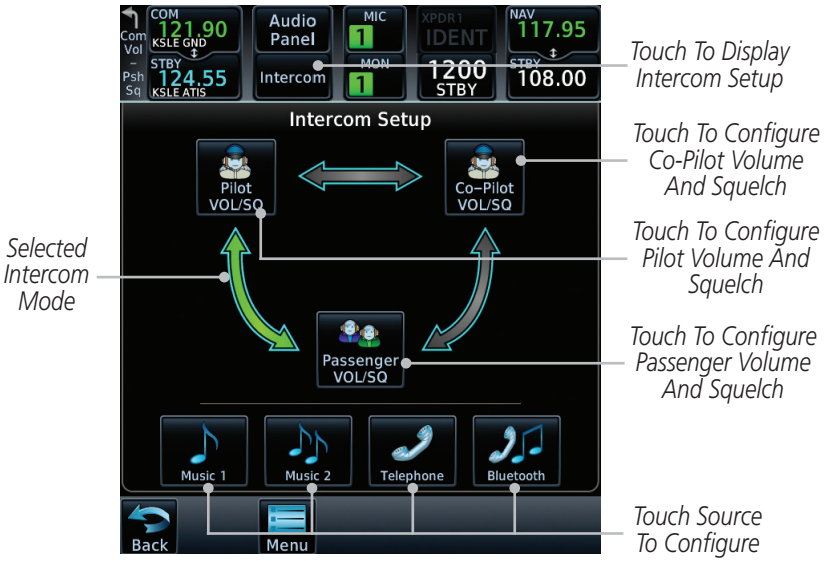


Figure 2-20 Intercom Setup

2. Touch the arrow between the intercom recipients to activate communication between those recipients. The arrow will be green when communication is active. Touch the arrow again to deactivate communication. Detailed information is shown in the Intercom Modes table.

3. Touch the key for a function to the make the desired changes to their setup. Then, touch the **Back** key to return to the Intercom Setup page.

2.3.5 Bluetooth Setup

The GMA 35c provides a Bluetooth audio connection to a portable device. Operation depends on the state of the Bluetooth Audio Distribution.

1. While viewing the Intercom Setup page, touch the **Bluetooth** key to access its setup.

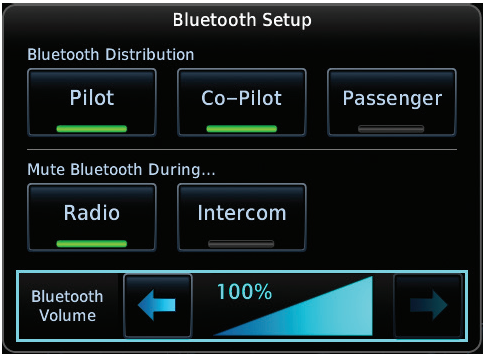
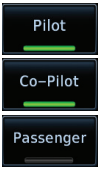


Figure 2-26 Audio Bluetooth Setup



2. Select the recipients for Bluetooth Distribution by touching any combination of the **Pilot**, **Co-Pilot**, or **Passenger** keys.

3. Touch the **Radio** and/or **Intercom** keys to select the function that, when active, will mute the Bluetooth audio.

4. Touch the **Volume** arrows to set the desired Volume level.

NOTE: *At every power cycle, the "mute Bluetooth during radio" selection will be active.*

4 FLIGHT PLANS

The GTN 7XX lets you create up to 99 different flight plans, with up to 100 waypoints in each flight plan. The Flight Plan function is accessed by touching the **Flight Plan** key on the Home page. The Flight Plan function allows you to create, store, edit, and copy flight plans.

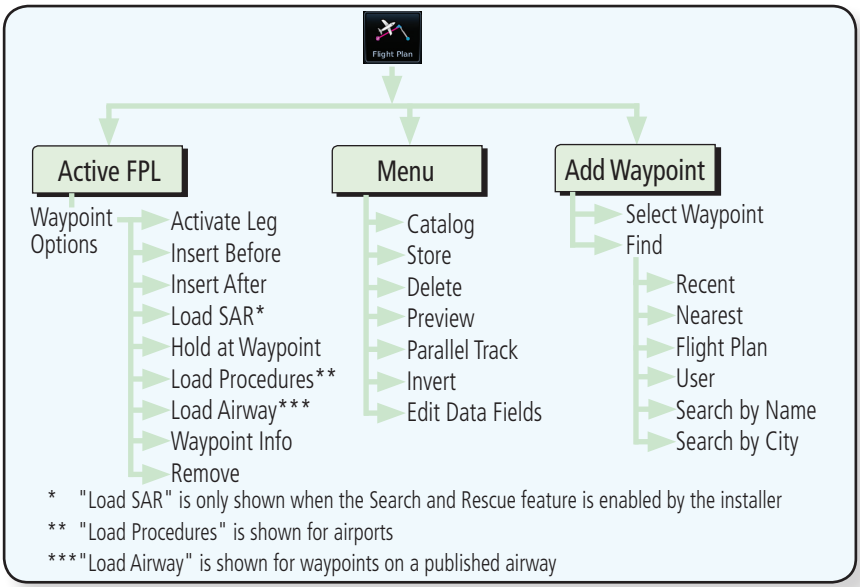


Figure 4-1 Flight Plan Functional Diagram

NOTE: *Navigation is provided for fixed wing aircraft above 30 kts and for rotorcraft above 10 kts.*

NOTE: *The Chart feature provides a digital representation of a paper chart and provides no vertical or lateral course guidance. Flight Plan and Procedures are separate from Charts, and do provide vertical and lateral course guidance for the loaded route or procedure shown on the Flight Plan page. The term "Chart Unavailable" means that the chart cannot be viewed on the Charts due to either a chart not being published, or an error in the Chart database, but does not preclude its availability or inclusion of the procedure in the Flight Plan or Procedures portion of the system. The absence of a chart for a particular Departure, Arrival, or Approach does not preclude its availability or inclusion in the Flight Plan or Procedures portion of the system. The absence of a particular Departure, Arrival, or Approach under the Flight Plan or Procedures portion of the system does not preclude the ability to view the Chart for that procedure under the Chart feature.*

4.2.3 Load Hold at Waypoint

NOTE: *This feature is available in software version 6.00 and later.*

4.2.3.1 Hold at Waypoint

Holding patterns may be added to existing waypoints within the flight plan.

1. On the Active Flight Plan page, touch the desired waypoint in the flight plan. The Waypoint Options list will then be displayed.

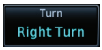
Figure 4-25 Active Flight Plan with Hold At Waypoint Option

2. Touch the **Hold At Waypoint** key to open the Hold at Waypoint dialog window.

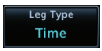
Figure 4-26 Creating a User-Defined Hold

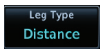
3. Touch the **Course** key to open the keypad. Use the keypad and **Enter** to select the inbound or outbound course.

4. Touch the **Direction** key to select between Inbound or Outbound for the course direction.

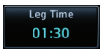


5. Touch the **Turn** key to select between Left or Right for the turn direction.

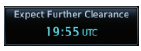




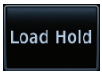
6. Touch the **Leg Type** key to select between Time or Distance for the leg type.



7. Touch the **Leg Time** or **Leg Distance** key to display the keypad. Use the keypad and the **Enter** key to select the length of the leg.



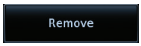
8. Touch the **Expect Further Clearance** key to display the keypad. Use the keypad and the **Enter** key to select the time for a reminder.



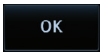
9. Touch the **Load Hold** key to add the hold into the flight plan.

4.2.3.2 Removing a Hold

1. On the Active Flight Plan page, touch the hold to be removed. The Hold Options window is displayed.



2. Touch the **Remove** key.



3. Touch the **OK** key in response to "Remove Holding Pattern?" The holding pattern is removed. To cancel the request, touch the **Cancel** key.

4.2.4 Load Search and Rescue Patterns (Optional)

NOTE: *This feature is available in software version 6.00 and later.*

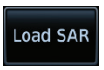
NOTE: *Turn smoothing may result in SAR coverage being different than intended. The flight crew should always verify that the SAR pattern created conforms to the specific mission requirements.*

Search and Rescue Patterns may be added to existing waypoints within the active flight plan. Only one SAR pattern can exist in the active flight plan. Loading another SAR pattern into the active flight plan when one already exists will remove the first SAR pattern.

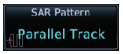
NOTE: *Flight plans cannot be stored in the catalog if they contain a SAR pattern.*

1. On the Active Flight Plan page, touch the desired waypoint in the flight plan. The Waypoint Options list will then be displayed.

Figure 4-27 Active Flight Plan with Load SAR Option



2. Touch the **Load SAR** key to open the Search and Rescue Patterns page.



3. Touch the **SAR Pattern** key to select between Parallel Track, Sector Search, Expanding Square, or Orbit for the SAR pattern type. The available patterns can be configured by the installer and all of the listed pattern types may not be available.

4. Confirm the SAR pattern information and then touch the **Load Pattern** key to load selected pattern to the active flight plan or touch the **Load Pattern & Activate** key to load selected

pattern to the active flight plan and go direct-to the initial waypoint.

5. The SAR pattern waypoints are shown below the **SAR** key on the display. Touch the SAR pattern to make any changes.

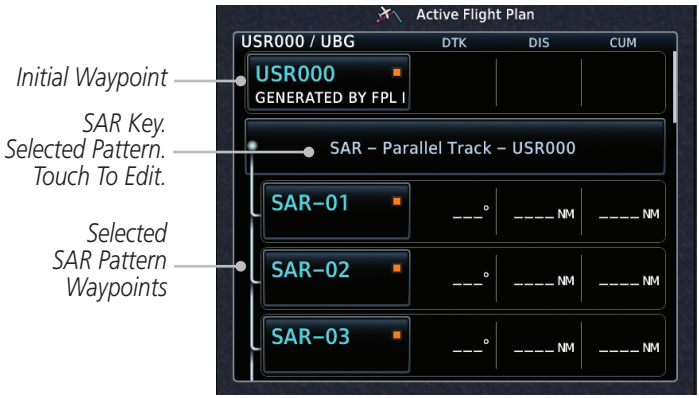


Figure 4-28 SAR Pattern Waypoints in the Flight Plan

6. Touch the **SAR** key to display the Search & Rescue Options. Make the desired choice or touch the **Back** key.

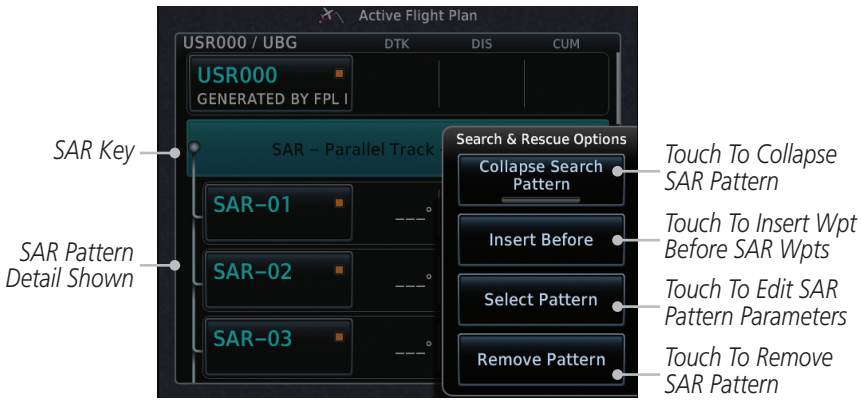


Figure 4-29 Search & Rescue Options

Collapse Search Pattern

7. Touch the **Collapse Search Pattern** key to collapse the list of the points along the SAR pattern. Touch the **Collapse Search Pattern** key again to toggle the display of SAR pattern detail back on.

Figure 4-30 SAR Pattern Collapsed in Flight Plan

4.2.4.1 Creating a Parallel Track Pattern

The Parallel Track SAR pattern starts at the initial waypoint and follows the initial track for the length of the first parallel track leg. A 90° turn in the initial turn direction leads to the spacing leg with a length equal to the track spacing. Another 90° turn leads to the second parallel track leg. The turns at the end of the second parallel track leg are in the opposite direction as the previous parallel track leg. The parallel track pattern terminates once the desired number of parallel track legs have been flown.

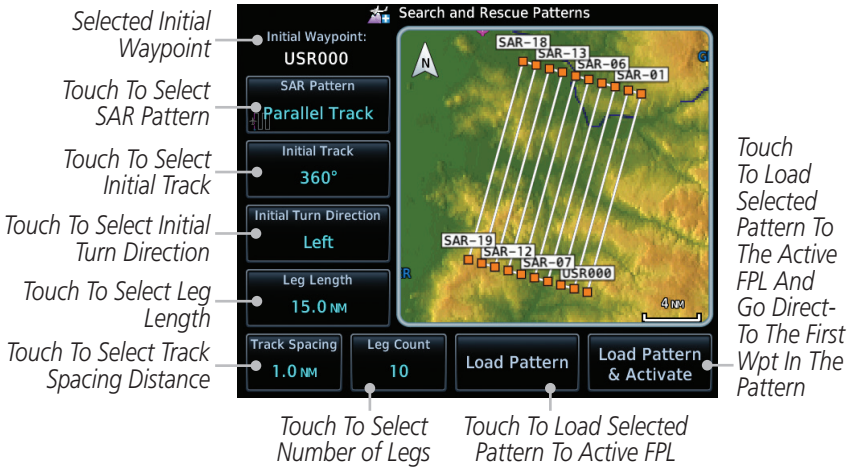
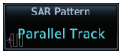
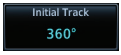


Figure 4-31 Search and Rescue Parallel Track Pattern Page



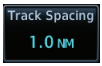
1. Touch the **SAR Pattern** key and select Parallel Track as the pattern type.



2. Touch the **Initial Track** key to open the keypad. Use the keypad and **Enter** to select the initial course.

3. Touch the **Initial Turn Direction** key to select between Left or Right as the initial turn direction.

4. Touch the **Leg Length** key to open the keypad. Use the keypad and **Enter** to select the length of the parallel track legs.

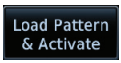


5. Touch the **Track Spacing** key to open the keypad. Use the keypad and **Enter** to select the desired spacing between the parallel track legs.

6. Touch the **Leg Count** key to open the keypad. Use the keypad and **Enter** to select the desired number of parallel track legs.

7. Touch the **Load Pattern** key to load selected pattern to the active flight plan.

Or



8. Touch the **Load Pattern & Activate** key to load selected pattern to the active flight plan and go direct-to the initial waypoint.

4.2.4.2 Creating a Sector Search Pattern

The Sector Search SAR pattern starts at the initial waypoint and follows the initial track for the desired leg length. A 60° turn in the initial turn direction is followed by another leg with the desired leg length, another 60° turn, and then a leg back to the initiating waypoint. The next sector starts with a leg continuing on the same course outbound from the initiating waypoint and is followed by the same sequence of legs and turns. The third sector follows the same pattern.

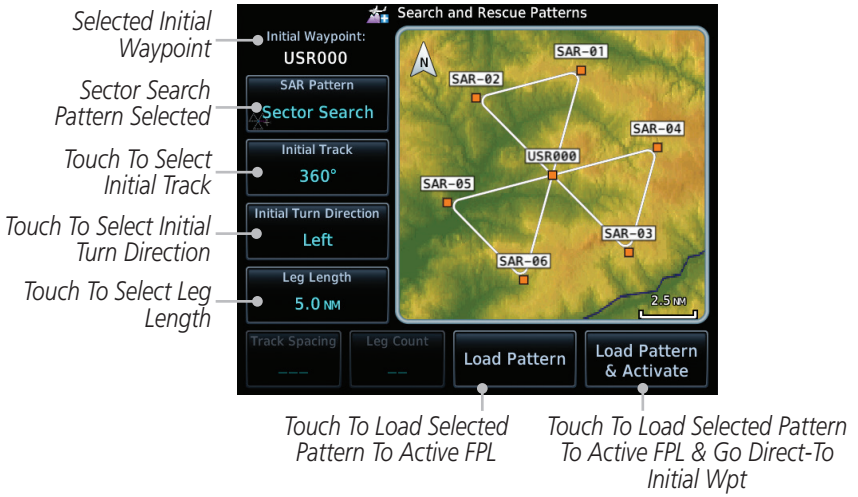
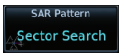


Figure 4-32 Search and Rescue Sector Search Pattern Page



1. Touch the **SAR Pattern** key and select Sector Search as the pattern type.

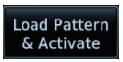
2. Touch the **Initial Track** key to open the keypad. Use the keypad and **Enter** to select the initial course.

3. Touch the **Initial Turn Direction** key to select between Left or Right as the initial turn direction.

4. Touch the **Leg Length** key to open the keypad. Use the keypad and **Enter** to select the length of the parallel track legs.

5. Touch the **Load Pattern** key to load selected pattern to the active flight plan.

Or



6. Touch the **Load Pattern & Activate** key to load selected pattern to the active flight plan and go direct-to the initial waypoint.

4.2.4.3 Creating an Expanding Square Pattern

The Expanding Square SAR pattern starts at the initial waypoint and follows the initial track for a distance equal to the track spacing. All turns in the expanding square pattern are in the initial turn direction. All legs in the expanding square pattern are separated by the track spacing distance.

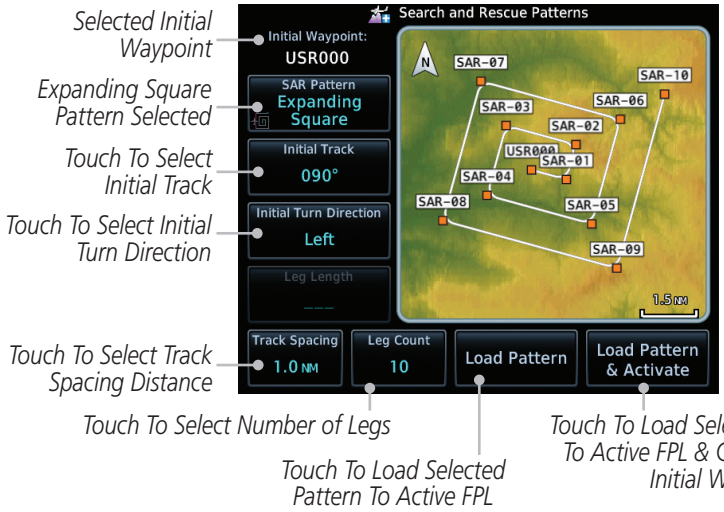
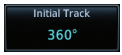
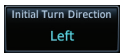


Figure 4-33 Search and Rescue Expanding Square Pattern Page

1. Touch the **SAR Pattern** key and select Expanding Square as the pattern type.



2. Touch the **Initial Track** key to open the keypad. Use the keypad and **Enter** to select the initial course.



3. Touch the **Initial Turn Direction** key to select between Left or Right as the initial turn direction.

4. Touch the **Track Spacing** key to open the keypad. Use the keypad and **Enter** to select the desired spacing between the parallel track legs.

5. Touch the **Leg Count** key to open the keypad. Use the keypad and **Enter** to select the desired number of legs.

6. Touch the **Load Pattern** key to load selected pattern to the active flight plan.

OR

7. Touch the **Load Pattern & Activate** key to load selected pattern to the active flight plan and go direct-to the initial waypoint.

4.2.4.4 Creating an Orbit Pattern

The Orbit SAR pattern is a fixed radius turn around the specified center waypoint. Automatic waypoint sequencing will be suspended while flying the orbit pattern.

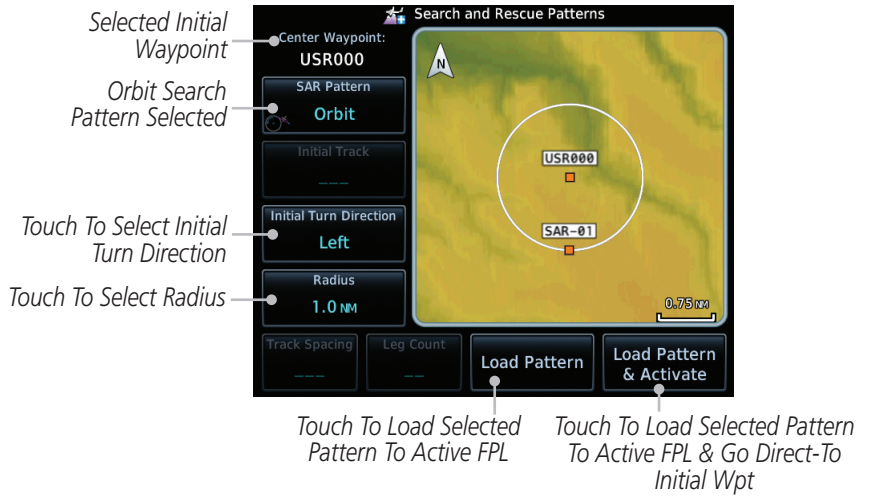
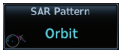


Figure 4-34 Search and Rescue Orbit Pattern Page



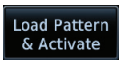
1. Touch the **SAR Pattern** key and select Orbit as the pattern type.

2. Touch the **Initial Turn Direction** key to select between Left or Right as the turn direction.

3. Touch the **Radius** key to open the keypad. Use the keypad and **Enter** to select the radius of the orbit pattern.

4. Touch the **Load Pattern** key to load selected pattern to the active flight plan.

OR



5. Touch the **Load Pattern & Activate** key to load selected pattern to the active flight plan and go direct-to the first waypoint in the pattern.

5.6 Off-Route Direct-To Course

An off-route Direct-To course may be selected by using the Waypoint tab, Nrst Apt tab, or selecting a waypoint on the map. When an off-route Direct-To course is activated, the existing active flight plan will be deactivated. The original active flight plan and waypoint sequencing is reactivated when the Direct-To course is removed.

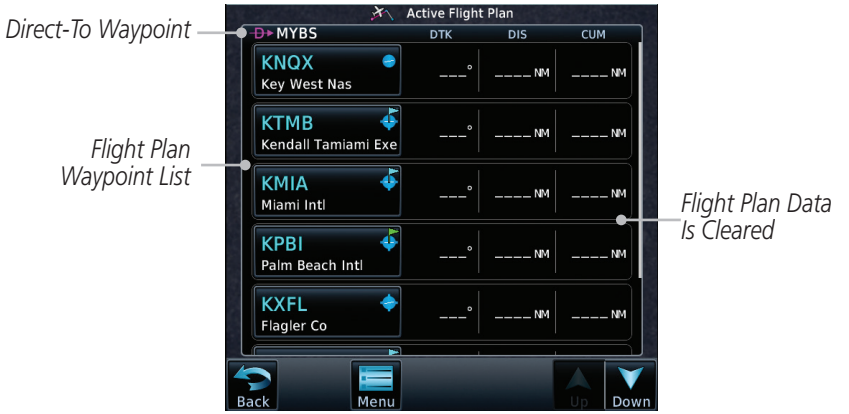


Figure 5-10 Active Flight Data is Removed When a Direct-To Course is Activated

5.7 Graphically Editing a Direct-To Route

Direct-To routes may be edited graphically on the Map page the same as a regular flight plan. See Section 9.3.3 for details.

5.8 Direct-To a User-Defined Hold

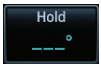
NOTE: *This feature is available in software version 6.00 and later.*

NOTE: *Any time a user hold is changed with the Direct-To key, upon pressing the "Activate the Direct-To Hold" key, navigation guidance will be given back to the holding fix and the new hold re-initiated.*

A user-defined hold can be created as part of a Direct-To to any waypoint. Automatic waypoint sequencing will be suspended during the hold.

1. Press the **Direct-To** key to display the Direct-To page.

Figure 5-11 Create Hold at Direct-To Waypoint



2. Touch the **Hold** key. The Direct-To Hold page is displayed.

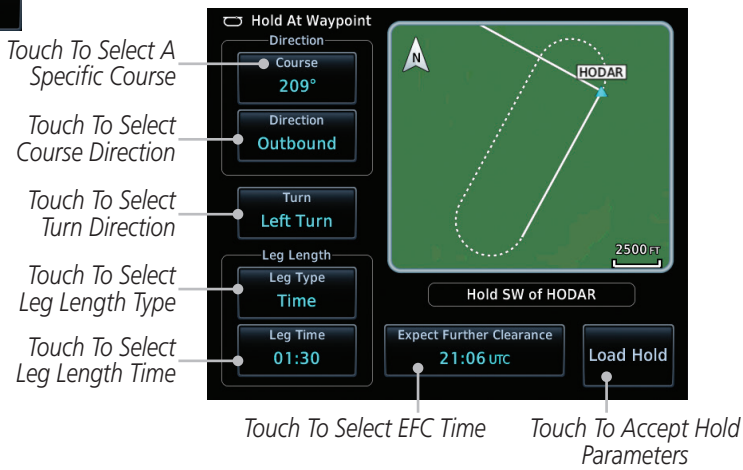
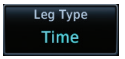


Figure 5-12 Entering Direct-To Hold Parameters

3. Touch the **Course** key to open the keypad. Use the keypad and the **Enter** key to select the inbound or outbound course.

4. Touch the **Course Direction** key to select between Inbound or Outbound for the course direction.

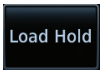
5. Touch the **Turn** key to select between Left or Right for the turn direction.



6. Touch the **Leg Type** key to select between Time or Distance for the leg type.

7. Touch the **Leg Time** or **Leg Distance** key to display the keypad. Use the keypad and the **Enter** key to select the length of the leg.

8. Touch the **Expect Further Clearance** key to display the keypad. Use the keypad and the **Enter** key to select the time for a reminder.



9. Touch the **Load Hold** key to accept the hold parameters and return to the Direct-To page.

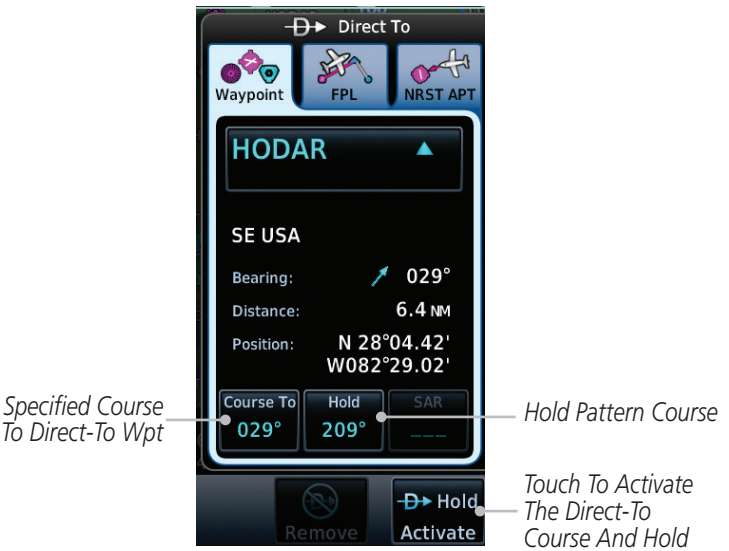


Figure 5-13 Direct-To Page with Hold Selected

10. Touch the **Hold Activate** key or press the **small right** knob to activate the selection.

5.9 Direct-To a Search and Rescue Pattern

NOTE: *This feature is available in software version 6.00 and later.*

A search and rescue pattern can be created as part of a Direct-To for a flight plan, off-route, or map waypoint. Creating a SAR pattern as part of an an off-route Direct-To will insert the SAR pattern waypoints at the end of the En Route portion of the active flight plan.

1. Press the **Direct-To** key to display the Direct-To page.

Figure 5-14 Create SAR Pattern at Direct-To Waypoint

2. Touch the **SAR** key. The Direct-To Search and Rescue Patterns page is displayed.

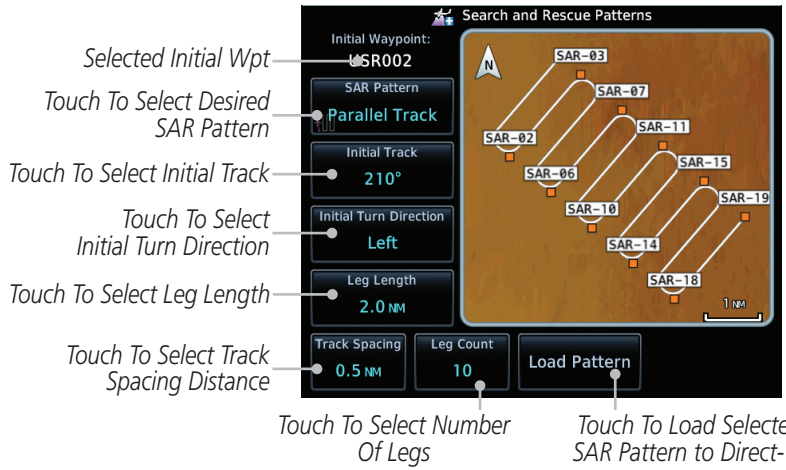
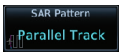


Figure 5-15 Direct-To Search and Rescue Pattern Page



3. Touch the **SAR Pattern** key to select between Parallel Track, Sector Search, Expanding Square, or Orbit for the SAR pattern type. The available patterns can be configured by the installer and all of the listed pattern types may not be available. See the Section 4.2.4 Load Search and Rescue Pattern for more details on configuring each pattern type.

4. Confirm the SAR pattern information and then touch the **Load Pattern** key to accept the SAR parameters and return to the Direct-To page.

Figure 5-16 Direct-To Page with SAR Pattern Selected

5. Touch the **SAR Activate** key or press the **small right** knob to activate the selection.

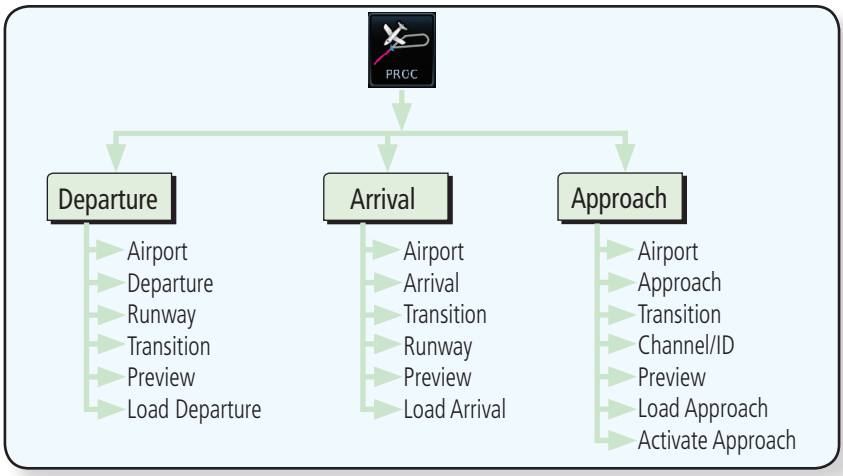


Figure 6-1 Procedures Functional Diagram

Annunciation	Description
LPV	Localizer Performance with Vertical guidance (LPV) approach. Fly to LPV minimums.
LP +V	Localizer Performance using published LP minima. Advisory vertical guidance is provided. Fly to LP minimums.
LP	Localizer Performance with no vertical guidance. Fly to LP minimums.
L/VNAV	Lateral Navigation and Vertical Navigation (LNAV/VNAV) approach. Fly to LNAV/VNAV minimums.
LNAV+V	GPS approach using published LNAV minima. Advisory vertical guidance is provided. Fly to LNAV minimums.
LNAV	Lateral Navigation approach. Fly to LNAV minimums.
MAPR	Missed Approach indicates the system is providing missed approach integrity and CDI full-scale deflection ±0.3 NM.
ENR	En route, CDI full-scale deflection is 2.0 NM or current CDI scale selection, whichever is smaller.
TERM	Terminal, CDI full-scale deflection is 1.0 NM or current CDI scale selection, whichever is smaller.
DPRT	Departure, indicates the system is using non-precision approach integrity. CDI full-scale deflection is 0.3 NM.
OCN	Oceanic, CDI full-scale deflection is 2.0 NM.
LOW ALT (lower window)	For LNAV+V, LNAV/VNAV, or LPV approaches, the LOW ALT annunciation indicates the aircraft's estimated height is lower than the Final Approach Waypoint height by approximately 50 meters. This annunciation will not be active when TAWS is operational.

Table 6-1 Phase of Flight Annunciations

NOTE: *In software version 6.00 and later, if you build your flight plan with the destination airport at the end and then load an approach procedure, the destination airport will be removed from the end of the flight plan. If the leg to the destination airport is the active leg when loading an approach procedure, you will navigate all the way to the destination airport before joining the procedure. Be sure when LOADING and not ACTIVATING an approach procedure that the route to be flown is correct.*

NOTE: *In software version 5.13 and earlier, if you build your flight plan with the destination airport at the end and then load an approach procedure, you will navigate all the way to the destination airport before joining the procedure. Be sure when LOADING and not ACTIVATING an approach procedure that the route to be flown is correct.*

Load Approach & Activate

8. Touch the **Load Approach & Activate** key, which makes the active leg Direct-To the selected transition waypoint, or for Vector approaches to activate a leg that is an extended final approach course. You can also "activate" the selected procedure on the Procedures page, if the approach is not activated on this page.

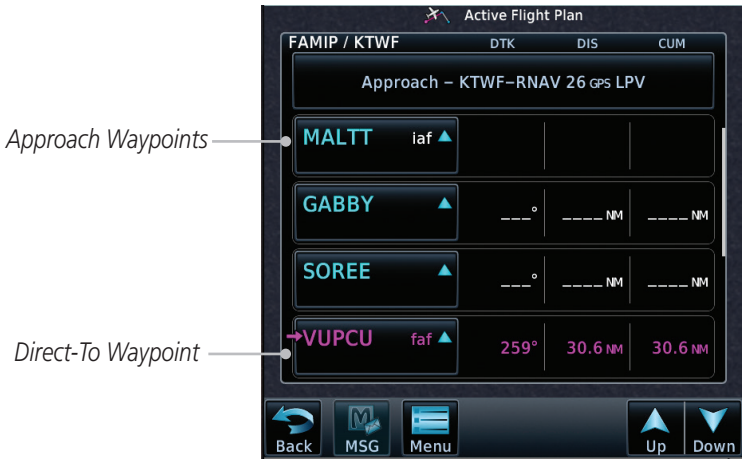


Figure 6-17 After Activating the Approach

NOTE: *When re-activating an approach, the decision as to whether a hold is inserted at the IAF or not is assumed to be the same as the first time the approach was activated, regardless of current aircraft position. If the pilot wishes to have the hold inserted or removed from the procedure, the procedure must be re-loaded or activated from the PROC-Approach page.*

6.5 Approaches with Procedure Turns

The procedure turn portion of an approach is stored as one of the legs of the approach. For this reason, the GTN 7XX unit requires no special operations from the pilot — other than flying the procedure turn itself — beyond what is required for any other type of approach. Roll steering is provided to aircraft with compatible autopilots.

NOTE: *The steering provided for the procedure turn does not guarantee that the aircraft will stay within charted procedure turn boundaries. As such the crew will need to ensure that the approach is flown within the confines of the charted procedure.*

6.6 Flying the Missed Approach

Upon reaching the Missed Approach Point, the GTN 7XX unit continues to give guidance along an extension of the final course segment (FAF to MAP) until you manually initiate the missed approach procedure (as mentioned previously in reference to the "SUSP" advisory).

NOTE: *If the unit is not configured for a CDI key, then the "activate GPS missed approach" will only resume automatic waypoint sequencing. The user must switch to GPS navigation, if desired, by using their external source selection method (this is typical an EFIS system).*

1. When the MAP is reached, a pop-up will appear.

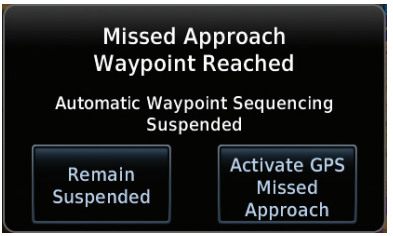
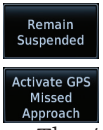


Figure 6-18 Pop-Up Upon Reaching the MAP



2. Touch the **Remain Suspended** key to continue with sequencing suspended or touch **Activate GPS Missed Approach** for guidance to the Missed Approach Hold Point.

The Activate GPS Missed Approach function is the same for the on screen controls or a remote switch. Activating the missed approach prior to the MAP can be accomplished on either the Flight Plan or Procedures pages. If using the Flight Plan page, the approach banner must be touched to display the Approach Options where Activate Missed Approach can be selected.

6.8 Flying a DME Arc Approach

Approaches that contain DME arcs are supported by the GTN. The GTN will provide guidance (left / right) relative to the arc. If you wish to activate the DME arc leg manually, the aircraft must be near the arc, as shown in the shaded area below.

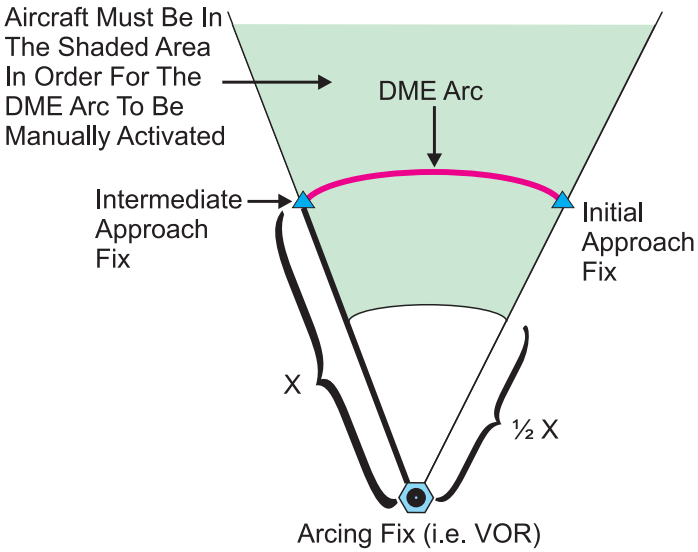


Figure 6-21 DME Arc Example

6.9 Radial-to-Fix (RF) Approaches

RF legs associated with RNAV RNP 1.0 non-AR (Approval Required) approaches are supported by the GTN in version 6.00, or later, when approved by the installation.

- AC 90-101A defines RF leg as "a constant radius circular path, around a defined turn center, that starts and terminates at a fix. An RF leg may be published as part of a procedure."
- Flying the RF leg of an approach is similar to flying a DME arc approach. All GTN annunciations and indications are identical whether flying DME arcs or RF legs with the GTN.
- RF legs may have a larger or smaller radius than DME arcs.
- Unlike DME arcs, RF legs are not based on a VOR.
- Refer to the aircraft AFMS for specific details regarding RF legs for a specific aircraft.

6.10 Vectors to Final

With "Vectors-To-Final" (VTF) selected, the CDI needle remains off center until you're established on the final approach course. With the approach activated, the Map Page displays an extension of the final approach course in magenta (remember, magenta is used to depict the active leg of the flight plan) and "vtf" appears as part of the active leg on the Map page (as a reminder that the approach was activated with vectors-to-final).

NOTE: *In software version 5.13 and earlier, once VTF is activated all waypoints in the approach prior to the FAF are removed.*

NOTE: *In software version 6.00 and later, all waypoints along the final approach course, including waypoints before the FAF, are included in the flight plan and the final approach course to the FAF is activated.*

The automatic switch from GPS to VLOC is not immediate, but instead occurs gradually to prevent abrupt CDI changes when coupled to an autopilot. The CDI selection can also be changed manually by touching the **CDI** key.

6.12 RNAV Approach Procedures

The GTN 7XX allows for flying LNAV/VNAV, LNAV, LNAV +V, LPV, LP, and LP +V approaches according to the published chart.

Phase of flight Annunciation	Description	Minimums
L/VNAV	Lateral Navigation/Vertical Navigation. RNAV non-precision approach with vertical guidance.	Published LNAV/VNAV minimums.
LNAV	Lateral Navigation. RNAV non-precision approach.	Published LNAV minimums.
LNAV + V	Lateral Navigation with Advisory Vertical Guidance. RNAV non-precision LNAV approach with advisory vertical guidance. The glidepath is typically denoted by a light dashed line on the vertical profile (Jeppeson only) with an associated glidepath angle (usually in the 3.00 degree range) and is provided to assist the pilot in maintaining a constant vertical glidepath, similar to an ILS glideslope.	Published LNAV minimums.
LPV	Localizer Performance with Vertical guidance (LPV) approach. RNAV precision approach.	Published LPV minimums.
LP	LP indicates Localizer Performance with no vertical guidance.	Published LP minimums.
LP +V	LP +V indicates Localizer Performance with advisory vertical guidance. This annunciation is available in software version 6.00 and later. This advisory guidance follows the same nature as set by the LNAV +V as shown above.	Published LP minimums.

Table 6-2 RNAV Approach Annunciations

7. As you cross the FAF, the destination sequences to the MAP (e.g. "RW31", the runway threshold). With the needle on the external CDI (or HSI) centered, fly toward the MAP, observing the altitude minimums published on the approach plate.
8. When viewing the Map Page, you'll note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta).
9. As you approach the MAP, a waypoint message appears on the bottom of the screen.
10. Once the unit crosses the MAP (defined as the runway end waypoint), sequencing will be suspended. Prepare the aircraft for missed approach operation. Touch the **Unsuspend** key to sequence to the Missed Approach procedure.
11. Fly the guidance provided by the unit to the MAHP and hold.

6.12.2 Flying the LP Approach

An LP approach is flown similarly to an LNAV approach, except the precision is greater as it utilizes the SBAS accuracy. It has similar lateral accuracy as an LPV approach. Angular scaling is similar to a localizer approach. Most LP approaches have step down altitudes associated with them. The approach still results in an MDA and missed approach point.

If the approach is indicated as LP +V, advisory vertical guidance will be provided. This does not change how the approach should be flown, and the pilot is still responsible for descending to the correct altitude at each step down. The approach still results in an MDA and missed approach point.

1. Within 30 NM of the destination, the GTN switches from en route mode to terminal mode and the CDI scale transitions from 2.0 to 1.0 NM, full scale deflection.
2. As you approach the IAF, a turn direction message appears on the bottom of the screen.
3. As the distance (DIST) to the IAF approaches zero, the message is replaced by a time to turn advisory that counts down 10 seconds prior to the turn.
4. As you approach the FAF, the GTN will begin to automatically rescale in an angular fashion. This will allow the LP approach to be flown in the same fashion as a standard localizer approach. At 2.0 NM from the FAF, CDI scaling is tightened from up to either 2° or 0.3 NM, full scale deflection, whichever is smaller.

5. Sixty seconds prior to reaching the FAF, the GTN will check the required Horizontal Alarm Limit (HAL) to ensure the GPS position integrity is within limits to complete the LP non-precision approach. In the event the HAL limits are exceeded, the approach will be downgraded, when available, indicated by "LNAV" on the moving map, otherwise the approach will be aborted. A message will note that the approach is downgraded and the NAV indicator will be flagged until the message is viewed. You may continue the approach using LNAV non-precision minimums if there are LNAV minimums for this approach. In the rare event the GPS HAL limits cannot meet non-precision limits, the GTN will notify the pilot with a message to abort the approach. The GTN will revert to terminal limits of 1.0 NM to support navigation to the missed approach. If the approach is indicating an LP +V, it is possible that the advisory vertical guidance could be removed without annunciation due to the vertical guidance not being within tolerances. This does not constitute a downgrade, and the approach can still be flown to LP minimums.
6. As you cross the FAF, the destination sequences to the MAP. With the needle on the external CDI (or HSI) centered, fly toward the MAP, observing the altitude minimums published on the approach plate.
7. When viewing the Map Page, you'll note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta).
8. As you approach the MAP, a waypoint message ("Arriving at Waypoint") appears on the bottom of the screen.
9. At the MAP initiate the missed approach, if necessary. Once the GTN crosses the MAP, sequencing will be suspended. Prepare the aircraft for missed approach operation. Touch the **Unsuspend** key to sequence to the Missed Approach procedure.

NOTE: *For missed approaches with heading legs, fly manually until the first active course leg is reached.*

10. Fly the guidance provided by the GTN to the MAHP and hold.

9 MAP

The Map page is used to provide situational awareness in flight. The Map page can display the following information:

- Airports, NAVAIDs, airspace, airways, land data (highways, cities, lakes, rivers, borders, etc.) with names
- Wind direction and speed
- Icons for enabled map features
- Aircraft icon (with the nose representing present position)
- Nav range ring
- Flight plan legs
- Topography scale
- Topography data
- NEXRAD (or Precip) Weather (Opt.)
- ChartView or FliteChart Overlay
- Terrain Overlay
- Traffic Overlay
- Radar Overlay
- Fuel Range Ring (SW V 6.00 or later)

Figure 9-1 Map Page Description

The following information describes the ownship symbol behavior in a helicopter that does not have a source of magnetic heading information connected to the GTN. When greater than 15 knots groundspeed the map is oriented either north up with ownship oriented to its current track or track up. When less than

15 kts groundspeed, the directional ownship icon is replaced with a non-directional icon because it can't be determined if the rotorcraft is going sideways or backwards. The map will continue to orient to the current track if the map is selected for Track Up. If the map is oriented to track up, then below 5 kts groundspeed the map orientation will "latch" to the last valid track prior to the groudspeed going below 5 kts. The map will reorient when the groundspeed again exceeds 5 kts. The position of the ownship icon over the map is always the current GPS position of the aircraft.

NOTE: *The electronic map is an aid to navigation and is designed to facilitate the use of authorized government charts, not replace them. Land and water data is provided only as a general reference. The accuracy of the land and water data is not suitable for use as a primary source of navigation and should only be used to supplement official government charts and notices.*

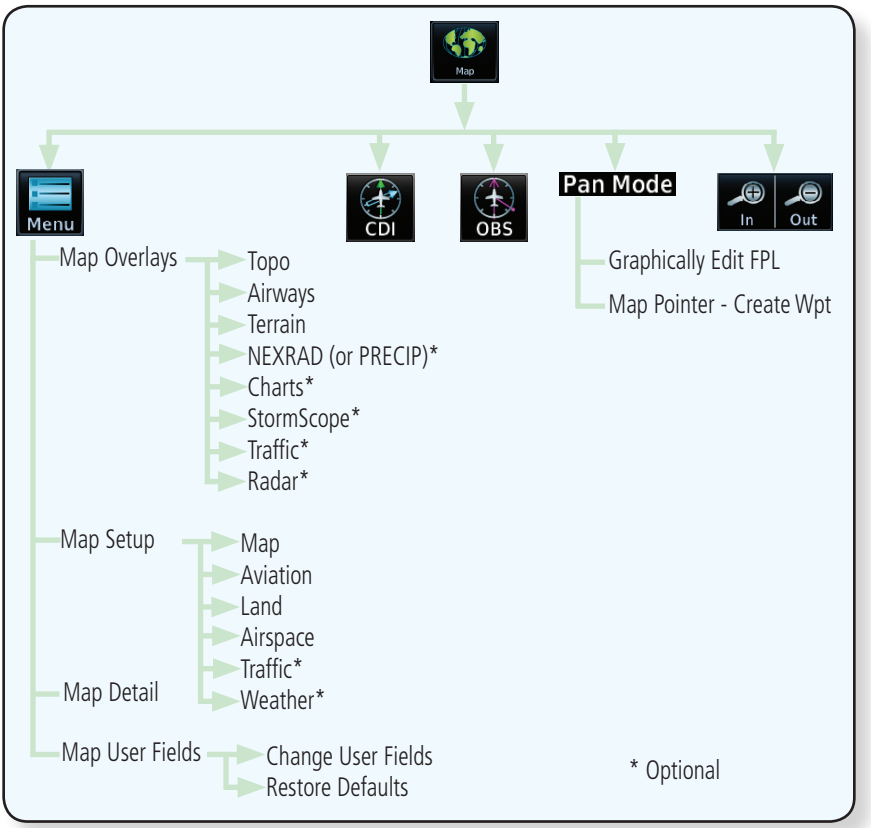


Figure 9-2 Map Page Functional Diagram

3. Touch the **Back** key to return to the Map page. Any changes made will be retained until changed.

9.1.1 Map Overlays

Map Overlays are layers of information that are referenced to geographic location and are overlayed on the base map. A green bar will appear below the Map Overlay key text when the overlay is selected, except for Airways and NEXRAD.

NOTE: *Data linked weather (SiriusXM / FIS-B / Connext) is displayed below the chart overlay, Active onboard RADAR overlay is displayed above the chart overlay.*

NOTE: *Map overlay keys do not turn on or activate equipment necessary for the overlay to function. Map overlay keys may remain available even if the information necessary for the overlay is not available. For example: the Radar overlay key is available even if the radar is turned off.*

NOTE: *Map overlays for StormScope, Traffic, or Radar are prevented from being overlaid on the main map without a heading source or while User Navigation Angles are selected.*

9.1.1.1 Overlay Priority

The data overlayed on the map is displayed according the following priorities (from highest to lowest):

1 - Traffic	10 - TFRs	19 - County Warning	28 - Icing Potential
2 - Ownship	11 - Freezing Levels	20 - PIREPs	29- Echo Tops
3 - Flight Plan	12 - Cell Movement	21 - AIREPS	30 - NEXRAD
4 - TAWS Alerts	13 - Lightning	22 - City Forecast	31 - Cloud Tops
5 - Weather Radar	14 - METARs	23 - Surface Analysis	32 - IR Satellite
6 - Charts	15 - Winds Aloft	24 - Airspace	33 - SafeTaxi
7 - Stormscope	16 - SIGMETs	25 - Waypoints	34 - Terrain
8 - Obstacles	17 - AIRMETs	26 - Airways	35 - Base Map
9 - Fuel Range Ring	18 - Cyclone Warning	27 - Turbulence	36 - Topo

Table 9-2 Data Overlay Priority

9.1.2 Map Setup

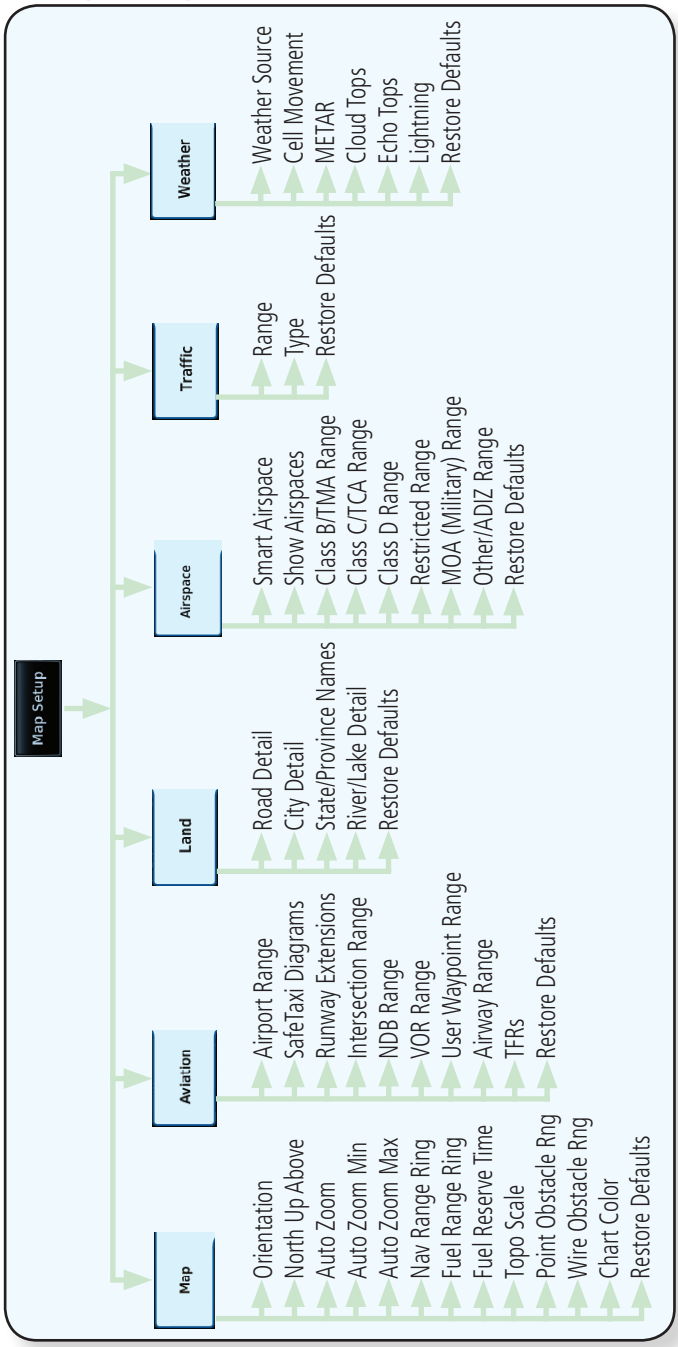


Figure 9-13 Map Setup Functional Diagram

9.1.2.1 Map

The Map option defines the behavior and display of information on the Map page such as: Orientation, North Up Above, Auto Zoom, Nav Range Ring, Topo Scale, Obstacle Range, and Restore Defaults. The default values are shown in **bold** type.

Feature	Selection
Orientation	North Up, **Track Up**, Heading Up
North Up Above	Off, 10 NM, 15 NM, 25 NM, **40 NM**, 50 NM, 75 NM, 100 NM, 150 NM, 250 NM
Auto Zoom	Off, **On**
Auto Zoom Min	250 ft, 400 ft, 500 ft, 750 ft, 1000 ft, 1500 ft, 2500 ft, 0.5 NM, 0.75 NM, 1 NM, **1.5 NM**, 2.5 NM, 4 NM, 5 NM, 7.5 NM, 10 NM, 15 NM, 25 NM, 40 NM, 50 NM, 75 NM, 100 NM, 150 NM, 250 NM, 400 NM
Auto Zoom Max	250 ft, 400 ft, 500 ft, 750 ft, 1000 ft, 1500 ft, 2500 ft, 0.5 NM, 0.75 NM, 1 NM, 1.5 NM, 2.5 NM, 4 NM, 5 NM, 7.5 NM, 10 NM, 15 NM, **25 NM**, 40 NM, 50 NM, 75 NM, 100 NM, 150 NM, 250 NM, 400 NM
Nav Range Ring	Off, **On**, Enhanced
Fuel Range Ring	Off, **On**
Fuel Reserve Time	30 Min, **45 Min**, 60 Min, 90 Min
Topo Scale	**Off**, On
Point Obstacle Range	Off, 4 NM, **5 NM**, 7.5 NM, 10 NM, 15 NM
Wire Obstacle Range	Off, 1 NM, **1.5 NM**, 2.5 NM
Chart Color Scheme	**Day**, Night
Restore Defaults	Returns values to original factory settings

Table 9-1 Map Setup Map Options

Nav Range Ring

When turned on, the Nav Range Ring option will show a ring with a compass rose oriented to magnetic north around your present position on the Map page. When selected ON, the Enhanced Range Ring function provides a second ring at 1/2 the distance of the primary ring to allow the pilot to acccurately judge distance to objects depicted on the map.

Figure 9-19 Nav Range Ring

Fuel Range Ring

NOTE: *This feature is available in software version 6.00 and later.*

When interfaced with a fuel computer, the GTN can display a Fuel Range Ring which shows an estimate of the remaining flight distance at the current fuel consumption rate and groundspeed. If either fuel quantity or fuel flow sensor data is not received, the GTN will use the Fuel on Board or Fuel Flow values on the Utilities – Fuel Planning page. If both fuel quantity and fuel flow are not received by the GTN, the Fuel Range Ring will be removed. A dashed green circle indicates the selected Range to Reserve Fuel. A solid yellow circle indicates the Total Endurance Range.

Figure 9-20 Fuel Range Ring

TOPO Scale

The Topo Scale option selects whether the elevation scale for topographical features on the Map page is displayed. The scale will be located on the left side of the display.

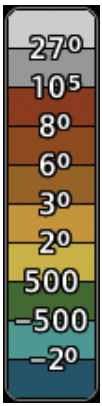


Figure 9-21 Map Page Topo Scale

Map Data Field Type	
ACTV WPT - Active Waypoint	MSA - Minimum Safe Altitude
B/D APT - BRG/DIS from Dest APT [1]	OAT (static) - Static Air Temperature
BRG - Bearing to Current Waypoint	OAT (total) - Total Air Temperature
DIS - Distance to Current Waypoint	RAD ALT - Radar Altimeter
DIS to Dest - Distance to Destination [2]	Time - Current Time
DTK - Desired Track	Time to TOD - Time to Top of Descent
ESA - Enroute Safe Altitude	TKE - Track Angle Error
ETA - Estimated Time of Arrival	TRK - Track
ETA at Dest - ETA at Destination	Trip Timer - Timer Display
ETE - Estimated Time Enroute	VOR/LOC - Tuned VOR/LOC Info
ETE to Dest - ETE to Destination	VSR - Vertical Speed Required
Fuel Flow - Total Fuel Flow	Wind - Wind Speed and Direction
GS - GPS Ground Speed	XTK - Cross Track Error
GSL - GPS Altitude	OFF - Do Not Display Data Field
Generic Timer - Timer Display	

Table 9-14 Map Data Field Types of Information

Note 1: B/D APT is the straight line distance.

Note 2: Dist to DEST is the distance along the flight plan.

Function Field Type	
CDI - Course Deviation Indicator	Passenger Address - PA Toggle
Flap Override - Flap Override [1]	Playback - Play Last Recording
GPWS Inhibit - GPWS Inhibit [1]	TAWS Inhibit - TAWS Inhibit
G/S Inhibit - G/S Inhibit [1]	Gen Timer - Generic Timer Control
HTAWS RP Mode - HTAWS RP Mode [2]	WX RDR Controls - Weather Radar Controls
OBS/Suspend/Unsuspend Button	OFF - Do Not Display Data Field
On Scene - "On Scene" Mode Toggle	

Table 9-15 Map Function Field Types of Information

Note 1: With TAWS-A enabled

Note 2: With HTAWS enabled

10.5.1 Traffic Applications - SURF, AIRB, etc.

The GTN ADS-B traffic display is capable of running in two "modes:" Airborne Situational Awareness (AIRB) and Surface Situation Awareness (SURF).

AIRB is in operation in the en route environment, outside of five NM from and 1,500 feet above the nearest airport.

SURF is in operation within the terminal environment (within five NM and less than 1,500 feet above field elevation). When SURF is running, and the zoom scale on the traffic display is less than two NM, the airport environment (including taxiways and runways) is displayed in addition to traffic. This is to aid in situational awareness of runway occupancy/availability, etc.

Due to the varying precision of the data received via ADS-B, ADS-R, and TIS-B, all traffic targets may not be depicted on the traffic display. Because higher data precision is required for display in the SURF environment, some targets eligible for AIRB will not be displayed while SURF is active. Individual eligibility for AIRB and SURF is depicted in the selected traffic data on the traffic page.

10.5.2 ADS-B Traffic Menu

The Traffic Menu allows control of the traffic information display.

Figure 10-11 ADS-B Traffic Menu

10.5.2.1 ADS-B Status

ADS-B Status displays the current status of traffic application: Off, Surface, or Airborne.

Touch the **ADS-B Status** key to toggle the ADS-B Status.

11.5.3.5 HTAWS Manual Test

Garmin HTAWS provides a manual test capability which verifies the proper operation of the aural and visual annunciations of the system prior to a flight.

To manually test the HTAWS system:

1. While viewing the Terrain/HTAWS Page, touch **MENU**.

2. Touch the **Test HTAWS** key.

3. Touch **Back** to return to the Terrain/HTAWS display.

An aural message is played giving the test results:

- "***HTAWS System Test, OK***" if the system passes the test
- "***HTAWS System Failure***" if the system fails the test

NOTE: *HTAWS System Testing is disabled when in the air so as not to impede HTAWS alerting.*

11.5.3.6 HTAWS Legend

1. While viewing the Terrain/HTAWS page, touch **MENU**.

2. Touch the **Legend** key to toggle the legend on or off. The green bar will show when the Legend is active.

3. Touch **Back** to return to the Terrain/HTAWS display.

Figure 11-21 HTAWS Terrain and Obstacle Legend

Obstacle Symbol	Unlighted Obstacle		Lighted Obstacle		Obstacle Color	Obstacle Location
	< 1000 ft AGL	> 1000 ft AGL	< 1000 ft AGL	> 1000 ft AGL		
					Red	Obstacle is at or above current aircraft altitude
					Yellow	Obstacle is between 250 ft and 0 ft below current aircraft altitude
					White	Obstacle is 250 ft, or more, below current aircraft altitude. Obstacles are removed when more than 500 ft below the helicopter.

Table 11-11 HTAWS Obstacle Colors and Symbology

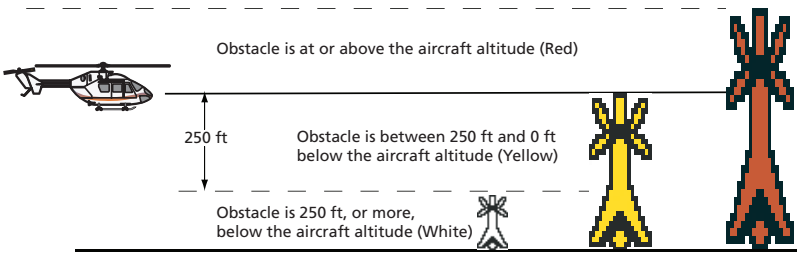


Figure 11-23 HTAWS Obstacle Altitude Colors and Symbology

Threat Location Indicator	Alert Level
	WARNING (Red)
	CAUTION (Yellow)

Table 11-12 HTAWS Alert Coloring and Symbology

The following may cause abnormalities in displayed NEXRAD radar images:

- Ground clutter
- Strobes and spurious radar data
- Sun strobes (when the radar antenna points directly at the sun)
- Interference from buildings or mountains, which may cause shadows
- Metallic dust from military aircraft, which can cause alterations in radar scans

NEXRAD Limitations (Canada)

- Radar coverage extends to 55°N.
- Any precipitation displayed between 52°N and 55°N is displayed as mixed because it is unknown.

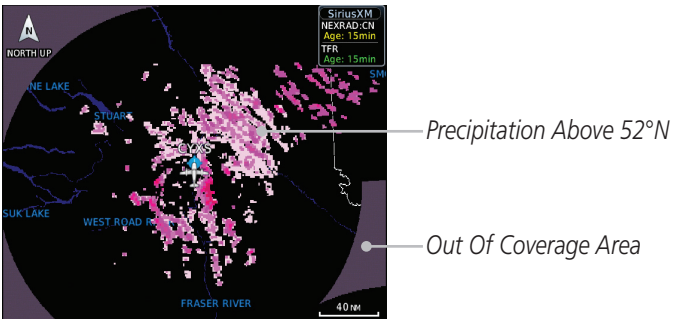


Figure 12-12 NEXRAD Data - Canada

12.1.5.3 Animating NEXRAD

NOTE: *Animated NEXRAD functionality is available in software version 6.00 and later.*

When US or Canada NEXRAD is enabled for display and more than two NEXRAD images have been received by the GTN, the NEXRAD display can be animated on the SiriusXM Weather page. As new NEXRAD images are received, the GTN will automatically store them for future animation. The GTN can animate up to six NEXRAD images from oldest to newest, showing each for one second and the newest for two seconds.

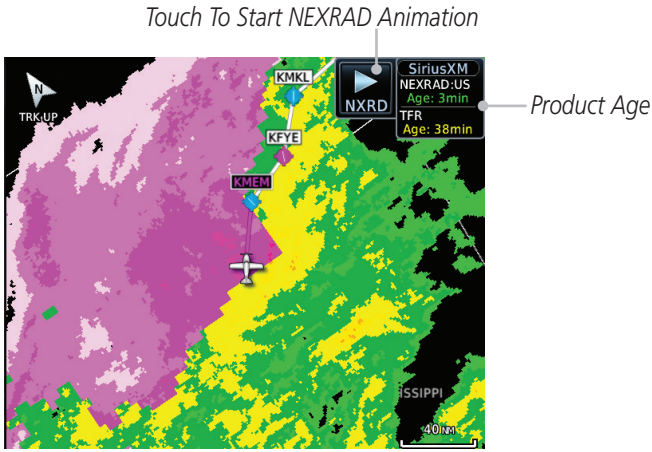


Figure 12-13 Start NEXRAD Animation

1. While viewing the SiriusXM Weather page with NEXRAD enabled for display, touch the **NXRD** key to start the NEXRAD animation.

NOTE: *Weather Forecast, Cloud Tops, and Cell Movement will automatically be turned off while NEXRAD is animating.*

2. Touch the **NXRD** key to stop the NEXRAD animation. The animation will also stop when leaving the page or turning off NEXRAD on the SiriusXM weather page.

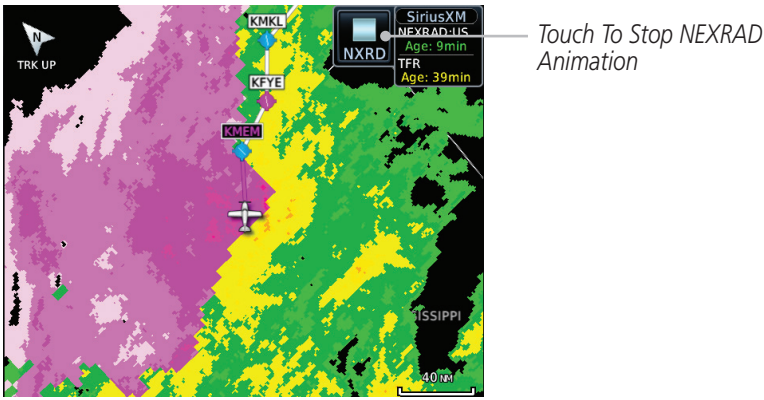


Figure 12-14 Start NEXRAD Animation

12.5.7 Precipitation (PRECIP) Data

Graphical data is overlaid on the map indicating the rainfall detected by ground based radar for a specific area. The colors indicating increasing levels of rainfall progresses from light green for light rainfall to red for heavy rainfall. Review the Limitations section in the front of this guide for the limitations that apply to the Connext data. Rainfall data is color coded as follows:

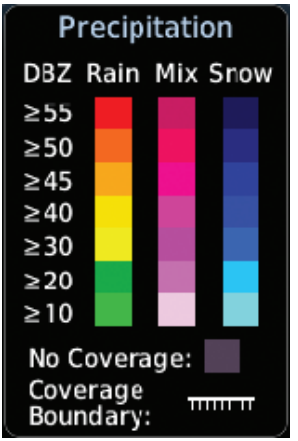


Figure 12-82 Connext PRECIP Weather Map Display and Legend

The "No Coverage" color indicates that no data is available for that area, and rainfall in that area is unknown.

When weather data is received, the airborne system will display that data for 20 minutes. If no new data has been received for a given area, the rainfall will be removed after 20 minutes and the area will revert back to the "No Coverage" color.

The Connext Weather Function is based on a ground-to-air data link and requires that the appropriate ground systems are broadcasting weather data and the aircraft is within reception range of the Ground Broadcast Transceiver (GBT).

12.5.7.1 Animating Precipitation Data

NOTE: *Animated Precipitation functionality is available in software version 6.00 and later.*

When Precipitation Data is enabled for display and more than two Precipitation images have been received by the GTN, the Precipitation display can be animated on the Connext Weather page. As new Precipitation images are

received, the GTN will automatically store them for future animation. The GTN can animate up to six Precipitation images from oldest to newest, showing each for one second and the newest for two seconds.

1. While viewing the Connext Weather page with Precipitation enabled for display, press the **Play PRCP** key to start the Precipitation animation.

2. Touch the **Stop PRCP** key to stop the Precipitation animation. The animation will also stop when leaving the page or turning off Precipitation on the Connext weather page.

12.5.8 Lightning

Lightning data shows the approximate location of cloud-to-ground lightning strikes. A strike icon represents a strike that has occurred within a two kilometer (1.08 NM) region. The exact location of the lightning strike is not displayed. Only cloud to ground strikes are reported in the US and extreme southern Canada (cloud to cloud strikes are not reported).

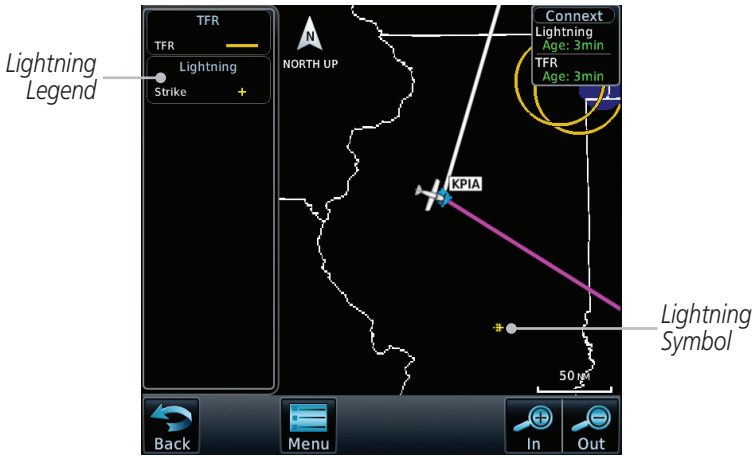


Figure 12-83 Connext Data Link Lightning and Legend

Selecting NEXRAD in the FIS-B Weather Menu

1. While viewing the FIS-B weather page, touch the **Menu** key to select the NEXRAD choice.
2. Touch the **NEXRAD** key to select Off, Regional, CONUS, or Combined NEXRAD.

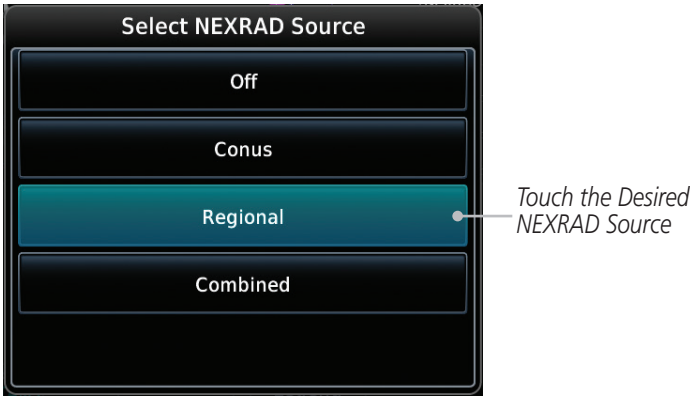


Figure 12-100 NEXRAD Source Selection

3. Touch the **Back** key to return to the FIS-B Weather Menu.

Animating NEXRAD FIS-B

NOTE: *Animated NEXRAD functionality is available in software version 6.00 and later.*

When Regional or CONUS NEXRAD is enabled for display and more than two NEXRAD images have been received by the GTN, the NEXRAD display can be animated on the FIS-B Weather page. As new NEXRAD images are received, the GTN will automatically store them for future animation. The GTN can animate up to six NEXRAD images from oldest to newest, showing each for one second and the newest for two seconds.

NOTE: *CONUS/Regional Combined NEXRAD cannot be animated. CONUS and Regional NEXRAD can only be animated when displayed individually.*

1. While viewing the FIS-B Weather page with NEXRAD enabled for display, press the **Play NXRD** key to start the NEXRAD animation.

2. Touch the **Stop NXRD** key to stop the NEXRAD animation. The animation will also stop when leaving the page or turning off NEXRAD on the FIS-B weather page.

12.6.3 FIS-B TFRs

Temporary Flight Restrictions (TFRs) provide detailed information for local short term restrictions. The update rate is approximately every 20 minutes.

Figure 12-101 FIS-B TFR Legend

1. Touch a TFR symbol on the Weather page to view details.

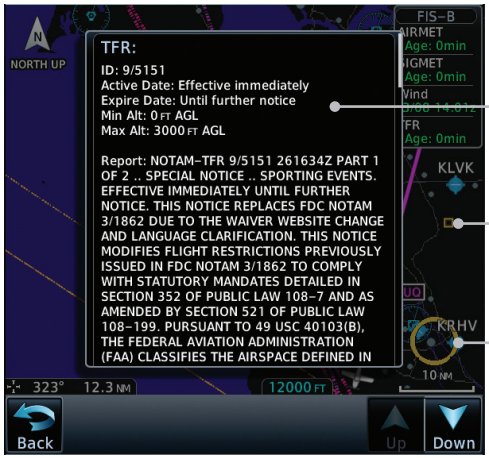


Figure 12-102 FIS-B TFR Detail

2. Touch the **Back** key to return to the Weather display.

15.9 Checklists

The Checklists function provides a built-in method of reviewing your aircraft checklist. Checklists are created using the Garmin Checklist Editor software (available online) and stored on the data card as "chklist.ace." As each Checklist is completed, you can advance to the next one in order. In the Checklist Menu, you can access any Checklist, or group of Checklists, and clear the current or all Checklists.

***NOTE:** This feature is available in SW Versions 5.10, and later. In software version 6.00 and later, the installer may configure the title of this feature to be Task Lists or Checklists.*

15.9.1 Checklists Menu

1. While viewing the Utilities page group, touch the **Checklists** key to start the Checklists function.

2. Touch the **Menu** key to select an option from the Checklist Menu.

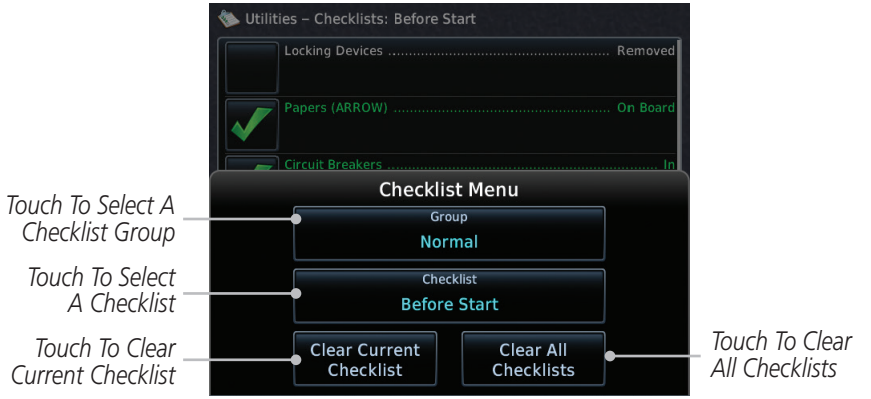


Figure 15-49 Utility Checklist Menu

16 SYSTEM

The System function allows you to change unit settings, customize operation to your preferences, and check on the operation of your unit. The System pages cover System Status, Database Info and transfer, GPS Status, External LRUs, Setup, Alerts, Units, Audio, Backlight control function, and Connext Setup.

1. From the Home page, touch the **System** key.

Figure 16-1 System Home Page

2. Touch the desired key to reach that function. To return to the System page, touch the **Back** key.

Figure 16-2 System Function Summary

***NOTE:** When the active flight plan on the GTN contains legs or features that are not supported by the GNS, those legs will not be crossfilled and will not be present in the active flight plan on the GNS.*

Auto GNS Crossfill

2. Touch **Auto GNS Crossfill** to enable Crossfill and send the Active Flight Plans and the active Direct-To course to the GNS unit.

Transfer User Waypoints

3. Touch the Transfer User Waypoints key to transfer the User Waypoints from the GTN unit to the connected GNS unit.

Figure 16-38 GTN-GNS Crossfill

16.4.6 CDI Scale Selection

The CDI source and ILS CDI Capture type may be selected manually or automatically. The selected CDI Scale will be reflected in the annunciation bar at the bottom of the display.

CDI Scale Selection allows you to define the scale for the course deviation indicator (both on the GTN unit's on-screen CDI and the external CDI). The scale values represent full scale deflection for the CDI to either side. The default setting is "Auto". At this setting, the CDI scale is set to 2.0 NM during the "en route" phase of flight. Within 31 NM (terminal area) of your destination airport, the CDI scale linearly ramps down to 1.0 NM over a distance of 1 NM. Likewise, when leaving your departure airport the CDI scale is set to 1.0 NM and gradually ramps up to 2 NM beyond 30 NM (from the departure airport). During GPS approach operations the CDI scale gradually transitions down to an angular CDI scale. At 2.0 NM before the final approach fix (FAF), CDI scaling is tightened from 1.0 NM to the angular full scale deflection (typically the angular full-scale deflection is 2.0°, but will be as defined for the approach).

If a lower CDI scale setting is selected (i.e., 1.0 or 0.3 NM), the higher scale settings are not selected during ANY phase of flight. For example, if 1.0 NM is selected, the GTN unit uses this for en route and terminal phases and ramps down further during an approach. Note that the Horizontal Alarm (HAL) protection

16.6 Units Settings

The Units Setup page allows you to select the conventions for the various units that are displayed.

Units Type	Units Values
Altitude/Vertical Speed	Feet (FT/FPM), Meters (M/MPS)
Distance/Speed	Nautical Miles (NM/KT), Kilometers (KM/KPH), Statue Miles (SM/MPH)
Fuel	Gallons (GAL), Imperial Gallons (IG), Kilograms (KG), Liters (LT), or Pounds (LB)
Nav Angle	Magnetic (°), True (°T), User (°u)
Magnetic Variation	Enter numeric value, E or W
Position Format	LAT/LON, MGRS, UTM
Pressure	Inches of Mercury (IN), Hectopascals (HPA), Millibars (MB)
Temperature	Celsius (°C) or Fahrenheit (°F)

Table 16-6 System Units Setup

16.6.1 Setup Units

Use these settings to set the units for values displayed in the unit operation.

1. While viewing the System page, touch the **Units** key.

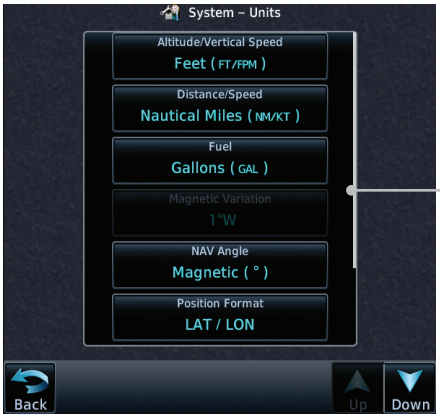


Figure 16-44 System Units Page

2. Touch the key for the desired units. A window with a list of unit values will appear. Touch the desired value on the list.

3. Touch the **Up** or **Down** keys or touch the display and drag your finger to scroll through the list. Touch the desired item to select it or touch the **Back** key to cancel selection.

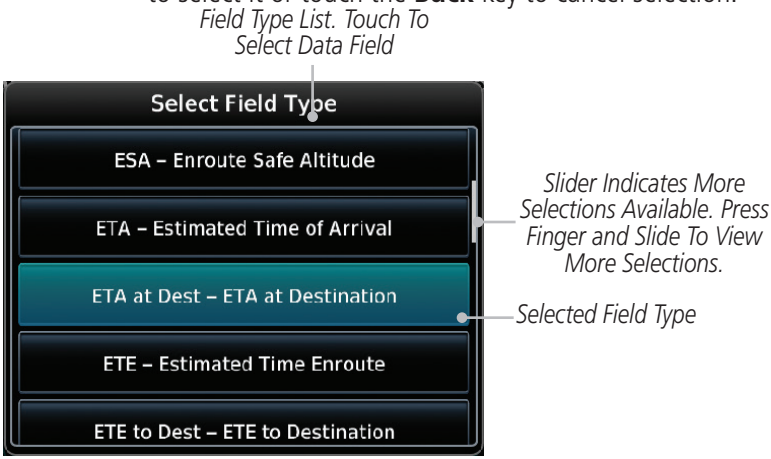


Figure 16-55 Map Data Field Type Selections

The options available are shown in the following tables. Selections available vary depending on installed equipment.

Data Field Type	
ACTV WPT - Active Waypoint	MSA - Minimum Safe Altitude
B/D APT - BRG/DIS from Dest APT [1]	OAT (static) - Static Air Temperature
BRG - Bearing to Current Waypoint	OAT (total) - Total Air Temperature
DIS - Distance to Current Waypoint	RAD ALT - Radar Altimeter
DIS to Dest - Distance to Destination [2]	Time - Current Time
DTK - Desired Track	Time to TOD - Time to Top of Descent
ESA - Enroute Safe Altitude	TKE - Track Angle Error
ETA - Estimated Time of Arrival	TRK - Track
ETA at Dest - ETA at Destination	Trip Timer - Timer Display
ETE - Estimated Time Enroute	VOR/LOC - Tuned VOR/LOC Info
ETE to Dest - ETE to Destination	VSR - Vertical Speed Required
Fuel Flow - Total Fuel Flow	Wind - Wind Speed and Direction
GS - GPS Ground Speed	XTK - Cross Track Error
GSL - GPS Altitude	OFF - Do Not Display Data Field
Generic Timer - Timer Display	

Table 16-7 Data User Field Selections

16.11.2 Pairing a Device

New devices can only be paired with the Flight Stream when it is in "Pairing Mode". The Flight Stream will be in pairing mode when the GTN is navigated to the Connext Setup page and/or the Manage Paired Devices page. The pairing must be initiated by the portable device. Pop-ups displayed on the portable device and GTN will be displayed to confirm the pairing.

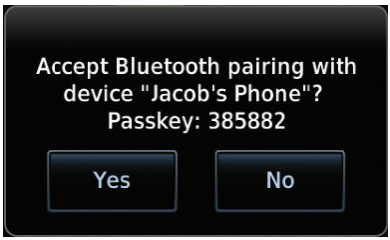


Figure 16-61 Confirm Pairing With A New Device

Selecting "Manage Paired Devices" opens a page that lists all of devices paired to the Flight Stream 210.

16.12 Connext Setup – GMA 35c

NOTE: *This feature is available in software version 6.00 or later.*

The GTN can interface with the GMA 35c Bluetooth audio panel. Using the GMA 35c and the GTN, audio or telephone calls from a portable device can be streamed over Bluetooth to the GMA. The GTN can also configure the Bluetooth functions of the GMA 35c.

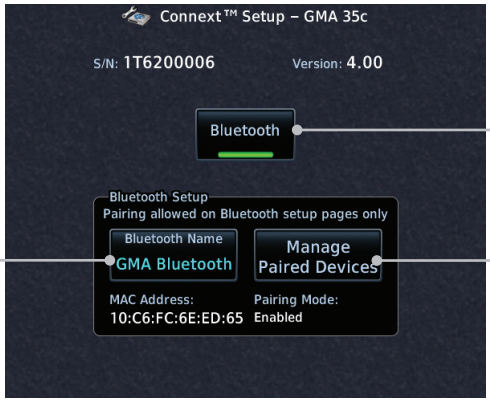


Figure 16-62 Connext Setup for GMA 35c

From the Connext Setup page, the pilot can enable/disable Bluetooth, change the GMA 35c Bluetooth name, and manage paired devices. On the Paired Devices page, the device status indicates if the portable device is connected and communicating with the GMA 35c. Only one portable device can be connected to the GMA 35c at a time. To connect a different device when one is already connected, the existing connection must be ended by removing the portable device pairing from the GMA 35c or by disconnecting or disabling Bluetooth on the portable device. Removing a device from this page by pressing "Remove" will require the device to be paired again before streaming audio.

NOTE: *If the pairing is removed from either device (portable device or GMA) it must be removed on the other device before a new pairing to that same device is established again. Essentially, pairing must be removed on both devices before repairing.*

New devices can only be paired with the GMA 35c when it is in "Pairing Mode". The GMA will be in pairing mode when on the Connext Setup page or the Manage Paired Devices page. The pairing must be initiated by the portable device. A pop-up will be displayed on the portable device to confirm the pairing.

16.13 Voice Command

NOTE: *This feature is available in software version 6.00, or later.*

The Voice Command page allows controlling the voice command function and viewing the voice command status and recent commands. Voice Commands are only available when connected to a compatible Garmin audio panel and when enabled by the installer.

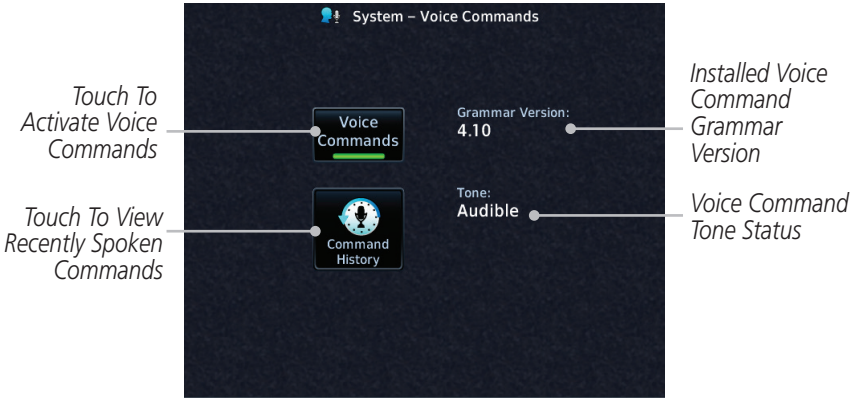


Figure 16-63 Voice Command Setup

1. While viewing the System page, touch the **Voice Commands** key.

2. Touch the **Voice Commands** key to toggle activation. A green bar will appear when Voice commands are active.

3. Touch the **Command History** key to open a list of recently spoken commands.

Figure 16-64 Voice Command History

Message	Description	Action
GPS SEARCHING SKY - Ensure GPS antenna has an unobstructed view of the sky.	The GPS module is acquiring position and may take longer than normal. This message normally occurs after initial installation or if the unit has not been powered for several weeks.	No action is necessary; message is informational only.
GTN - GTN needs service.	The GTN has lost calibration data that was set by Garmin during manufacturing.	Contact dealer for service.
HOLD EXPIRED - Holding EFC time has expired.	The selected Expect Further Clearance (EFC) time for a user-defined hold has passed.	No action is necessary; message is information only.
HTAWS - Invalid Terrain Database.	The terrain database is of insufficient resolution for use with HTAWS.	Load HTAWS specific terrain database on the external SD card.
INTERFACE ADAPTER - GAD 42 configuration needs service.	GAD 42 indicates a configuration error.	Verify all input/output data from/ to the GAD 42 Interface Adapter. Contact dealer for service.
INTERFACE ADAPTER - GAD 42 needs service.	GAD 42 indicates it needs service. The GAD 42 may continue to function.	Verify all input/output data from/ to the GAD 42 Interface Adapter. Contact dealer for service.
INTERNAL SD CARD ERROR - GTN needs service.	Internal SD card has an error. This card is not accessible by the user.	Contact dealer for service.

Message	Description	Action
LOSS OF INTEGRITY (LOI)- Verify GPS position with other navigation equipment.	Antenna may be shaded from satellites. The GPS module has reported a loss of integrity.	Make sure the aircraft is clear of hangars, buildings, trees, etc. Use a different GPS receiver or a non-GPS based source of navigation. Contact dealer for service if this message persists.
MAGNETIC NORTH APPROACH - Verify NAV angles are referenced to magnetic north (magnetic variation).	The NAV angle is not set to Magnetic and a magnetic approach is loaded.	Change NAV angle setting to Magnetic.
MAGNETIC VARIATION - Aircraft in area with large mag var. Verify all course angles.	MagVar is flagged as unreliable in the MagVar database. This normally occurs when operating at high latitudes that do not support a Nav Angle of Magnetic.	Verify that the geographical region supports navigation based on magnetic variation.
MARK ON TARGET - Waypoint creation has failed. MOT requires GPS position.	Mark on target waypoint creation has failed because of missing GPS position.	Wait for GPS satellite geometry to improve. Ensure the aircraft has a clear view of the sky. Reattempt waypoint creation. Contact dealer for service.
NAV ANGLE - NAV Angles are referenced to True North (T).	Nav angle is set to True.	No action is necessary; message is informational only.

Message	Description	Action
REMOTE KEY STUCK - Pilot/Co-Pilot voice command push-to-command key is stuck.	The remote push-to-command key/switch has been in pressed position for at least 30 seconds. This input will now be ignored. This input is not available in all installations.	Verify the push-to-command key/switch is not stuck. Contact dealer for service if this message persists.
SELECT FREQUENCY - Select appropriate NAV frequency for approach.	Correct NAV frequency is not set in the active NAV frequency for the approach procedure.	Insert the correct frequency into the active navigation frequency window.
SET COURSE - Set course on CDI/HSI to [current DTK].	The selected course on the CDI/HSI does not match the current desired track.	Set the CDI/HSI selected course to the current desired track.
STEEP TURN - Aircraft may overshoot course during turn.	Flight plan contains an acute course change ahead which will require a bank in excess of normal to follow the guidance. If coupled to the autopilot, the autopilot may not be able to execute the steep turn needed to follow the course guidance.	No action is necessary; message is informational only. If desired, slow the aircraft to shallow the turn.
STORMSCOPE - StormScope is inoperative or connection to GTN is lost.	The GTN is configured for a WX-500 StormScope but is not receiving data from it.	Close the Stormscope circuit breaker and ensure Stormscope is receiving power. Contact dealer for service.

Message	Description	Action
USER WAYPOINT IMPORT - User waypoints were imported successfully.	All user waypoints were imported successfully.	No action is necessary; message is informational only.
USER WAYPOINT IMPORT - User waypoint import failed.	User Waypoint import failed due to improper file format.	Ensure the media has the correct file format. If the problem persists. Contact dealer for service.
USER WAYPOINT IMPORT - User waypoint import failed. User waypoint database is full.	User Waypoint catalog is full and the requested user waypoints could not be imported.	Edit the User Waypoint catalog to remove unneeded user waypoints.
USER WAYPOINT IMPORT - User waypoints imported successfully - existing waypoints reused.	User waypoints imported and existing waypoints are used instead of creating duplicate waypoints.	No action is necessary; message is informational only.
VCALC - Approaching top of descent.	User has configured a vertical descent calculation, and the aircraft is within 60 seconds of the calculated top of descent.	No action is necessary; message is informational only.
VCALC - Arriving at VCALC target altitude.	User has configured a vertical descent calculation, and the aircraft is approaching the target altitude.	No action is necessary; message is informational only.

18.4 Terrain Obstacle Symbols

Unlighted Obstacle (Height is less than 1000 ft AGL)	Lighted Obstacle (Height is less than 1000 ft AGL)	Unlighted Obstacle (Height is greater than 1000 ft AGL)	Lighted Obstacle (Height is greater than 1000 ft AGL)
			

Table 18-8 Obstacle Altitude/Color Correlation

Tower	Windmill	Windmill in Group	Power Line
			

Table 18-9 Obstacle Icon Types

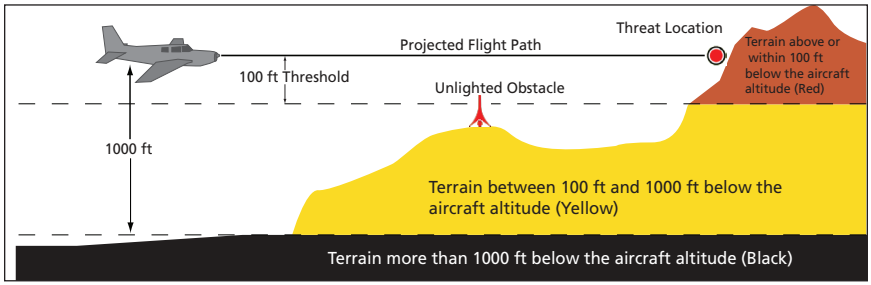


Figure 18-1 Terrain Altitude/Color Correlation

18.5 HTAWS Obstacle Symbols

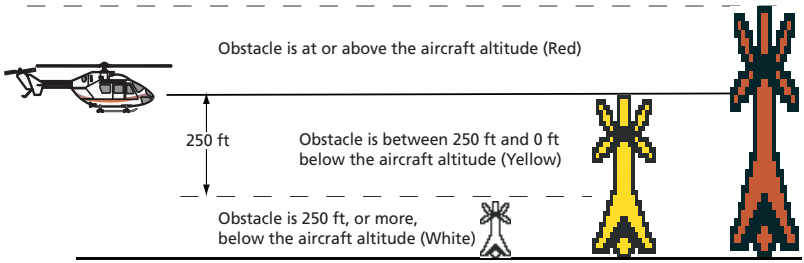


Figure 18-2 HTAWS Obstacle Altitude Correlation

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