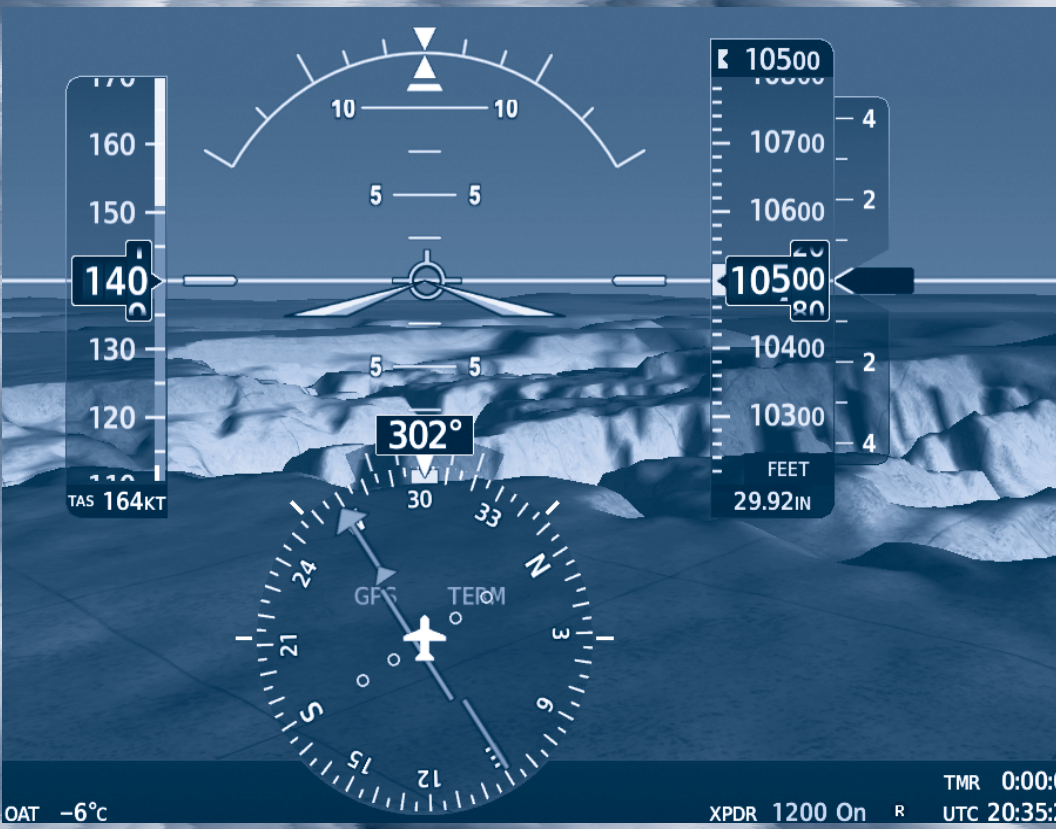
GARMIN

G1000® NXi

Cockpit Reference Guide



Diamond DA42NG

System Software Version 1916.12 or later

This manual reflects the operation of System Software version 1916.12 or later for the Diamond DA42NG. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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WARNING: *Do not operate this equipment without first obtaining qualified instruction.*

WARNING: *Always refer to current aeronautical charts and NOTAMs for verification of displayed aeronautical information. Displayed aeronautical data may not incorporate the latest NOTAM information.*

WARNING: *Do not use geometric altitude for compliance with air traffic control altitude requirements. The primary barometric altimeter must be used for compliance with all air traffic control altitude regulations, requirements, instructions, and clearances.*

WARNING: *Do not use basemap information (land and water data) as the sole means of navigation. Basemap data is intended only to supplement other approved navigation data sources and should be considered only an aid to enhance situational awareness.*

WARNING: *Do not rely solely upon the display of traffic information to accurately depict all of the traffic within range of the aircraft. Due to lack of equipment, poor signal reception, and/or inaccurate information from aircraft or ground stations, traffic may be present that is not represented on the display.*

WARNING: *Do not use data link weather information for maneuvering in, near, or around areas of hazardous weather. Information contained within data link weather products may not accurately depict current weather conditions.*

WARNING: *Do not use the indicated data link weather product age to determine the age of the weather information shown by the data link weather product. Due to time delays inherent in gathering and processing weather data for data link transmission, the weather information shown by the data link weather product may be older than the indicated weather product age.*

WARNING: *Do not use terrain avoidance displays as the sole source of information for maintaining separation from terrain and obstacles. Garmin obtains terrain and obstacle data from third party sources and cannot independently verify the accuracy of the information.*

WARNING: *Do not rely on the displayed minimum safe altitude (MSAs) as the sole source of obstacle and terrain avoidance information. Always refer to current aeronautical charts for appropriate minimum clearance altitudes.*

WARNING: *Do not use GPS to navigate to any active waypoint identified as a 'NON WGS84 WPT' by a system message. 'NON WGS84 WPT' waypoints are derived from an unknown map reference datum that may be incompatible with the map reference datum used by GPS (known as WGS84) and may be positioned in error as displayed.*

WARNING: *Do not rely on the autopilot to level the aircraft at the MDA/DH when flying an approach with vertical guidance. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.*

WARNING: *Do not rely on the accuracy of attitude and heading indications in the following geographic areas (due to variations in the earth's magnetic field): North of 72° North latitude at all longitudes; South of 70° South latitude at all longitudes; North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada); North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada); North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia); South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).*

WARNING: *Use appropriate primary systems for navigation, and for terrain, obstacle, and traffic avoidance. Garmin SVT is intended as an aid to situational awareness only and may not provide either the accuracy or reliability upon which to solely base decisions and/or plan maneuvers to avoid terrain, obstacles, or traffic.*

WARNING: *Do not use the Garmin SVT runway depiction as the sole means for determining the proximity of the aircraft to the runway or for maintaining the proper approach path angle during landing.*

WARNING: *Do not operate the weather radar in a transmitting mode when personnel or objects are within the MPEL boundary.*

WARNING: *Always position the weather radar gain setting to Calibrated for viewing the actual intensity of precipitation. Changing the gain in weather mode causes precipitation intensity to be displayed as a color not representative of the true intensity.*

WARNING: *Do not consider the overflight of thunderstorms to be safe, as extreme turbulence may exist significantly above observed returns.*

WARNING: *Do not rely on information from the reactive windshear detection system display as the sole basis for detecting windshear conditions. The system cannot predict the conditions in which windshear is likely to develop.*

WARNING: *Do not rely only on the Turbulence Detection function for hazardous weather avoidance, or to maneuver in, near, or around areas of hazardous weather.*

WARNING: *Do not rely on information from a lightning detection system display as the sole basis for hazardous weather avoidance. Range limitations and interference may cause the system to display inaccurate or incomplete information. Refer to documentation from the lightning detection system manufacturer for detailed information about the system.*

WARNING: *Do not rely solely upon the display of traffic information for collision avoidance maneuvering. The traffic display does not provide collision avoidance resolution advisories and does not under any circumstances or conditions relieve the pilot's responsibility to see and avoid other aircraft.*

WARNING: *Do not use QFE altimeter setting outside of the terminal environment for the corresponding issuing airport to ensure adequate obstacle clearance.*

WARNING: *Do not fly QFE procedures above the Transition Altitude or when navigating to a waypoint that contains a QNE (flight level) altitude constraint.*

WARNING: *Always fly a procedure that provides terrain and obstacle clearance from the reference airfield when operating in IMC while conducting QFE procedures.*

WARNING: *Do not use SurfaceWatch™ information as the primary method of flight guidance during airborne or ground operations. SurfaceWatch does not have NOTAM or ATIS information regarding the current active runway, condition, or information about the position of hold lines.*

CAUTION: *Do not clean display surfaces with abrasive cloths or cleaners containing ammonia. They will harm the anti-reflective coating.*

CAUTION: *Do not allow repairs to be made by anyone other than an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and affect the airworthiness of the aircraft.*

CAUTION: *Never disconnect power to the system when loading a database. Power interruption during the database loading process could result in maintenance being required to reboot the system.*

CAUTION: *Avoid areas on the radar display that appear "shadowed" (gray). The accuracy of the intensity of returns in the shaded areas should be treated as suspect. Exercise extreme caution, making maneuvering decisions with this information in mind.*

CAUTION: *In Standby mode, the antenna is parked at the center line. It is always a good idea to put the radar in Standby mode before taxiing the aircraft to prevent the antenna from bouncing on the bottom stop and possibly causing damage to the radar assembly.*

NOTE *All visual depictions contained within this document, including screen images of the system panel and displays, are subject to change and may not reflect the most current system and aviation databases. Depictions of equipment may differ slightly from the actual equipment.*

NOTE: *Do not rely solely upon data link services to provide Temporary Flight Restriction (TFR) information. Always confirm TFR information through official sources such as Flight Service Stations or Air Traffic Control.*

NOTE: *The United States government operates the Global Positioning System and is solely responsible for its accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment. Portions of the system utilize GPS as a precision electronic NAVigation AID (NAVAID). Therefore, as with all NAVAIDs, information presented by the system can be misused or misinterpreted and, therefore, become unsafe.*

NOTE: *This device complies with part 15 of the FCC Rules. Operation is subject to the following two 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.*

NOTE: *Use of polarized eyewear may cause the flight displays to appear dim or blank.*

NOTE: *This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at www.garmin.com/prop65.*

NOTE: *Operating the system in the vicinity of metal buildings, metal structures, or electromagnetic fields can cause sensor differences that may result in nuisance mis-compare annunciations during start up, shut down, or while taxiing. If one or more of the sensed values are unavailable, the annunciation indicates no comparison is possible.*

NOTE: *The system responds to a terminal procedure based on data coded within that procedure in the Navigation Database. Differences in system operation may be observed among similar types of procedures due to differences in the Navigation Database coding specific to each procedure.*

NOTE: *The FAA has asked Garmin to remind pilots who fly with Garmin database-dependent avionics of the following:*

- *It is the pilot's responsibility to remain familiar with all FAA regulatory and advisory guidance and information related to the use of databases in the National Airspace System.*
- *Garmin equipment will only recognize and use databases that are obtained from Garmin or Jeppesen. Databases obtained from Garmin or Jeppesen that have a Type 2 Letter of Authorization (LOA) from the FAA are assured compliance with all data quality requirements (DQRs). A copy of the Type 2 LOA is available for each applicable database and can be viewed at flygarmin.com by selecting 'Aviation Database Declarations.'*
- *Use of a current Garmin or Jeppesen database in your Garmin equipment is required for compliance with established FAA regulatory guidance, but does not constitute authorization to fly any and all terminal procedures that may be presented by the system. It is the pilot's responsibility to operate in accordance with established pertinent aircraft documents and regulatory guidance or limitations as applicable to the pilot, the aircraft, and installed equipment.*

NOTE: *The pilot/operator must review and be familiar with Garmin's database exclusion list as discussed in SAIB CE-14-04 to determine what data may be incomplete. The database exclusion list can be viewed at flygarmin.com by selecting 'Database Exclusions List.'*

NOTE: *The pilot/operator must have access to Garmin and Jeppesen database alerts and consider their impact on the intended aircraft operation. The database alerts can be viewed at flygarmin.com by selecting 'Aviation Database Alerts.'*

NOTE: *If the pilot/operator wants or needs to adjust the database, contact Garmin Product Support.*

NOTE: *Garmin requests the flight crew report any observed discrepancies related to database information. These discrepancies could come in the form of an incorrect procedure; incorrectly identified terrain, obstacles and fixes; or any other displayed item used for navigation or communication in the air or on the ground. Go to flygarmin.com and select 'Aviation Data Error Report'.*

NOTE: *Electronic aeronautical charts displayed on this system have been shown to meet the guidance in AC 120-76D as a Type B Electronic Flight Bag (EFB) for FliteCharts and ChartView. The accuracy of the charts is subject to the chart data provider. Own-ship position on airport surface charts cannot be guaranteed to meet the accuracy specified in AC 120-76D. Possible additional requirements may make a secondary source of aeronautical charts, such as traditional paper charts or an additional electronic display, necessary on the aircraft and available to the pilot. If the secondary source of aeronautical charts is a Portable Electronic Device (PED), its use must be consistent with the guidance in AC 120-76D.*

NOTE: *The navigation databases used in Garmin navigation systems contain Special Procedures. Prior to flying these procedures, pilots must have specific FAA authorization, training, and possession of the corresponding current, and legitimately-sourced chart (approach plate, etc.). Inclusion of the Special Procedure in the navigation database DOES NOT imply specific FAA authorization to fly the procedure.*

NOTE: *Terrain and obstacle alerting is not available north of 89º North latitude and south of 89º South latitude. This is due to limitations present within the Terrain database and the system's ability to process the data representing the affected areas.*

NOTE: *The nose of the 'own ship' symbol represents the location of the aircraft. The center of any traffic symbol represents the location of that traffic. The traffic and own ship symbols are an abstract representation and do not reflect the physical extent of the aircraft/traffic, and should not replace other methods for identifying traffic.*

NOTE: *When using Stormscope, there are several atmospheric phenomena in addition to nearby thunderstorms that can cause isolated discharge points in the strike display mode. However, clusters of two or more discharge points in the strike display mode do indicate thunderstorm activity if these points reappear after the screen has been cleared.*

NOTE: *Intruder aircraft at or below 500 ft. AGL may not appear on the Garmin SVT display or may appear as a partial symbol.*

NOTE: *Interference from GPS repeaters operating inside nearby hangars can cause an intermittent loss of attitude and heading displays while the aircraft is on the ground. Moving the aircraft more than 100 yards away from the source of the interference should alleviate the condition.*

NOTE: *The purpose of this Cockpit Reference Guide is to provide the pilot a resource with which to find operating instructions on the major features of the system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the Pilot's Guide for this aircraft.*

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Record of Revisions				
Part Number	**Revision**	**Date**	**Page Range**	**Description**
190-02527-00	A	11/2018	All	Initial Release at GDU 20.81
190-02527-01	A	06/2021	All	Production Release at GDU 20.92 Updated Warnings/Cautions/Notes Added Surfacewatch Added WireAware Updated Altimeter Information Updated CAS Messages Updated System Messages Updated Weather Radar Information Updated Terrain Avoidance Information

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FLIGHT INSTRUMENTS

FLIGHT INSTRUMENTS

AIRSPEED INDICATOR

Modifying Vspeeds and turning Vspeed Bugs On/Off:

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the desired Vspeed.
3) Use the small **FMS** Knob to change the Vspeed in 1 knot increments (when a speed has been changed from a default value, an asterisk appears next to the speed).
4) Press the **ENT** Key or turn the large **FMS** Knob to highlight the 'On/Off' Field
5) Turn the small **FMS** Knob clockwise to 'On' or counterclockwise to 'Off'.
6) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

Enabling/disabling or restoring all Vspeed bugs as a group:

1) Press the **TMR/REF** Softkey.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight 'All References On', 'All References Off', or 'Restore Defaults', as desired.
4) Press the **ENT** Key.
5) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

Changing command bar/aircraft symbol format:

1) Use the **FMS** Knob (and press the **Setup 1** Softkey, if necessary) to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the 'Format Active' Field in the 'Flight Director' Box.
4) Turn the small **FMS** Knob to select 'Single Cue' or 'X Pointer', and press the **ENT** Key.
5) Push the **FMS** Knob to remove the cursor.

ALTIMETER

Barometric Setting

Selecting the altimeter barometric pressure setting:

Turn the **BARO** Knob to select the desired setting.

Selecting standard barometric pressure (29.92 in Hg):

1) Press the **PFD Opt** Softkey to display the second-level softkeys.
2) Press the **STD Baro** Softkey.
3) Press the **Back** Softkey to return to the top-level softkeys.

Changing altimeter barometric pressure setting units:

1) Press the **PFD Opt** Softkey to display the second-level softkeys.
2) Press the **ALT Units** Softkey.
3) Press the **IN** Softkey to display the barometric pressure setting in inches of mercury (in Hg), or press the **HPA** Softkey to display the barometric pressure setting in hectopascals (hPa).
4) Press the **Back** Softkey twice to return to the top-level softkeys.

BARO QFE Altimeter Setting

WARNING: *Do not use a QFE altimeter setting outside of the terminal environment for the corresponding issuing airport to ensure adequate obstacle clearance.*

Setting BARO QFE while on the ground:

1) Set the appropriate QFE BARO setting on the PFD.
2) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page on the MFD.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to select the 'REF' Field in the 'BARO QFE' Box.
5) Use the small **FMS** Knob to select 'Manual' or 'FMS ORIG', and press the **ENT** Key to accept.
6) If 'Manual' was selected, use the **FMS** Knob to enter the field elevation of the departure airport in the 'ELEV' Field and press the **ENT** Key.
7) If 'FMS ORIG' was selected, the field elevation of the selected departure airport/runway from the flight plan will be shown in the 'BARO QFE' Box. Verify this information is correct.
8) The 'On/Off' Field will automatically highlight; turn the small **FMS** Knob to change the selection from 'Off' to 'On'.
9) Push the **FMS** Knob to deactivate the cursor. QFE mode is now active.

   Change the BARO setting to STD BARO to disable BARO QFE.

Setting BARO QFE while in flight:

1) Set the BARO setting to STD BARO on the PFD.
2) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page on the MFD.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to select the 'REF' Field in the 'BARO QFE' Box.
5) Use the small **FMS** Knob to select 'Manual' or 'FMS DEST', and press the **ENT** Key to accept.

6) If 'Manual' was selected, use the **FMS** Knob to enter the field elevation of the destination airport in the 'ELEV' Field and press the **ENT** Key.

7) If 'FMS DEST' was selected, the field elevation of the selected destination airport/runway from the flight plan will be shown in the 'BARO QFE' Box. Verify this information is correct.

8) The 'On/Off' Field will automatically highlight; turn the small **FMS** Knob to change the selection from 'Off' to 'On'.

9) Push the **FMS** Knob to deactivate the cursor. BARO QFE mode is now armed.

10) Enter the reference field QFE BARO setting. As soon as barometric settings change from STD BARO, QFE mode activates.

Change the BARO setting to STD BARO to disable BARO QFE. The desired BARO setting can now be entered.

Selected Altitude

Setting the Selected Altitude:

Turn the **ALT** Knob to set the Selected Altitude. Turn the large knob for 1000-ft increments or the small knob for 100-ft increments. If set to metric units, the large and small knobs adjust the Selected Altitude in 50-meter increments. When the unit overlay function is enabled, the Selected Altitude will stop at both the standard increments and the metric increments.

If a Minimum Altitude value has been set, this altitude is also available for the Selected Altitude while turning the **ALT** Knob.

Units overlay

Enabling altitude units overlay:

1) Press the **PFD Opt** Softkey to display the second-level softkeys.
2) Press the **ALT Units** Softkey.
3) Press the **Meters** Softkey to enable/disable the meters overlay.
4) Press the **Back** Softkey twice to return to the top-level softkeys.

HORIZONTAL SITUATION INDICATOR (HSI)

Enabling/disabling the HSI Map on the PFD:

1) Press the **Map/HSI** Softkey.
2) Press the **Layout** Softkey.
3) Press the **HSI Map** Softkey to enable the HSI Map.

Or:

Press the **Map Off** Softkey to disable the HSI Map.

Adjusting the Selected Heading:

Turn the **HDG** Knob to set the Selected Heading.

Push the **HDG** Knob to synchronize the bug to the current heading.

Adjusting the Selected Course:

Turn the **CRS** Knob to set the Selected Course.

Push the **CRS** Knob to re-center the CDI and return the Course Pointer to the bearing of the active waypoint or navigation station.

Changing the navigation angle true/magnetic setting:

1) Use the **FMS** Knob (and press the **Setup 1** Softkey, if necessary) to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the 'NAV Angle' Field in the 'Display Units' Box.
4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key:
   - 'True(°T)' – References angles to true north.
   - 'Magnetic(**°**)' – Angles corrected to the computed magnetic variation (Mag Var).
5) Push the **FMS** Knob to remove the cursor.

Bearing Pointers and Information Windows

Selecting bearing display and changing sources:

1) Press the **PFD Opt** Softkey.
2) Press either the **Bearing 1** or **Bearing 2** Softkey to display the desired bearing pointer and information window with NAV1.
3) Press either the **Bearing 1** or **Bearing 2** Softkey again to change the bearing source to NAV2.
4) Press either the **Bearing 1** or **Bearing 2** Softkey a third time to change the bearing source to GPS.
5) Press either the **Bearing 1** or **Bearing 2** Softkey a fourth time to change the bearing source to ADF (optional).
6) To remove the bearing pointer and information window, press either the **Bearing 1** or **Bearing 2** Softkey again.

DME Information Window

Displaying the DME Information Window:

1) Press the **PFD Opt** Softkey.
2) Press the **DME** Softkey to display the DME Information Window above the Bearing 1 Information Window.
3) To remove the DME Information Window, press the **DME** Softkey again.

COURSE DEVIATION INDICATOR (CDI)

Changing navigation sources:

1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the cyan tuning box over the NAV1 standby frequency in the upper left corner of the PFD.
2) Press the **CDI** Softkey again to change from VOR1 or LOC1 to VOR2 or LOC2. This places the cyan tuning box over the NAV2 standby frequency.
3) Press the **CDI** Softkey a third time to return to GPS.

GPS CDI Scaling

Changing the selected GPS CDI setting:

1) Use the **FMS** Knob (and press the **Setup 1** Softkey, if necessary) to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the 'Format Allowed' Field in the 'GPS CDI' Box.
4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key.
5) To cancel the selection press the **CLR** Key, or push the **FMS** Knob to deactivate the cursor.

Enabling/disabling OBS Mode while navigating a GPS flight plan:

1) Press the **OBS** Softkey to select OBS Mode.
2) Turn the **CRS** Knob to select the desired course to/from the waypoint. Push the **CRS** Knob to synchronize the Selected Course with the bearing to the next waypoint.
3) Press the **OBS** Softkey again to return to automatic waypoint sequencing.

SUPPLEMENTAL FLIGHT DATA

TEMPERATURE DISPLAYS

Changing temperature display units:

1) Use the **FMS** Knob (and press the **Setup 1** Softkey, if necessary) to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the 'Temperature' Field in the 'Display Units' Box.
4) Turn the small **FMS** Knob to highlight either 'Celsius(°C)' or 'Fahrenheit(°F)' and press the **ENT** Key to confirm the selection.
5) To cancel the selection press the **CLR** Key, or push the **FMS** Knob to deactivate the cursor.

WIND DATA

Displaying wind data:

1) Press the **PFD Opt** Softkey.
2) Press the **Wind** Softkey to display wind data option softkeys.
3) Press one of the option softkeys to change how wind data is displayed to the left of the HSI:
   - **Option 1**: Headwind/tailwind and crosswind arrows with numeric speed components
   - **Option 2**: Total wind direction arrow with numeric speed
   - **Option 3**: Total wind direction arrow with numeric headwind/tailwind (H/T) and crosswind (X) components
4) To remove the window, press the **Off** Softkey.

GARMIN SYNTHETIC VISION TECHNOLOGY (SVT)

WARNING: *Use appropriate primary systems for navigation, and for terrain, obstacle, and traffic avoidance. Garmin SVT is intended as an aid to situational awareness only and may not provide either the accuracy or reliability upon which to solely base decisions and/or plan maneuvers to avoid terrain, obstacles, or traffic.*

SVT OPERATION

Activating and deactivating SVT:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **Terrain** Softkey. The SVT display will cycle on or off with the **Terrain** Softkey.

Activating and deactivating Horizon Heading:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **HDG LBL** Softkey. The Horizon Heading display will cycle on or off with the **HDG LBL** Softkey.

Activating and deactivating Airport Signs:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **APT Sign** Softkey. Display of Airport Signs will cycle on or off with the **APT Sign** Softkey.

WARNING: *Do not use Garmin SVT runway depiction as the sole means for determining the proximity of the aircraft to the runway or for maintaining the proper approach path angle during landing.*

Activating and deactivating WireAware depiction:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **Wire** Softkey. Display of power lines will cycle on or off with the **Wire** Softkey.

FIELD OF VIEW

Configuring Field of View:

1) While viewing the 'Map – Navigation Map' Page, press the **MENU** Key to display the 'Page Menu'.
2) Turn the large **FMS** Knob to highlight 'Map Settings' and press the **ENT** Key.
3) Turn the small **FMS** Knob to highlight 'Map' in the 'Group' Box and press the **ENT** Key.
4) Turn the large **FMS** Knob to scroll through the Map Group options to 'Field of View'.
5) Turn the small **FMS** Knob to select 'On' or 'Off'.
6) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

PFD ANNUNCIATIONS AND ALERTING FUNCTIONS

BARO TRANSITION ALERTS

Setting the Baro Transition Alerts:

1) Use the **FMS** Knob (and press the **Setup 1** Softkey, if necessary) to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight 'On' or 'Off' associated with the 'Altitude' Field in the 'BARO Transition Alert' Box.
4) Turn the small **FMS** Knob to set the BARO Transition Alert Altitude to 'On' or 'Off'.
5) Turn the large **FMS** Knob to highlight the 'Altitude' Field in the 'BARO Transition Alert' Box.
6) Use the **FMS** Knob to change the altitude and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.
7) Turn the large **FMS** Knob to highlight 'On' or 'Off' associated with the 'Level' Field in the 'BARO Transition Alert' Box.
8) Turn the small **FMS** Knob to set the BARO Transition Alert Flight Level to 'On' or 'Off'.
9) Turn the large **FMS** Knob to highlight the 'Level' Field in the 'BARO Transition Alert' Box.

10) Use the **FMS** Knob to change the flight level for the alert and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.

11) Push the **FMS** Knob to deactivate the cursor.

MINIMUM ALTITUDE ALERTING

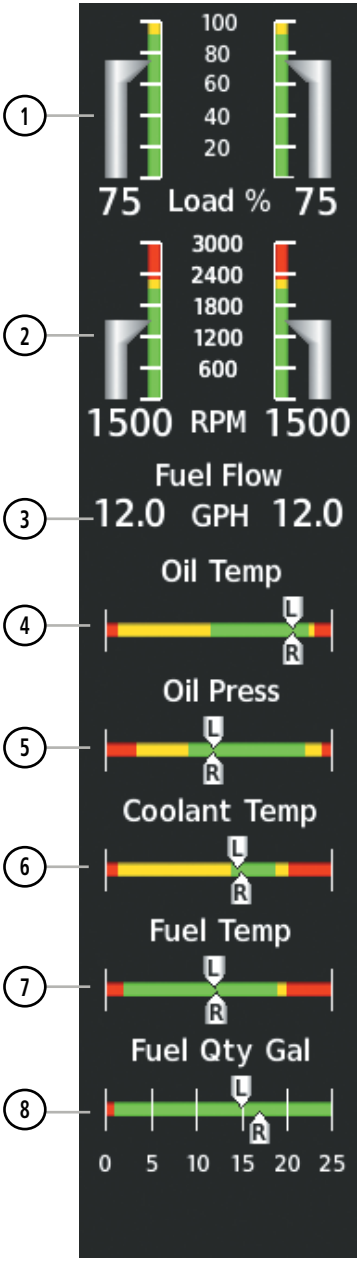
Setting the Minimum Altitude Alert and bug:

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the Minimums ('MINS') Field.
3) Turn the small **FMS** Knob to select 'BARO', 'TEMP COMP', or 'RAD ALT'. 'Off' is selected by default. Press the **ENT** Key or turn the large **FMS** Knob to highlight the next field.
4) Use the small **FMS** Knob to enter the desired altitude (from zero to 16,000 feet).
5) If 'TEMP COMP' was selected, press the **ENT** Key or turn the large **FMS** Knob to highlight the next field and then enter the temperature (-59°C to 59°C).
6) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

ENGINE INDICATION SYSTEM (EIS)

ENGINE DISPLAY

Beneath the vertical slider gauges are displays for fuel flow and horizontal bar indicators for oil temperature and pressure, coolant temperature, and fuel temperature and quantity.



Engine Display (Model DA42NG Shown)

1 Engine Load Indicator (Load %)

Displays current engine loads as percentages.

The green band indicates the normal operating range. The amber band indicates the cautionary range. If the indicated percentage is in the cautionary range, the LOAD %, the vertical slider, and the digital indications will display solid amber and black.

2 Tachometer (RPM)

Displays propeller speeds in revolutions per minute (rpm).

The green band indicates the normal operating range. The red bands indicate the warning range. If the indicated RPM is in the warning range, the RPM, the slider, and the digital indication will flash red and white.

3 Fuel Flow (Fuel Flow GPH)

Displays digital value of current fuel flow for each engine in gallons per hour (gph).

4 Oil Temperature (Oil Temp)

Displays engine oil temperature ranges; pointers labeled 'L' and 'R' indicate the oil temperature for each engine.

The green band indicates the normal operating range. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated oil temperature is in the cautionary ranges, the OIL TEMP, 'L' pointer and/or 'R' pointer, and the digital indication will display solid amber and black. If the indicated oil temperature is in the warning ranges, the OIL TEMP', 'L' pointer and/or 'R' pointer, and the digital indication will flash red and white.

5 Oil Pressure (Oil Press)

Displays engine oil pressure ranges; pointers labeled L and R indicate the oil pressure for each engine.

The green band indicates the normal operating range. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated oil pressure is in the cautionary ranges, the OIL PRESS, 'L' pointer and/or 'R' pointer, and the digital indication will display solid amber and black. If the indicated oil pressure is in the warning ranges, the OIL PRESS, 'L' pointer and/or 'R' pointer, and the digital indication will flash red and white.

6 Coolant Temperature (Coolant Temp)

Displays coolant temperature ranges; pointers labeled 'L' and 'R' indicate coolant temperature for each engine.

The green band indicates the normal operating range. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated coolant temperature is in the cautionary ranges, the COOLANT TEMP, 'L' pointer and/or 'R' pointer, and the digital indication will display solid amber and black. If the indicated coolant temperature is in the warning ranges, the COOLANT TEMP, 'L' pointer and/or 'R' pointer, and the digital indication will flash red and white.

7 Fuel Temperature (Fuel Temp)

Displays fuel temperature range; pointers labeled 'L' and 'R' indicate the fuel temperature in each tank.

The green band indicates the normal operating ranges. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated fuel temperature is in the cautionary ranges, the FUEL TEMP, 'L' pointer and/or 'R' pointer, and the digital indication will display solid amber and black. If the indicated fuel temperature is in the warning ranges, the FUEL TEMP, 'L' pointer and/or 'R' pointer, and the digital indication will flash red and white.

8 Fuel Quantity (Fuel Qty Gal)

Displays the fuel quantity in gallons (gal) of fuel in the main tanks; pointers labeled 'L' and 'R' indicate the fuel quantity in each tank.

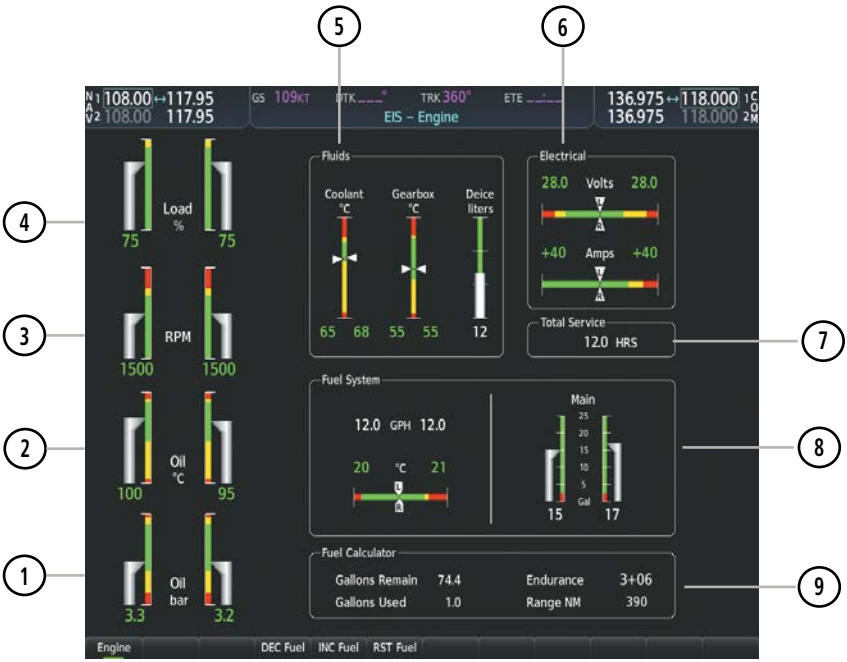
Indicator ranges from 0 to 25 gal per side with tick marks every 5 gal; the warning range indicates 1 gal of unusable fuel.

ENGINE PAGE

The EIS - Engine Page displays all engine, fuel, electrical, and fuel calculation information. To access this page, press the **Engine** Softkey or turn the large **FMS** Knob and select EIS.

Level 1	Level 2	Description
Engine		Displays 'EIS - Engine' Page and second-level engine softkeys; press again to exit page
	DEC Fuel	Decreases displayed fuel remaining in 1-gal increments
	INC Fuel	Increases displayed fuel remaining in 1-gal increments
	RST Fuel	Resets displayed fuel remaining to maximum fuel capacity for aircraft and fuel used to zero

Engine Page Softkeys



Engine Page (Model DA42NG Shown)

1 Oil Pressure (Oil bar)

Displays engine oil pressure ranges in bar.

The green band indicates the normal operating range. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated oil pressure is in the cautionary ranges, the OIL BAR, slider pointer, and the digital indication will display solid amber and black. If the indicated oil pressure is in the warning ranges, the OIL BAR, slider pointer, and the digital indication will flash red and white.

2 Oil Temperature (Oil °C)

Displays engine oil temperature ranges in degrees Celsius (°C).

The green band indicates the normal operating range. The amber band indicates the cautionary ranges, and the red band indicates the warning ranges. If the indicated oil pressure is in the cautionary range, the OIL °C, slider pointer, and the digital indication will display solid amber and black. If the indicated oil pressure is in the warning ranges, the OIL °C, slider pointer, and the digital indication will flash red and white.

3 Tachometer (RPM)

Displays propeller speeds in revolutions per minute (rpm).

The green band indicates the normal operating range. The red band indicates the warning range. If the indicated rpm is in the warning ranges, the RPM, slider pointer, and the digital indication will flash red and white.

4 Engine Load (Load %)

Displays current engine loads as percentages.

The green band indicates the normal operating range. The amber band indicates the cautionary range. If the indicated oil pressure is in the cautionary range, the LOAD %, slider pointer, and the digital indication will display solid amber and black.

5 Fluids

Displays coolant temperature in degrees Celsius (°C), the gearbox temperature in degrees Celsius (°C), and the deice fluid in liters *(optional)*.

The green bands indicates the normal operating range. The amber bands indicates the cautionary ranges, and the red bands indicates the warning ranges. If an indication is in the cautionary range, the label, slider pointer, and the digital indication will display solid amber and black. If an indication is in the warning ranges, the label, slider pointer, and the digital indication will flash red and white.

6 Electrical

Displays the primary bus voltage for each side; pointers labeled 'L' and 'R' indicate the voltage for each side, and each alternator load in amperes (amps); pointers labeled 'L' and 'R' indicate the amps for each side.

The green bands indicates the normal operating range. The amber bands indicates the cautionary ranges, and the red bands indicates the warning ranges. If an indication is in the cautionary range, the label, 'L' pointer and/or 'R' pointer, and the digital indication will display solid amber and black. If an indication is in the warning ranges, the label, 'L' pointer and/or 'R' pointer, and the digital indication will flash red and white.

7 Total Service

Displays the aircraft's total flight hours (hrs); activated when the aircraft becomes airborne.

8 Fuel System

Displays fuel quantity in the main tanks in gallons (gal), fuel temperature for each main tank in degrees Celsius (°C); pointers labeled L and R indicate the fuel temperature in each tank, and current fuel flow for each engine in gallons per hour (GPH).

The green bands indicates the normal operating range. The amber bands indicates the cautionary ranges, and the red bands indicates the warning ranges. If an indication is in the cautionary range, the label, slider pointer or 'L' pointer and/or 'R' pointer (as applicable), and the digital indication will display solid amber and black. If an indication is in the warning ranges, the label, slider pointer or 'L' pointer and/or 'R' pointer (as applicable), and the digital indication will flash red and white.

9 Fuel Calculator

Gallons Remain - Displays current fuel remaining (gal) as set by the pilot and adjusted for fuel burn since last set.

Gallons Used - Displays quantity of fuel used (gal) based on fuel flow since last reset.

Endurance - Displays flight time remaining in hours and minutes (HH+MM) based on the calculated fuel remaining.

Range NM - Displays aircraft range in nautical miles (nm) based on the calculated fuel remaining.

FUEL CALCULATIONS

Adjusting the fuel totalizer quantity:

On the Engine Page, use the **DEC Fuel** and **INC Fuel** Softkeys to obtain the desired fuel remaining (Gallons Remain).

Resetting the fuel totalizer:

On the Engine Page, select the **RST Fuel** Softkey; this resets displayed fuel remaining (Gallons Remain) to the maximum fuel capacity for the aircraft and fuel used to zero.

Enabling/disabling the Fuel Range Ring and selecting a reserve fuel time:

1) On the MFD, display the Navigation Map Page (press and hold the **CLR** Key for 2 seconds to quickly select this map).
2) Press the **MENU** Key.
3) Highlight 'Map Settings' and press the **ENT** Key. The Map Settings Menu is displayed.
4) Use the small **FMS** Knob to select the 'Map' group and press the **ENT** Key.
5) Highlight the 'Fuel Range (RSV)' field.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.
7) Turn the large **FMS** Knob to highlight the reserve fuel time, how long the aircraft can fly after reaching the reserve fuel.
8) Enter the desired reserve fuel time (00+00 to 23+59; hours+minutes) and press the **ENT** Key.
9) Push the **FMS** Knob to return to the Navigation Map Page.

Blank Page

AUDIO PANEL AND CNS

COM OPERATION

COM TRANSCEIVER MANUAL TUNING

Manually tuning a COM frequency:

1) Turn the **COM** Knob to tune the desired frequency (large knob for MHz; small knob for kHz).
2) Press the **Frequency Transfer** Key to transfer the frequency to the active field.
3) Adjust the volume level with the COM **VOL/SQ** Knob.
4) Press the COM **VOL/SQ** Knob to turn automatic squelch on and off.

AUTO-TUNING THE COM FREQUENCY

Auto-Tuning from the PFD

Auto-tuning a COM frequency for a nearby airport from the PFD:

1) Press the **Nearest** Softkey on the PFD to open the 'Nearest Airports' Window. A list of 25 nearest airport identifiers and COM frequencies is displayed.
2) Turn the **FMS** Knob to scroll through the list and highlight the desired COM frequency.
3) Press the **ENT** Key to load the COM frequency into the COM Standby Frequency Field.
4) Press the **Frequency Transfer** Key to transfer the frequency to the COM Active Frequency Field.

Auto-tuning from the MFD

Auto-tuning a COM frequency from the WPT and NRST Pages:

1) From any page that the COM frequency can be auto-tuned, activate the cursor by pressing the **FMS** Knob or pressing the appropriate softkey.
2) Turn the **FMS** Knob to place the cursor on the desired COM frequency.
3) Press the **ENT** Key to display the 'Load Frequency' Window.
4) Turn the **FMS** Knob to place the cursor on the desired COM frequency field.
5) Press the **ENT** Key to load the COM frequency into the selected COM frequency field.

Or:

1) Press the **MENU** Key to display the page menu .
2) Turn the large **FMS** Knob to scroll through the menu options.
3) Press the **ENT** Key to place the cursor on the desired selection.
4) Scroll through the frequency selections with the **FMS** Knob.
5) Press the **ENT** Key to display the 'Load Frequency' Window.

6) Turn the **FMS** Knob to place the cursor on the desired COM frequency field.
7) Press the **ENT** Key to load the COM frequency into the selected COM frequency field.

FREQUENCY SPACING

Changing COM frequency channel spacing:

1) From the 'Aux – System Setup 1' Page.
2) Press the **FMS** Knob to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the Channel Spacing Field in the COM Configuration Box.
4) Turn the small **FMS** Knob to select the desired channel spacing.
5) Press the **ENT** Key to complete the channel spacing selection.

NAV OPERATION

NAV RECEIVER MANUAL TUNING

Manually tuning a NAV frequency:

1) Turn the **NAV** Knob to tune the desired frequency in the NAV Tuning Box.
2) Press the **Frequency Transfer** Key to transfer the frequency to the NAV Active Frequency Field.
3) Adjust the volume level with the NAV **VOL/ID** Knob.
4) Press the NAV **VOL/ID** Knob to turn the Morse code identifier audio on and off.

AUTO-TUNING A NAV FREQUENCY FROM THE MFD

Auto-tuning a NAV frequency from the WPT and NRST Pages:

1) From any page that the NAV frequency can be auto-tuned, activate the cursor by pressing the **FMS** Knob or the appropriate softkey.
2) Turn the **FMS** Knob to place the cursor on the desired NAV identifier or NAV frequency.
3) On the Nearest VOR and Nearest Airports pages, press the **FREQ** Softkey to place the cursor on the NAV frequency.
4) Press the **ENT** Key to display the 'Load Frequency' Window.
5) Turn the **FMS** Knob to place the cursor on the desired NAV frequency field.
6) Press the **ENT** Key to load the NAV frequency into the selected NAV frequency field.

Or:

1) When on the NRST pages, press the **MENU** Key on the PFD/MFD Controller to display the page menu.
2) Turn the large **FMS** Knob to scroll through the menu options.
3) Press the **ENT** Key to place the cursor in the desired window.

4) Scroll through the frequency selections with the **FMS** Knob.
5) Press the **ENT** Key to display the 'Load Frequency' Window.
6) Turn the **FMS** Knob to select the desired NAV frequency field.
7) Press the **ENT** Key to load the NAV frequency into the selected NAV frequency field.

ADF TUNING

Tuning an ADF frequency:

1) Press the **ADF/DME** Softkey to display the 'ADF/DME Tuning' Window.
2) Turn the large **FMS** Knob to place the selection cursor over the standby ADF frequency field.
3) Turn the small **FMS** Knob to begin data entry and change each digit.
4) Turn the large **FMS** Knob to move the cursor to the next digit position.
5) Press the **ENT** Key to complete data entry for the standby frequency.

Transferring the active and standby ADF frequencies:

1) Turn the large **FMS** Knob to place the selection cursor over the standby ADF frequency field.
2) Press the **ENT** Key to complete the frequency transfer.

Selecting ADF Receiver Mode

Selecting an ADF receiver mode:

1) Turn the large **FMS** Knob to place the selection cursor over the ADF mode field.
2) Turn the small **FMS** Knob to select the desired ADF receiver mode.

Adjusting ADF receiver volume:

1) Turn the large **FMS** Knob to place the selection cursor over the ADF volume field.
2) Turn the small **FMS** Knob to adjust volume as desired.

DME TUNING

The following DME transceiver pairing can be selected:

– NAV1 – Pairs the DME frequency from the selected NAV1 frequency.
– NAV2 – Pairs the DME frequency from the selected NAV2 frequency.
– HOLD – When in HOLD mode, the DME frequency remains paired with the last selected NAV frequency.

Selecting DME transceiver pairing:

1) Press the **ADF/DME** or **DME** Softkey to display the 'ADF/DME Tuning' Window.
2) Turn the small **FMS** Knob to select the DME tuning mode.
3) Press the **ENT** Key to complete the selection.

MODE S TRANSPONDER

TRANSPONDER MODE SELECTION

Selecting a transponder mode:

1) Press the **XPDR** Softkey to display the Transponder Mode Selection Softkeys.
2) Press the desired softkey to activate the transponder mode.

ENTERING A TRANSPONDER CODE

Entering a transponder code with softkeys:

1) Press the **XPDR** Softkey to display the Transponder Mode Selection Softkeys.
2) Press the **Code** Softkey to display the Transponder Code Selection Softkeys, for digit entry.
3) Press the digit softkeys to enter the code in the code field. When entering the code, the next softkey in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Press the **BKSP** Softkey to move the code selection cursor to the previous digit. Five seconds after the fourth digit has been entered, the transponder code becomes active.

Entering a transponder code with the PFD FMS Knob:

1) Press the **XPDR** and the **Code** Softkeys as in the previous procedure to enable code entry.
2) Turn the small **FMS** Knob on the PFD to enter the first two code digits.
3) Turn the large **FMS** Knob to move the cursor to the next code field.
4) Enter the last two code digits with the small **FMS** Knob.
5) Press the **ENT** Key to complete code digit entry.

AUDIO PANEL PREFLIGHT PROCEDURE

Manually Adjusting the Squelch and Volume Settings:

1) Press the **MAN SQ** Key so that the in-key annunciation is illuminated.
2) Verify manual squelch is set to full open.
3) To enable the intercom selection(s) press the **PILOT ICS**, **COPILOT ICS**, and/or **PASS ICS** Keys so that the in-key annunciation(s) are illuminated.
4) Turn **CRSR Control** Knob to select the intercom audio source to be adjusted. Once selected, turn **VOL/SQ Control** Knob to set the intercom audio level for that position.
5) Turn **CRSR Control** Knob to select the COM/NAV radios and each remaining audio source to be adjusted. Once selected, turn **VOL/SQ Control** Knob to adjust the volume level for that position.
6) Press the **MAN SQ** Key so that the in-key annunciation is no longer illuminated. Auto Squelch will now be active.

FLIGHT MANAGEMENT

Changing a field in the MFD Navigation Data Bar:

1) Select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the desired field number in the 'MFD Data Bar Fields' Box.
4) Turn the small **FMS** Knob to display and scroll through the data options list to select the desired data.
5) Press the **ENT** Key. Pressing the **Defaults** Softkey returns all fields to the default setting.

USING MAP DISPLAYS

MAP ORIENTATION

Changing the orientation for map displays:

1) With the 'Map – Navigation Map' Page displayed, press the **MENU** Key. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key to display the 'Map Settings' Window.
3) Select the 'Map' Group.
4) Press the **ENT** Key.
5) Turn the small **FMS** Knob to select the desired orientation.
6) Press the **ENT** Key to select the new orientation.
7) Push the **FMS** Knob to return to the base page.

Enabling/disabling North Up Above and selecting the minimum switching range:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Select the 'Map' Group.
4) Press the **ENT** Key.
5) Highlight the 'North Up Above' Field.
6) Select 'On' or 'Off' using the small **FMS** Knob.
7) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the Range Field.
8) Use the small **FMS** Knob to select the desired range.
9) Press the **ENT** Key to accept the selected option.
10) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

MAP RANGE

Configuring automatic zoom:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Map' Group.
4) Press the **ENT** Key.
5) Turn the large **FMS** Knob to highlight the 'Auto Zoom' On/Off Field, and select 'Off' or 'On' using the small **FMS** Knob.
6) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Auto Zoom' display selection Field.
7) Select 'MFD', 'PFD', or 'All' using the small **FMS** Knob.
8) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Max Look FWD' Field. Times are from zero to 999 minutes.
9) Use the **FMS** Knobs to set the time. Press the **ENT** Key.
10) Repeat step 9 for 'Min Look FWD' (zero to 99 minutes) and 'Time Out' (zero to 99 minutes).
11) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

MAP PANNING

Panning the map:

1) With the desired map display shown on the MFD, push the **Joystick** to display the Map Pointer.
2) Move the **Joystick** to move the Map Pointer around the map.
3) Push the **Joystick** to remove the Map Pointer and recenter the map on the aircraft's current position.

Reviewing information for an airport, NAVAID, or user waypoint:

1) With the desired map display shown on the MFD, push the **Joystick** to display the Map Pointer and place the Map Pointer on a waypoint.
2) Press the **ENT** Key to display the information page for the selected waypoint.
3) Press the **Go Back** Softkey, the **CLR** Key, or the **ENT** Key to exit the information page and return to the 'Map – Navigation Map' Page.

Reviewing information for a special-use or controlled airspace:

1) With the desired map display shown on the MFD, push the **Joystick** to display the Map Pointer. Place the Map Pointer on the boundary of an airspace. Information about the airspace is displayed on the map next to the map pointer.

2) Push the **Joystick** to remove the Map Pointer and center the map on the aircraft.

Or:

1) With the desired map display shown on the MFD, push the **Joystick** to display the Map Pointer and place the Map Pointer on an open area within the boundaries of an airspace.
2) Press the **ENT** Key to display an options menu.
3) 'Review Airspaces' should already be highlighted, if not select it. Press the **ENT** Key to display the 'Information' Window for the selected airspace.
4) Push the **FMS** Knob, or press the **CLR** or **ENT** Key to exit the 'Information' Window.

MEASURING BEARING AND DISTANCE

Measuring bearing and distance between any two points:

1) Press the **MENU** Key (with the 'Map – Navigation Map' Page or one of the optional VFR/IFR pages displayed).
2) Use the **FMS** Knob to highlight the 'Measure Bearing/Distance' Field.
3) Press the **ENT** Key. A Measure Pointer is displayed on the map at the aircraft's present position.
4) Move the **Joystick** to place the reference pointer at the desired location. The bearing and distance are displayed at the top of the map. Elevation at the current pointer position is also displayed. Pressing the **ENT** Key changes the starting point for measuring.
5) To exit the Measure Bearing/Distance option, push the **Joystick**; or select 'Stop Measuring' from the 'Page Menu' Window and press the **ENT** Key.

TOPOGRAPHY

Displaying/removing topographic data on MFD map displays:

1) Press the **Map Opt** Softkey on the 'Map – Navigation Map' Page.
2) Press the **TER** Softkey until 'Topo' is shown on the softkey to display topographic data.
3) Press the **TER** Softkey until 'Off' is shown on the softkey to remove topographic data from the map. When topographic data is removed from the page, all navigation data is presented on a black background.

Displaying/removing topographic data on the PFD Map:

1) Press the **Map/HSI** Softkey.
2) Press the **TER** Softkey until 'Topo' is displayed.
3) Press the **TER** Softkey until 'Off' is shown on the softkey to remove topographic data from the map display. When topographic data is removed from the page, all navigation data is presented on a black background.

Selecting a topographical data range (Terrain Display):

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Map' Group.
4) Press the **ENT** Key.
5) Use the large **FMS** Knob to highlight the Terrain Display Range Field. Ranges are from 1 nm to 1000 nm.
6) To change the Terrain Display Range setting, turn the small **FMS** Knob to display the range list.
7) Select the desired range using the small **FMS** Knob.
8) Press the **ENT** Key.
9) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

Displaying/removing the topographic scale (Topo Scale):

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the 'Topo Scale' Field.
5) Turn the small **FMS** Knob to select 'On' or 'Off'. Press the **ENT** Key.
6) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

MAP DISPLAY SYMBOLS

Symbol Setup

Setting up the 'Land', 'Aviation', 'Airspace', or 'Airways' Group items:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the desired group.
4) Press the **ENT** Key. The cursor flashes on the first field.
5) Turn the large **FMS** Knob to select the desired option.
6) Turn the small **FMS** Knob to select the desired setting (e.g. On/Off or maximum range).
7) Press the **ENT** Key to accept the selected option and move the cursor to the next item.
8) Repeat steps 5-7 as necessary.
9) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

Displaying and removing airspace altitude labels:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Airspace' Group, if necessary, and press the **ENT** Key.
4) Turn the large **FMS** Knob to select the 'Airspace ALT LBL' Field.
5) Turn the small **FMS** Knob to select 'On' to display labels and 'Off' to remove labels.
6) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

Displaying/removing airways:

1) Press the **Map Opt** Softkey with the 'Map – Navigation Map' Page displayed.
2) Press the **AWY** Softkey. Both High and Low Altitude Airways are displayed (AWY On).
3) Press the softkey again to display Low Altitude Airways only (AWY LO).
4) Press the softkey again to display High Altitude Airways only (AWY HI).
5) Press the softkey again to remove High Altitude Airways. No airways are displayed (AWY Off).

Selecting an airway range (Low ALT Airways or High ALT Airways):

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Airways' Group, and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the Low ALT Airways Range Field or High ALT Airways Range Field.
5) To change the range setting, turn the small **FMS** Knob to display the range list.
6) Select the desired range using the small **FMS** Knob.
7) Press the **ENT** Key.
8) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

Map Declutter

Decluttering the MFD map display:

Press the **Detail** Softkey with the 'Map – Navigation Map' Page displayed. The current declutter level is shown. With each softkey press, another level of map information is removed.

Decluttering the PFD Map:

1) Press the **Map/HSI** Softkey.
2) Press the **Detail** Softkey. The current declutter level is shown. With each selection, another level of map information is removed.

Additional Map display Items

Setting up additional 'Map' Group items:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Map' Group.
4) Press the **ENT** Key. The cursor flashes on the first field.
5) Turn the large **FMS** Knob to select the desired option.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.

   Or:

   If it is a data field, use the **FMS** Knob to select the range or time value.
7) Press the **ENT** Key to accept the selected option and move the cursor to the next item.
8) Repeat Steps 5 through 7, as necessary.
9) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

WAYPOINTS

AIRPORTS

Airport Information

Selecting an airport for review by identifier, facility name, or location:

1) From the 'WPT – Airport Information' Page (**Info 1** Softkey), push the **FMS** Knob.
2) Use the **FMS** Knobs and enter an identifier, facility name, or location within the 'Airport' Box.
3) Press the **ENT** Key.
4) Push the **FMS** Knob to remove the flashing cursor.

Selecting a runway:

1) With the 'WPT – Airport Information' Page (**Info 1** Softkey) displayed, push the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Runways' Box, on the runway designator.
3) Turn the small **FMS** Knob to display the desired runway (if more than one) for the selected airport.
4) To remove the flashing cursor, push the **FMS** Knob.

Viewing a destination airport:

From the 'WPT – Airport Information' Page (**Info 1** Softkey) press the **MENU** Key. Select 'View Destination Airport'. The Destination Airport is displayed.

Nearest Airport

Viewing information for a nearest airport on the PFD:

1) Press the **Nearest** Softkey to display the 'Nearest Airports' Window
2) Highlight the airport identifier with the **FMS** Knob and press the **ENT** Key to display the 'Airport Information' Window.
3) To return to the 'Nearest Airports' Window press the **ENT** Key (with the cursor on 'BACK') or press the **CLR** Key. The cursor is now on the next airport in the nearest airports list. (Repeatedly pressing the **ENT** Key moves through the airport list, alternating between the 'Nearest Airports' Window and the 'Airport Information' Window).
4) Press the **CLR** Key or the **Nearest** Softkey to close the PFD 'Nearest Airports' Window.

Viewing information for a nearest airport on the MFD:

1) Turn the **FMS** Knobs to select the 'NRST – Nearest Airports' Page (it is the first page of the group, so it may already be selected). If there are no Nearest Airports available, "None Within 200nm" is displayed.
2) Press the **APT** Softkey; or push the **FMS** Knob; or press the **MENU** Key, highlight 'Select Airport Window' and press the **ENT** Key. The cursor is placed in the 'Nearest Airports' Box. The first airport in the nearest airports list is highlighted.
3) Turn the **FMS** Knob to highlight the desired airport. (Pressing the **ENT** Key also moves to the next airport.)
4) Push the **FMS** Knob to remove the flashing cursor.

Viewing runway information for a specific airport:

1) With the 'NRST – Nearest Airports' Page displayed, press the **RNWY** Softkey; or press the **MENU** Key, highlight 'Select Runway Window'; and press the **ENT** Key. The cursor is placed in the 'Runways' Box.
2) Turn the small **FMS** Knob to select the desired runway.
3) Push the **FMS** Knob to remove the flashing cursor.

Selecting nearest airport surface and minimum runway length matching criteria:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Runway Surface' Field in the 'Nearest Airport' Box.
4) Turn the small **FMS** Knob to select the desired runway option (Any, Hard Only, Hard/Soft, Water).
5) Press the **ENT** Key. The cursor moves to the 'Minimum Length' Field in the 'Nearest Airport' Box.

6) Use the **FMS** Knob to enter the minimum runway length (zero to 25,000 feet) and press the **ENT** Key.
7) Push the **FMS** Knob to remove the flashing cursor.

NON-AIRPORT AND USER CREATED WAYPOINTS

Waypoint Information

Viewing Waypoint Information:

1) Turn the **FMS** Knobs to select the 'WPT – (Intersection, NDB, VOR, VRP, or User WPT) Information' Page.
2) Push the **FMS** Knob to display the flashing cursor in the Intersection, NDB, VOR, VRP, or User Waypoint Box.
3) Use the **FMS** Knobs and enter an identifier, facility name, or location.
4) Press the **ENT** Key, if needed.
5) Push the **FMS** Knob to remove the flashing cursor.

Nearest Waypoints

Viewing Nearest Non-Airport Waypoints:

1) Turn the **FMS** Knobs to select the 'NRST – Nearest (Intersections, NDB, VOR, VRP, or User WPTS)' Page.
2) Push the **FMS** Knob to display the flashing cursor in the 'Nearest INT, NDB, VOR, VRP, or User' Box,

   Or:

   If the 'NRST – Nearest VOR' Page is displayed, to display the flashing cursor:

   Press the **VOR** Softkey.

   Or:

   a) Press the **MENU** Key
   b) Highlight 'Select VOR Window', and press the **ENT** Key.
3) If needed, press the **ENT** Key or turn either **FMS** Knob as needed to select an identifier.
4) Push the **FMS** Knob to remove the flashing cursor.

User Waypoints

Creating a user waypoint:

1) Create a new waypoint name:
   a) From any page showing a map display, push the **Joystick** to activate the panning function and pan to the map location of the desired user waypoint (excluding the 'Aux – Trip Planning' and Procedure pages).

b) Press the **ENT** Key. The system provides an automated User Waypoint name. (If the map pointer is within the boundaries of an airspace, a menu pops. Use the **FMS** Knob to highlight 'Create User Waypoint' and press the **ENT** Key.) The 'WPT – User WPT Information' Page is displayed with the captured position.

c) If desired, use the large **FMS** Knob to highlight the User Waypoint name, and use the **FMS** Knobs to change the name.

Or:

a) With the 'WPT – User WPT Information' Page displayed, press the **New** Softkey, or press the **MENU** Key and select 'Create New User Waypoint' and press the **ENT** Key.

b) Use the **FMS** Knobs to enter a user waypoint name.

c) Press the **ENT** Key to accept the waypoint name.

Or:

a) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor. Use the large **FMS** Knob to highlight the waypoint name.

b) Enter a user waypoint name.

c) Press the **ENT** Key. The message 'Are you sure you want to create the new user waypoint AAAAAA?' is displayed.

d) With 'Yes' highlighted, press the **ENT** Key to accept the waypoint name.

Or:

a) With a flight plan page or window displayed, push the **FMS** Knob to activate the cursor (not required on the PFD).

b) Select the point in the flight plan before which to add the new user waypoint. The new waypoint is placed directly in front of (above) the highlighted waypoint.

c) Turn the small **FMS** Knob clockwise to display the 'Waypoint Information' Window.

d) Enter the name of the new user waypoint (a waypoint that does not match any existing waypoint in the database) and press the **ENT** Key.

e) The message 'AAAAA does not exist. Create User Waypoint?' is displayed. Press the **ENT** Key with 'Yes' highlighted to accept the waypoint name.

2) If desired, use the large **FMS** Knob to highlight the 'Temporary' Field and press the **ENT** Key to check or uncheck the box to change the storage method to temporary or normal, as desired.

3) Use the large **FMS** Knob to highlight the 'Waypoint Type' Field if necessary. If desired, change the waypoint type of reference in one of the following ways:

Select 'RAD/RAD' using the small **FMS** Knob, press the **ENT** Key, and enter the two reference waypoint identifiers and radials into the 'Reference Waypoints' Box using the **FMS** Knobs.

Or:

Select 'RAD/DIS' using the small **FMS** Knob, press the **ENT** Key, and enter the reference waypoint identifier, the radial, and the distance into the 'Reference Waypoints' Box using the **FMS** Knobs.

Or:

Select 'LAT/LON' using the small **FMS** Knob, press the **ENT** Key, and enter the latitude and longitude into the 'Information' Box using the **FMS** Knobs.

4) If desired, use the large **FMS** Knob to highlight the field in the 'Comment' Box, then use the **FMS** Knobs to change the comment (limited to 25 characters).
5) When finished, push the **FMS** Knob to remove the flashing cursor.

Or:

With a flight plan page or window displayed, turn the large **FMS** Knob to highlight 'Load WPT to FPL' and press the **ENT** Key.

Editing a user waypoint comment or location:

1) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor. The cursor is placed in the 'User Waypoint' Box.
2) Use the **FMS** Knobs to enter the name of the User Waypoint; or turn the large **FMS** Knob and scroll to the desired waypoint in the 'User Waypoint List' Box.
3) Turn the large **FMS** Knob to move the cursor to the desired field.
4) Use the **FMS** Knobs to make any changes.
5) Press the **ENT** Key to accept the changes.
6) Push the **FMS** Knob to remove the flashing cursor.

Changing the user waypoint storage duration default setting:

1) With the 'WPT – User WPT Information' Page displayed, press the **MENU** Key.
2) Move the cursor to select 'Waypoint Setup', and press the **ENT** Key.
3) Use the small **FMS** Knob to select 'Normal' or 'Temporary' as desired, and press the **ENT** Key.
4) Push the **FMS** Knob to remove the flashing cursor and return to the 'WPT – User WPT Information' Page.

Deleting a single user waypoint:

1) With the 'WPT – User WPT Information' Page displayed, highlight a User Waypoint in the 'User Waypoint List' Box, or enter a waypoint in the 'User Waypoint' Box.
2) Press the **Delete** Softkey or press the **CLR** Key. 'Yes' is highlighted in the confirmation window.
3) Press the **ENT** Key.
4) Push the **FMS** Knob to remove the flashing cursor.

Deleting all user waypoints:

1) With the 'WPT – User WPT Information' Page displayed, highlight a User Waypoint in the 'User Waypoint List' Box.
2) Press the **MENU** Key.
3) Use the **FMS** Knobs to highlight 'Delete All User Waypoints.'
4) Press the **ENT** Key twice to confirm the selection.

AIRSPACES

NEAREST AIRSPACE

Setting Airspace Alerts

Enabling/disabling airspace alerts:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the desired field in the 'Airspace Alerts' Box.
4) Turn the small **FMS** Knob clockwise to turn the airspace alert On or counterclockwise to turn the alert Off.
5) Push the **FMS** Knob to remove the flashing cursor.

Changing the altitude buffer distance setting:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Altitude Buffer' Field in the 'Airspace Alerts' Box.
4) Use the **FMS** Knob to enter an altitude buffer value and press the **ENT** Key.
5) Push the **FMS** Knob to remove the flashing cursor.

Viewing Nearest Airspace Information

Selecting and viewing an airspace alert with its associated information:

1) Use the **FMS** Knob to select the 'NRST – Nearest Airspaces' Page.
2) Press the **Alerts** Softkey on the MFD; or push the **FMS** Knob; or press the **MENU** Key, highlight 'Select Alerts Window', and press the **ENT** Key. The cursor is placed in the 'Airspace Alerts' Box.
3) Use the **FMS** Knob to highlight the desired airspace.
4) Push the **FMS** Knob to remove the flashing cursor.

SMART AIRSPACE

Turning smart airspace on or off:

1) Use the **FMS** Knob to select the 'Map – Navigation Map' Page.
2) Press the **MENU** Key, and press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to highlight the 'Airspace' and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the 'Smart Airspace' Field.
5) Turn the small **FMS** Knob clockwise to turn smart airspace 'On' or counterclockwise to turn smart airspace 'Off'.
6) Push the **FMS** Knob to remove the flashing cursor.

FLIGHT PLANNING

DIRECT-TO NAVIGATION

Entering a waypoint identifier, facility name, or city as a direct-to destination:

1) Press the D▸ Key. The 'Direct To' Window is displayed (with the active flight plan waypoint as the default selection or a blank waypoint field if no flight plan is active).
2) Turn the small **FMS** Knob clockwise to begin entering a waypoint identifier (turning it counter-clockwise brings up the waypoint selection submenu - press the **CLR** Key to remove it), or turn the large **FMS** Knob to select the facility name, or city field and turn the small **FMS** Knob to begin entering a facility name or city. If duplicate entries exist for the entered facility or city name, additional entries can be viewed by turning the small **FMS** Knob during the selection process.
3) Press the **ENT** Key. The 'Activate?' Field is highlighted.
4) Press the **ENT** Key to activate the direct-to.

Selecting an active flight plan waypoint as a direct-to destination:

1) While navigating an active flight plan, press the D▸ Key. The 'Direct To' Window is displayed with the active flight plan waypoint as the default selection.
2) Turn the small **FMS** Knob counter-clockwise to display the waypoint submenu window with a list of flight plan waypoints.
3) Turn the large **FMS** Knob to select the desired waypoint.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Or:

1) Press the **FPL** Key.
2) Push the **FMS** Knob to activate the cursor (not required on PFD), and turn the large **FMS** Knob to highlight the desired waypoint.
3) Press the D▸ Key.

4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Selecting a Nearest, Recent or User Waypoint as a direct-to destination:

1) Press the D→ Key. The 'Direct To' Window is displayed (with the active flight plan destination as the default selection or a blank destination if no flight plan is active).
2) Turn the small **FMS** Knob counter-clockwise to display the waypoint submenu window.
3) Turn the small **FMS** Knob clockwise to display the Nearest, Recent or User waypoints.
4) Turn the large **FMS** Knob clockwise to select the desired waypoint.
5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
6) Press the **ENT** Key again to activate the direct-to.

Selecting any waypoint as a direct-to destination:

1) Select the page or window containing the desired waypoint type and select the desired waypoint.
2) Press the D→ Key to display the 'Direct To' Window with the selected waypoint as the direct-to destination.
3) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
4) Press **ENT** again to activate the direct-to.

Selecting a nearby airport as a direct-to destination:

1) Press the **Nearest** Softkey on the PFD; or turn the **FMS** Knob to display the 'NRST – Nearest Airports' Page on the MFD and push the **FMS** Knob.
2) Use the **FMS** Knob to select the desired airport (the nearest one is already selected).
3) Press the D→ Key.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Selecting a manual direct-to course:

1) Press the D→ Key. The 'Direct To' Window is displayed (with the active flight plan waypoint as the default selection or a blank waypoint field if no flight plan is active).
2) Turn the large **FMS** Knob to highlight the 'CRS' or 'Course' Field.
3) Use the small **FMS** Knob to enter the desired course.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Reselecting the direct course from the current position:

1) Press the D→ Key. The 'Direct To' Window is displayed.
2) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
3) Press the **ENT** Key again to activate the direct-to.

Selecting a waypoint as a direct-to destination using the Map Pointer:

1) From any page showing a map display (excluding the traffic and terrain pages), push the **Joystick** to display the Map Pointer.
2) Move the **Joystick** to place the pointer at the desired destination location. If the Map Pointer is placed on a waypoint, the waypoint name is highlighted.
3) Press the D→ Key to display the 'Direct To' Window with the selected point entered as the direct-to destination.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Cancelling a Direct-to:

1) Press the D→ Key to display the 'Direct To' Window.
2) Press the **MENU** Key.
3) With 'Cancel Direct-To NAV' highlighted, press the **ENT** Key. If a flight plan is still active, the system resumes navigating the flight plan along the closest leg.

FLIGHT PLAN DISPLAY

Flight Plan Views

Changing the flight plan view:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Press the **View** Softkey to display the **Wide**, **Narrow**, **Leg-Leg**, and **CUM** Softkeys.
3) Press the **CUM** Softkey to view cumulative waypoint distance, or press the **Leg-Leg** Softkey to view leg-to-leg waypoint distance.
4) Press the **Wide** Softkey to display the wide view, or press the **Narrow** Softkey to display the narrow view.
5) Press the **Back** Softkey to return to the top level active flight plan softkeys.

Split Screen

Enabling/Disabling split screen mode from the 'FPL – Active Flight Plan' Page:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Press the **Charts** Softkey. If necessary, press the **CHRT Opt** Softkey and press the **Full SCN** Softkey to disable full screen mode. Split screen mode is now enabled showing two display panes. The Chart Pane is highlighted by a cyan border indicating it is the active pane.
3) To quickly view the chart corresponding to the active flight plan leg, press the **Sync** Softkey.
4) Press the **Charts** Softkey again to disable split screen mode.

Displaying the flight plan map on the 'FPL – Active Flight Plan' Page in split screen mode:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Press the **Charts** Softkey. If necessary, press the **CHRT Opt** Softkey and press the **Full SCN** Softkey to disable full screen mode. Split screen mode is now enabled showing two display panes. The Chart Pane is highlighted by a cyan border indicating it is the active pane.
3) Use the **Joystick** to select the 'Active Flight Plan' Pane as the active pane.
4) Press the **MENU** Key. 'Show Flight Plan Map' is highlighted. Press the **ENT** Key.
5) To remove the Flight Plan Map, press the **MENU** Key and select 'Hide Flight Plan Map'. Press the **ENT** Key.

CREATING A BASIC FLIGHT PLAN

Creating a flight plan:

1) For an active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.

   b) Press the **New** Softkey; push the **FMS** Knob and select an empty Flight Plan List Field, and press the **ENT** Key; or press the **ENT** Key; or press the **MENU** Key, highlight 'Create New Flight Plan', and press the **ENT** Key to display a blank flight plan for the first empty storage location.

2) If the system auto-designated the Origin, proceed to Step 3.

   Or:

   Enter or modify the origin airport and runway as follows:

   a) Select the field below the Origin header to enter the origin airport identifier.

   b) Use the **FMS** Knob, or the waypoint submenu to enter the identifier, facility, or city name of the airport.

   c) Press the **ENT** Key. The 'Set Runway' Window is displayed with the 'Runway' Field highlighted.

   d) Turn the small **FMS** Knob to select the runway, and press the **ENT** Key.

   e) Press the **ENT** Key again to add the airport/runway to the flight plan.

3) Select the destination airport and runway by highlighting the field below the Destination header and completing steps 2b – 2e.

4) Select the enroute waypoints:
   a) Select the location to insert the waypoint.
   b) Use the **FMS** Knob to enter the identifier, facility, or city name of the waypoint.
   c) Press the **ENT** Key. The flight plan is modified as each waypoint is entered.
5) Repeat step number 4 to enter each additional enroute waypoint.
6) When all waypoints have been entered, push the **FMS** Knob to remove the flashing cursor.

FLIGHT PLAN WAYPOINT AND AIRWAY MODIFICATIONS

Flight Plan Waypoints

Adding Waypoints

Adding a waypoint to a flight plan:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

   For a stored flight plan:
   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight the desired flight plan.
   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
2) Select the point in the flight plan before which to add the new waypoint. The new waypoint is placed directly in front of the highlighted waypoint.
3) Turn the small **FMS** Knob to display the 'Waypoint Information' Window. (Turning it clockwise displays a blank 'Waypoint Information' Window, turning it counter-clockwise displays the 'Waypoint Information' Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).
4) Enter the identifier, facility, or city name of the waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The flight plan is modified as each waypoint is entered.

Creating and adding user waypoints to a flight plan using the map pointer on the MFD:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

For a stored flight plan:

a) Press the **FPL** Key. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

b) Turn the **FMS** Knob to highlight the desired flight plan.

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the location to insert the waypoint.

3) Push the **Joystick** for the MFD to activate the panning function on the flight plan map and pan to the location of the desired user waypoint.

4) Press the **LD WPT** Softkey; or press the **MENU** Key, select 'Load Waypoint', and press the **ENT** Key. The user waypoint is created with a name of MAPxxx (using the next available in sequence) and is added to the flight plan.

Removing Waypoints

Removing an individual waypoint from a flight plan:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For a stored flight plan:

a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

b) Turn the **FMS** Knob to highlight the desired flight plan.

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Turn the large **FMS** Knob to highlight the waypoint to be removed.

3) Press the **CLR** Key. The 'Remove XXXXX?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to remove the flashing cursor.

Fly-Over Waypoints

Designating a fly-over waypoint:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For a stored flight plan:

a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

b) Turn the **FMS** Knob to highlight the desired flight plan.

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Highlight the desired waypoint.

3) Press the **MENU** Key, highlight 'Set Fly-Over Waypoint', and press the **ENT** Key. The 'Set <waypoint> to be a fly-over waypoint?' Window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) To change the waypoint back to a fly-by waypoint, highlight the desired waypoint. Press the **MENU** Key, highlight 'Set Fly-By Waypoint', and press the **ENT** Key. The 'Set <waypoint> to be a fly-by waypoint?' Window is displayed. With 'OK' highlighted, press the **ENT** Key.

Flight Plan Airways

Adding Airways

Adding an airway to a flight plan:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For a stored flight plan:

a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

b) Turn the **FMS** Knob to highlight the desired flight plan.

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Turn the large **FMS** Knob to move the cursor below the airway entry waypoint for the insertion point. If there is no valid airway entry waypoint in the flight plan, one must be entered first.

3) Turn the small **FMS** Knob for the MFD one click clockwise and press the **LD AIRWY** Softkey, or press the **MENU** Key and select "Load Airway"(PFD or MFD). The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when a valid airway entry waypoint has already been entered in the flight plan.

4) Turn the **FMS** Knob to highlight the desired airway from the list, and press the **ENT** Key. Low altitude airways are shown first in the list, followed by "all" altitude airways, and then high altitude airways.
5) Turn the **FMS** Knob to highlight the desired airway exit point from the list, and press the **ENT** Key. 'Load?' is highlighted.
6) Press the **ENT** Key. The system returns to editing the flight plan with the new airway inserted.

Removing Airways

Removing an entire airway from a flight plan:

1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight the desired flight plan.
   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
2) Select the header of the airway to be removed.
3) Press the **CLR** Key. The 'Remove <airway name> from flight plan?' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
5) Push the **FMS** Knob to remove the flashing cursor.

Collapsing/Expanding Airways

Collapsing/expanding the airways in a flight plan:

1) For the active flight plan, press the **FPL** Key.

   Or:

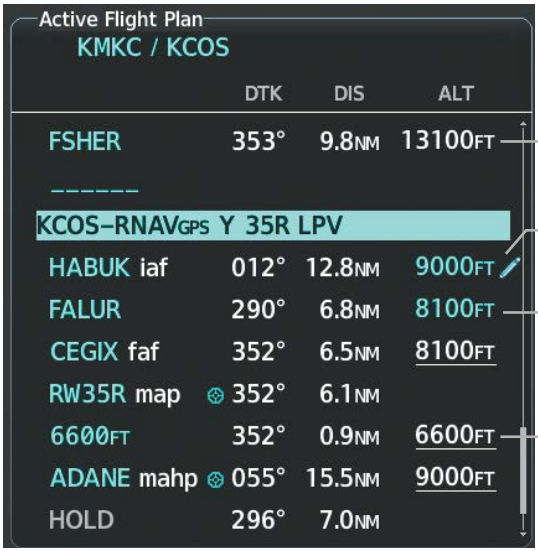
   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight the desired flight plan.
   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, highlight 'Collapse Airways' or 'Expand Airways', and press the **ENT** Key. The airways are collapsed/expanded.

FLIGHT PLAN WAYPOINT CONSTRAINTS

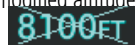
Altitude Constraints



Altitude Constraint Types

5000FT	3000FT	2300FT	7898 ❄
Cross AT or ABOVE 5,000 ft	Cross AT or BELOW 3,000 ft	Cross AT 2,300 ft	Temperature Compensated Altitude

Waypoint Altitude Constraints

White Text	Cyan Text
 Advisory altitude calculated by the system estimating the altitude of the aircraft as it passes the waypoint.  Altitude retrieved from the navigation database. White line(s) above and/or below indicate the type of constraint, as shown in the preceding figure. These altitudes are provided as a reference, and are not designated to be used in determining vertical guidance.	 Altitude is designated for vertical guidance. A pencil icon indicates a manually modified altitude constraint.  The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.

Altitude Constraint Legend

Entering/designating or modifying an altitude constraint:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the small **FMS** Knob and enter an altitude constraint value using the **FMS** Knob. To enter altitudes as a flight level, turn the small **FMS** Knob counter-clockwise past zero or clockwise past 9 on the first character, and the system automatically changes to show units of Flight Level. Turn the large **FMS** Knob clockwise to highlight the first zero and enter the three digit flight level.
4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an aerodrome without a runway selected, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.

Removing/undesignating an altitude constraint:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Push the **FMS** Knob to activate the cursor and turn to highlight the desired waypoint altitude constraint.
3) Press the **CLR** Key. A 'Remove VNV altitude?' confirmation window is displayed.
4) Select 'OK' and press the **ENT** Key.

Reverting a manually entered altitude constraint back to the navigation database value:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Push the **FMS** Knob to activate the cursor and turn to highlight the desired waypoint altitude constraint.

3) Press the **CLR** Key. A 'Remove or Revert to published VNV altitude of nnnnnFT?' confirmation window is displayed.

4) Select 'Revert' and press the **ENT** Key. The altitude is changed to the navigation database value.

QFE Constraints

WARNING: *Do not fly QFE procedures above the Transition Altitude or when navigating to a waypoint that contains a QNE (flight level) altitude constraint.*

WARNING: *Always fly a procedure that provides terrain and obstacle clearance from the reference airfield when operating in IMC while conducting QFE procedures.*

Entering or modifying a Baro QFE altitude constraint:

1) With Baro QFE enabled, press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.

2) Push the **FMS** Knob, and turn the large **FMS** Knob to highlight the desired waypoint altitude constraint ('ALT').

3) Turn the small **FMS** Knob to begin entry of the altitude constraint, and use the **FMS** Knobs to enter the constraint in reference to Baro QFE. If modifying an existing Baro QFE altitude constraint, turning the small **FMS** Knob displays the existing constraint in MSL in the entry field. If adding a new altitude constraint, turning the small **FMS** Knob displays '00000FT' in the entry field.

4) Press the **ENT** Key. Turn the small **FMS** Knob to highlight 'QFE' and press the **ENT** Key to accept the altitude constraint. The constraint is shown in parenthesis indicating it is based on the Baro QFE setting.

FLIGHT PLAN VERTICAL NAVIGATION

Enabling and Disabling VNV guidance:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.

2) Press the **ENBL VNV** Softkey; or press the **MENU** Key, highlight 'Enable VNV', and press the **ENT** Key. Vertical navigation is enabled, and vertical guidance begins with the waypoint shown in the 'Active VNV Profile' Box (defaults first waypoint in the active flight plan with an altitude enabled for vertical navigation (e.g., FALUR)).

3) To disable VNV guidance, press the **Cncl VNV** Softkey; or press the **MENU** Key, highlight 'Cancel VNV', and press the **ENT** Key. Vertical navigation is disabled.

Active VNAV Profile

Modifying the VS TGT and FPA:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Press the **VNV Prof** Softkey; or press the **MENU** Key, highlight 'Select VNV Profile Window', and press the **ENT** Key. The cursor is now located in the 'Active VNV Profile' Box.
3) Turn the **FMS** Knobs as needed to edit the values.
4) Push the **FMS** Knob to remove the flashing cursor.

Vertical Situation Display (VSD)

Enabling and changing settings for the Vertical Situation Display:

1) Select the 'Map – Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **VSD** or **Off** Softkey to enable or disable the Vertical Situation Display.
5) If desired, press the VSD Mode Softkey to choose between **Auto**, **FPL**, or **TRK**.

Disabling the Vertical Situation Display:

1) Select the 'Map – Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **Off** Softkey.

VERTICAL NAVIGATION DIRECT-TO

Activating a vertical navigation direct-to:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Push the **FMS** Knob to activate the cursor and turn to highlight the desired waypoint.
3) Press the **VNV** Softkey; or press the **MENU** Key, highlight 'VNV Direct-To', and press the **ENT** Key. An 'Activate vertical Direct-to to: NNNNNFT at XXXXXX?' confirmation window is displayed.
4) Press the **ENT** Key. Vertical guidance begins to the altitude constraint for the selected waypoint.
5) Push the **FMS** Knob to remove the flashing cursor.

Removing a VNV altitude constraint:

1) Press the Key to display the 'Direct To' Window.
2) Press the **MENU** Key.
3) With 'Clear Vertical Constraints' highlighted, press the **ENT** Key.

FLIGHT PLAN OPERATIONS

Activating a Flight Plan Leg

Activating a flight plan leg:

1) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
2) Push the **FMS** Knob to activate the cursor (not required on PFD), and turn the large **FMS** Knob to highlight the destination waypoint for the desired leg.
3) Press the **ACT Leg** Softkey (MFD only); or press the **MENU** Key, highlight 'Activate Leg', and press the **ENT** Key. A confirmation window is displayed with 'Activate?' highlighted.
4) Press the **ENT** Key to activate the flight plan leg. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
5) Push the **FMS** Knob to remove the flashing cursor.

Along Track Offsets

Entering an along track offset distance:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).
2) Turn the large **FMS** Knob to highlight the waypoint for the along track offset.
3) Press the **ATK OFS** Softkey (MFD only); or press the **MENU** Key, highlight 'Create ATK Offset Waypoint', and press the **ENT** Key.
4) Enter a positive or negative offset distance in the range of +/- 1 to 999 nm (limited by leg distances).
5) Press the **ENT** Key to create the offset waypoint.
6) Push the **FMS** Knob to remove the flashing cursor.

Removing an along track offset distance:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).
2) Turn the large **FMS** Knob to highlight the along track offset.
3) Press the **CLR** Key. The 'Remove VNAV along-track waypoint' Window is displayed.
4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Entering a VNV altitude and along-track offset for the waypoint:

1) Press the D→ Key to display the 'Direct To' Window.
2) Turn the large **FMS** Knob to place the cursor in the altitude field ('VNV' or 'ALT').
3) Enter the desired altitude.

4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an airport, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.
5) The cursor is now flashing in the offset distance field.
6) Enter the desired along-track distance.
7) Press the **ENT** Key. 'Activate?' is highlighted.
8) Press the **ENT** Key to activate.

Closest Point of FPL

Determining the closest point along the flight plan to a selected waypoint:

1) For the active flight plan, press the **FPL** Key.

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight the desired flight plan.
   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
2) Press the **MENU** Key, highlight 'Closest Point Of FPL", and press the **ENT** Key. A window appears with the reference waypoint field highlighted.
3) Enter the identifier of the reference waypoint and press the **ENT** Key. The system displays the bearing (BRG) and distance (DIS) to the closest point along the flight plan to the selected reference waypoint and creates a user waypoint at this location. The name for the new user waypoint is derived from the identifier of the reference waypoint.

Parallel Track

Activating parallel track:

1) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The 'Parallel Track' Window is displayed with the 'Direction' Field highlighted.
3) Turn the small **FMS** Knob to select 'LEFT' or 'RIGHT' and press the **ENT** Key. The 'Distance' Field is highlighted.
4) Turn the small **FMS** Knob to enter a distance from 1-50 nm and press the **ENT** Key. 'Activate Parallel Track?' 'Activate Parallel Track' is highlighted.
5) Press the **ENT** Key to activate parallel track. Push the **FMS** Knob or the **CLR** Key to cancel the parallel track activation.

Cancelling parallel track:

1) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The 'Parallel Track' Window is displayed with 'Cancel Parallel Track?' highlighted.
3) Press the **ENT** Key.

User-Defined Holding Patterns

Creating a user-defined hold at a flight plan waypoint:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

   For the standby flight plan, press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

   b) Turn the **FMS** Knob to highlight the desired flight plan.

   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
2) Turn the large **FMS** Knob to highlight the waypoint for the hold.
3) Press the **MENU** Key, highlight 'Hold At Waypoint', and press the **ENT** Key. The 'Hold at' Window appears with the course field highlighted.
4) Use the **FMS** Knobs to edit the course, and press the **ENT** Key.
5) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
6) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
7) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
8) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
9) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC Time), and press the **ENT** Key.
10) Press the **ENT** Key while 'Load?' is highlighted to insert the hold into the flight plan.

Creating a user-defined hold at a direct-to waypoint:

1) Press a D→ Key and set up the direct-to waypoint as desired, then select 'Hold?' when finished.
2) Use the **FMS** Knobs to edit the course, and press the **ENT** Key.
3) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
4) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
5) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
6) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
7) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC Time), and press the **ENT** Key.
8) Press the **ENT** Key while 'Activate?' is highlighted to activate the direct-to with the user-defined hold defined at the direct-to waypoint. (If the direct-to waypoint is part of the active flight plan, 'HOLD' is inserted into the active flight plan. If the direct-to waypoint is not part of the active flight plan, an off-route direct-to hold is created.)

Creating a user-defined hold at the aircraft present position:

1) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
2) Press the **MENU** Key, highlight 'Hold At Present Position', and press the **ENT** Key. The 'Hold at' Window appears with the course field highlighted.
3) If desired, use the **FMS** Knobs to edit the course, and press the **ENT** Key.
4) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
5) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
6) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
7) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
8) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC Time), and press the **ENT** Key.
9) Press the **ENT** Key while 'Activate?' is highlighted to create an Offroute Direct-to hold waypoint at the aircraft present position and activate the hold.

Exiting a user-defined hold inserted into the active flight plan:

Press the **SUSP** Softkey. The system will provide guidance to follow the holding pattern to the inbound course and resume automatic waypoint sequencing.

Removing a user-defined hold from a flight plan:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

   b) Turn the **FMS** Knob to highlight the desired flight plan.

   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Turn the large **FMS** Knob to highlight the 'HOLD' in the flight plan.
3) Press the **CLR** Key. A 'Remove Holding Pattern?' confirmation window is displayed.
4) Select 'OK' and press the **ENT** Key. The holding pattern is removed from the flight plan. Select 'Cancel' and press the **ENT** Key to cancel the removal of the holding pattern.

Removing a user-defined hold at an off-route direct-to:

1) Press a ⊣D→ Key to display the 'Direct To' Window.
2) Press the **MENU** Key to display the 'Page Menu' Window with the cursor on the 'Cancel Direct-To NAV' selection.
3) Press the **ENT** Key. The holding pattern is removed.

Arrival Alerts

Enabling/disabling the Arrival Alert:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to select the 'On/Off' Field in the 'Arrival Alert' Box.
4) Turn the small **FMS** Knob clockwise to turn the arrival alert On or counterclockwise to turn the alert Off.

Changing the arrival alert trigger distance:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Distance' Field in the 'Arrival Alert' Box.
4) Use the **FMS** Knob to enter a trigger distance and press the **ENT** Key.

MANAGING FLIGHT PLANS

Importing and Exporting Flight Plans

Ignoring a flight plan transfer from a wireless connection:

1) When a flight plan transfer has been initiated from a wireless connection, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and a Connext annunciation appears to the right of the MFD page name.
2) Press the **CLR** Key to remove the pop-up alert and ignore the pending flight plan. The pending flight plan will still be available on the 'FPL – Flight Plan Catalog' Page.

   Or:

   Press the **Ignore** Softkey to remove the pop-up alert and ignore the pending flight plan. The pending flight plan will still be available on the 'FPL – Flight Plan Catalog' Page.

Previewing a flight plan transfer from a wireless connection:

1) When a flight plan transfer has been initiated from a wireless connection, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and an Connext annunciation appears to the right of the MFD page name.
2) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.

   Or:

   Press the **Preview** Softkey to display the 'FPL – Preview Flight Plan' Page on the MFD.

   Or:

   a) Press the **MENU** Key.
   b) Turn the **FMS** Knob to highlight 'Preview Flight Plan'.
   c) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.

Storing a pending flight plan:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the **FMS** Knob to highlight the pending flight plan.
5) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.
6) Press the **Store** Softkey to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

   Or:

   a) Push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight 'Store?'.
   c) Press the **ENT** Key to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

   Or:

a) Press the **MENU** Key.
b) Turn the **FMS** Knob to highlight 'Store Flight Plan'.
c) Press the **ENT** Key to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

Activating a pending flight plan:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the pending flight plan.
3) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.
4) Press the **Activate** Softkey. The 'Activate Flight Plan?' window is displayed.

   Or:

   a) Push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight 'Activate?'.
   c) Press the **ENT** Key. The 'Activate Flight Plan?' window is displayed.

   Or:

   a) Press the **MENU** Key.
   b) Turn the **FMS** Knob to highlight 'Activate Flight Plan'.
   c) Press the **ENT** Key. The 'Activate Flight Plan?' window is displayed.
5) With 'OK' highlighted, press the **ENT** Key to activate the pending flight plan. The pending flight plan becomes the active flight plan and is removed from the 'FPL – Flight Plan Catalog' Page. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting a pending flight plan:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the **FMS** Knob to highlight the desired pending flight plan.
5) Press the **Delete** Softkey. The 'Delete Flight Plan XX?' window is displayed.

   Or:

   Press the **CLR** Key. The 'Delete Flight Plan XX?' window is displayed.

   Or:

   a) Press the **MENU** Key.
   b) Turn the **FMS** Knob to highlight 'Delete Flight Plan'.
   c) Press the **ENT** Key. The 'Delete Flight Plan XX?' window is displayed.

6) With 'OK' highlighted, press the **ENT** Key to delete the pending flight plan. The pending flight plan is removed from the 'FPL – Flight Plan Catalog' Page. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting all pending flight plans:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Press the **MENU** Key.
4) Turn the **FMS** Knob to highlight 'Delete All Pending'.
5) Press the **ENT** Key. A 'Delete all pending flight plans?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to delete all pending flight plans. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Importing a Flight Plan from an SD Card:

1) Insert the SD card containing the flight plan in the top card slot on the MFD.
2) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page on the MFD.
3) Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
4) Push the **FMS** Knob to activate the cursor.
5) Turn either **FMS** Knob to highlight an empty or existing flight plan.
6) Press the **Import** Softkey; or press the **MENU** Key, select "Import Flight Plan", and press the **ENT** Key.

   If an empty slot is selected, a list of the available flight plans on the SD card will be displayed.

   Or:

   If an existing flight plan is selected, an "Overwrite existing flight plan? OK or Cancel" prompt is displayed. Press the **ENT** Key to choose to overwrite the selected flight plan and see the list of available flight plans on the SD card. If overwriting the existing flight plan is not desired, select "Cancel" using the **FMS** Knob, press the **ENT** Key, select another flight plan slot, and press the **Import** Softkey again.
7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.
8) Press the **ENT** Key to initiate the import.
9) Press the **ENT** Key again to confirm the import.

Exporting a flight plan to an SD Card:

1) Insert the SD card into the top card slot on the MFD.
2) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page on the MFD.
3) Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
4) Push the **FMS** Knob to activate the cursor.

5) Turn the large **FMS** Knob to highlight the flight plan to be exported.
6) Press the **Export** Softkey; or press the **MENU** Key, select "Export Flight Plan".
7) If desired, change the name for the exported file by turning the large **FMS** Knob to the left to highlight the name, then use the small and large **FMS** knobs to enter the new name, and press the **ENT** Key.
8) Press the **ENT** Key to initiate the export.
9) Press the **ENT** Key to confirm the export.

Inverting a Flight Plan

Inverting the active flight plan:

1) Press the **FPL** Key.
2) Press the **MENU** Key, highlight 'Invert Flight Plan', and press the **ENT** Key.
3) An 'Invert active flight plan?' confirmation window is displayed. Press the **ENT** Key to invert and activate the flight plan. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Inverting and activating a stored flight plan on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.
3) Press the **Invert** Softkey; or press the **MENU** Key, highlight 'Invert & Activate FPL?', and press the **ENT** Key. The 'Invert and activate stored flight plan?' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting the Active Flight Plan

Deleting the active flight plan:

1) Press the **FPL** Key.
2) Press the **MENU** Key, highlight 'Delete Flight Plan', and press the **ENT** Key. The 'Delete all waypoints in flight plan?' window is displayed.
3) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Stored Flight Plan Functions

Viewing information about a stored flight plan:

1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
2) Turn the small **FMS** Knob clockwise one click to display the 'FPL – Flight Plan Catalog' Page.

3) Push the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the desired flight plan.
4) The Flight Plan Information is displayed showing departure, destination, total distance, and enroute safe altitude information for the selected Flight Plan.
5) Press the **Edit** Softkey to open the 'FPL – Stored Flight Plan' Page and view the waypoints in the flight plan.
6) Push the **FMS** Knob to exit the 'FPL – Stored Flight Plan' Page.

Storing a flight plan:

1) For the active flight plan, press the **FPL** Key.
2) Press the **Menu** Key. Highlight 'Store Flight Plan'.
3) Press the **ENT** Key.
4) With 'OK' highlighted, press the **ENT** Key. The flight plan is stored in the next available position in the flight plan list on the 'FPL – Flight Plan Catalog' Page.

Activating a stored flight plan on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.
3) Open the 'Activate stored flight plan?' window:

   Press the **Activate** Softkey.

   Or:

   Press the **ENT** Key. An 'Activate stored flight plan?' window will appear.

   Or:

   a) Press the **MENU** Key.
   b) Highlight 'Activate Flight Plan' and press the **ENT** Key.
4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Copying a stored flight plan to another flight plan memory slot, on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.
3) Open the 'Copy to flight plan XX?' window:

   Press the **Copy** Softkey.

   Or:

a) Press the **MENU** Key, highlight 'Copy Flight Plan'.

b) Press the **ENT** Key. The 'Copy to flight plan XX?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to copy the flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting a stored flight plan:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.

3) Open the 'Delete flight plan XX?' window:

Press the **Delete** Softkey.

Or:

Press the **CLR** Key.

Or:

a) Press the **MENU** Key.

b) Highlight 'Delete Flight Plan', and press the **ENT** Key.

4) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting all stored flight plans:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Press the **MENU** Key.

3) Highlight 'Delete All' and press the **ENT** Key. A 'Delete all flight plans?' confirmation window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to delete all flight plans. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Changing a Flight Plan Comment (Name):

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For a stored flight plan:

a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

b) Turn the **FMS** Knob to highlight the desired flight plan.

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the comment field.
3) Use the **FMS** Knobs to edit the comment.
4) Press the **ENT** Key to accept the changes.
5) Push the **FMS** Knob to remove the flashing cursor.

PROCEDURES

Viewing available procedures at an airport:

1) From the 'WPT – Airport Information' Page (**Info 1** Softkey):

   Press the **DP** Softkey. The 'WPT – Departure Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport Information' Page.

   Or:

   Press the **STAR** Softkey. The 'WPT – Arrival Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport Information' Page.

   Or:

   Press the **APR** Softkey. The 'WPT – Approach Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport Information' Page.
2) To select another airport, push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Turn the large **FMS** Knob to highlight the procedure. The procedure is previewed on the map.
4) Turn the small **FMS** Knob to view the available procedures. Press the **ENT** Key to select the procedure. The cursor moves to the next box (runway or transition). The procedure is previewed on the map.
5) Turn the small **FMS** Knob to view the available runway or transition. Press the **ENT** Key to select the runway or transition. The cursor moves to the next box (if available). The procedure is previewed on the map.
6) Repeat Step 5, until desired information has been viewed for the chosen procedure.
7) Press the **Info 1** Softkey to return to the 'WPT - Airport Information' Page.

DEPARTURES

Loading a departure into the active flight plan using the PROC Key:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Departure'.
3) Press the **ENT** Key. The 'PROC – Departure Loading' Page is displayed.
4) Use the **FMS** Knob to select an airport and press the **ENT** Key.
5) Select a departure from the list and press the **ENT** Key.
6) Select a runway (if required) and press the **ENT** Key.

7) Select a transition (if required) and press the **ENT** Key. 'Load?' is highlighted.
8) Press the **ENT** Key to load the departure procedure.

Loading a departure into the active flight plan from the 'WPT – Departure Information' Page:

1) From the 'WPT – Airport Information' Page (first page in the WPT group), press the **DP** Softkey. The 'WPT – Departure Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport information' Page.
2) To select another airport, push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Select a different departure, if desired.
   a) Turn the large **FMS** Knob to place the cursor in the 'Departure' Box. The departure is previewed on the map.
   b) Turn the small **FMS** Knob to view the available departures. Press the **ENT** Key to select the departure. The cursor moves to the 'Runway' Box. The departure is previewed on the map.
   c) Turn the small **FMS** Knob to view the available runways. Press the **ENT** Key to select the runway. The cursor moves to the 'Transition' Box (only if there are available transitions). The departure is previewed on the map.
   d) Turn the small **FMS** Knob to view the available transitions. Press the **ENT** Key to select the transition. The cursor moves to the 'Sequence' Box. The departure is previewed on the map.
4) Press the **MENU** Key to display the 'Page Menu' Window.
5) Turn the **FMS** Knob to highlight 'Load Departure'.
6) Press the **ENT** Key to load the departure procedure into the active flight plan.

Loading a departure procedure into a stored flight plan:

1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the **FMS** Knob to highlight the desired flight plan.
4) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
5) Press the **LD DP** Softkey; or press the **MENU** Key, select 'Load Departure', and press the **ENT** Key. The 'PROC – Departure Loading' Page is displayed.
6) Select a departure. Press the **ENT** Key.
7) Select a runway served by the selected departure (if required). Press the **ENT** Key.
8) Select a transition for the selected departure (if required). Press the **ENT** Key.
9) Press the **ENT** Key to load the selected departure procedure.

Removing a departure procedure from a flight plan:

1) If removing from the active flight plan, press the **FPL** Key for the MFD.

   Or:

   If removing from the stored flight plan:

   a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.

   b) Push the **FMS** Knob to activate the cursor.

   c) Turn the **FMS** Knob to highlight the desired flight plan.

   d) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the departure for removal:

   a) Press the **MENU** Key, and highlight 'Remove Departure'.

   b) Press the **ENT** Key. A confirmation window is displayed listing the departure procedure.

   Or:

   a) Push the **FMS** Knob to activate the cursor (not required on PFD).

   b) Turn the large **FMS** Knob to highlight the departure header in the flight plan.

   c) Press the **CLR** Key. A confirmation window is displayed listing the departure procedure.

3) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

4) Push the **FMS** Knob to remove the flashing cursor.

ARRIVALS

Loading an arrival into the active flight plan using the PROC Key:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Arrival'.
3) Press the **ENT** Key. The 'PROC – Arrival Loading' Page is displayed.
4) Use the **FMS** Knob to select an airport and press the **ENT** Key.
5) Select an arrival from the list and press the **ENT** Key.
6) Select a transition (if required) and press the **ENT** Key.
7) Select a runway (if required) and press the **ENT** Key. 'Load?' is highlighted.
8) Press the **ENT** Key to load the arrival procedure

Loading an arrival into the active flight plan from the 'WPT – Arrival Information' Page:

1) From the 'WPT – Airport Information' Page (first page in the WPT group), press the **STAR** Softkey. The 'WPT – Arrival Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport Information' Page.
2) To select another airport, push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Select a different arrival, if desired.
   a) Turn the large **FMS** Knob to highlight the arrival. The arrival is previewed on the map.
   b) Turn the small **FMS** Knob to view the available arrivals. Press the **ENT** Key to select the arrival. The cursor moves to the 'Transition' Box (only if there are available transitions). The arrival is previewed on the map.
   c) Turn the small **FMS** Knob to view the available transitions. Press the **ENT** Key to select the transition. The cursor moves to the 'Runway' Box. The arrival is previewed on the map.
   d) Turn the small **FMS** Knob to view the available runways. Press the **ENT** Key to select the runway. The cursor moves to the 'Sequence' Box. The arrival is previewed on the map.
4) Press the **MENU** Key to display the Arrival Information 'Page Menu' Window.
5) Turn the **FMS** Knob to highlight 'Load Arrival'.
6) Press the **ENT** Key to load the arrival procedure into the active flight plan.

Loading an arrival procedure into a stored flight plan:

1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the **FMS** Knob to highlight the desired flight plan.
4) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
5) Press the **LD STAR** Softkey; or press the **MENU** Key, select 'Load Arrival', and press the **ENT** Key. The 'PROC – Arrival Loading' Page is displayed.
6) Select an arrival. Press the **ENT** Key.
7) Select a transition for the selected arrival (if required). Press the **ENT** Key.
8) Select a runway served by the selected arrival (if required). Press the **ENT** Key.
9) Press the **ENT** Key to load the selected arrival procedure.

Removing an arrival procedure from a flight plan:

1) If removing from the active flight plan, press the **FPL** Key for the MFD.

   Or:

If removing from the stored flight plan:

a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.

b) Push the **FMS** Knob to activate the cursor.

c) Turn the **FMS** Knob to highlight the desired flight plan.

d) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the arrival for removal:

a) Press the **MENU** Key, and highlight 'Remove Arrival'.

b) Press the **ENT** Key. A confirmation window is displayed listing the arrival procedure.

Or:

a) Push the **FMS** Knob to activate the cursor (not required on PFD).

b) Turn the large **FMS** Knob to highlight the arrival header in the flight plan.

c) Press the **CLR** Key. A confirmation window is displayed listing the arrival procedure.

3) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

4) Push the **FMS** Knob to remove the flashing cursor.

APPROACHES

HSI Annunciation	Description	Example on HSI
LNAV	Approach to the published MDA	
LP		
LNAV+V	Approach with advisory vertical guidance to the published MDA	
LP+V		
L/VNAV	Approach with approved vertical guidance to the published DA	
LPV		

Approach Service Level
- LNAV, LNAV+V, L/VNAV, LP, LP+V, LPV

Approach Service Levels

Approach Service Level	Lateral Navigation Source	Vertical Navigation Source
LNAV	GPS	N/A
LNAV+V	GPS	GPS (advisory only)
LNAV/VNAV	GPS	GPS [1]
LP	GPS [1]	N/A
LP+V	GPS [1]	GPS [1] (advisory only)
LPV	GPS [1]	GPS [1]

[1] *SBAS required*

Source of Lateral and Vertical Navigation per Approach Service Level

Loss of SBAS

Due to the high level of precision required by some approach service levels, losing SBAS may require the pilot to acknowledge a downgrade of approach service level, or to abort the approach. See the following table for approach degradation behavior:

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LNAV	Approach phase not specified	SBAS not required. The approach is continued.	None	N/A
LNAV+V	Prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'. [2]	None	N/A
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV [1]

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LNAV/ VNAV	Prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'. [2]	None	N/A
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV [1]
LP	More than 1 min prior to the FAF	HSI displays approach service level in amber.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. [2]	Acknowledge message to redisplay CDI with LNAV [1]	LNAV [1]
	At/after the FAF	CDI is removed. [2]	Acknowledge ABORT APR message to redisplay CDI	N/A
LP+V	More than 1 min prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. VDI displays 'NO GP'. [2]	Acknowledge message to redisplay CDI with LNAV [1]	LNAV [1]
	At/after the FAF	CDI is removed; VDI displays 'NO GP'. [2]	Acknowledge ABORT APR message	N/A

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LPV	More than 1 min prior to the FAF	HSI displays approach service level in amber.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'. [2]	None	LNAV [1]
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV [1]

[1] *Some approaches may not publish minimums for the downgrade given as an example in this table. The system will determine the appropriate downgrade, if available, for each published approach as it is derived from the database. If an appropriate downgrade is not available, the approach should be aborted.*

[2] *System message is generated.*

Approach Degradation Behavior

Loss of GPS on a Published GPS Approach

When the system is no longer receiving sufficient GPS integrity while on the final segment of a GPS approach, the approach service level on the HSI will turn amber, the annunciation 'GPS LOI' will be displayed on the PFD, and the 'LOSS OF GPS NAVIGATION' system message will be given. If the aircraft is at or beyond the FAF when the condition occurs, the 'ABORT APR' system message is given, and the CDI deviation bar is removed from the HSI. The CDI deviation bar will reappear when the 'ABORT APR' message is acknowledged.

If a total loss of GPS positioning occurs while on the final segment of a GPS approach, the approach service level on the HSI will turn amber, the annunciation 'GPS LOI' will be displayed on the PFD, and the 'LOSS OF GPS NAVIGATION' system message will be given. If the aircraft is at or beyond the FAF when the condition occurs, the 'ABORT APR' message is displayed. The CDI deviation bar is removed from the HSI and cannot be restored when GPS positioning is unavailable.

Loading and Activating an Approach

Loading an approach into the active flight plan using the PROC Key:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Approach', and press the **ENT** Key. The 'PROC – Approach Loading' Page is displayed.

3) Select the airport and approach:
   a) Use the **FMS** Knob to select an airport and press the **ENT** Key.
   b) Select an approach from the list and press the **ENT** Key.

   Or:

   a) If necessary, push the **FMS** Knob to exit the approach list, and use the large **FMS** Knob to move the cursor to the Approach 'Channel' Field.
   b) Use the **FMS** Knob to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.
4) Select a transition (if required) and press the **ENT** Key.
5) Enter minimums:

   To skip setting minimums, press the **ENT** Key.

   Or:

   a) To set 'Minimums', turn the small **FMS** Knob to select 'BARO', 'TEMP COMP', or 'RAD ALT', and press the **ENT** Key. Turn the small **FMS** Knob to select the altitude, and press the **ENT** Key.
   b) If 'TEMP COMP' was selected, the cursor moves to the temperature field. Turn the small **FMS** Knob to select the temperature (as reported at the destination airport), and press the **ENT** Key.
6) Press the **ENT** Key with 'Load?' highlighted to load the approach procedure; or turn the large **FMS** Knob to highlight 'Activate?' and press the **ENT** Key to load and activate the approach procedure.

   When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the ENT Key.

Loading an approach into the active flight plan from the 'NRST – Nearest Airport' Page:

1) Select the 'NRST – Nearest Airports' Page.
2) Push the **FMS** Knob, then turn the large **FMS** Knob to highlight the desired nearest airport. The airport is previewed on the map.
3) Press the **APR** Softkey; or press the **MENU** Key, highlight 'Select Approach Window', and press the **ENT** Key.
4) Turn the **FMS** Knob to highlight the desired approach.
5) Press the **LD APR** Softkey; or press the **MENU** Key, highlight 'Load Approach', and press the **ENT** Key. The 'PROC – Approach Loading' Page is displayed with the 'Transition' Field highlighted.
6) Turn the **FMS** Knob to highlight the desired transition, and press the **ENT** Key.
7) Enter Minimums:

To skip setting minimums, press the **ENT** Key. The 'Load?' Field is highlighted.

Or:

a) To set 'Minimums', turn the small **FMS** Knob to select 'BARO', 'TEMP COMP', or 'RAD ALT', and press the **ENT** Key. Turn the small **FMS** Knob to select the altitude, and press the **ENT** Key.

b) If 'TEMP COMP' was selected, the cursor moves to the temperature field. Turn the small **FMS** Knob to select the temperature, and press the **ENT** Key.

8) Press the **ENT** Key with 'Load?' highlighted to load the approach procedure; or turn the large **FMS** Knob to highlight 'Activate?' and press the **ENT** Key to load and activate the approach procedure.

When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the ENT Key.

Loading an approach procedure into a stored flight plan:

1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

2) Turn the **FMS** Knob to highlight the desired flight plan.

3) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

4) Press the **LD APR** Softkey; or press the **MENU** Key, select "Load Approach", and press the **ENT** Key. The 'PROC – Approach Loading' Page is displayed.

5) Select the airport and approach:

a) Use the **FMS** Knob to select an airport and press the **ENT** Key.

b) Select an approach from the list and press the **ENT** Key.

Or:

a) If necessary, push the **FMS** Knob to exit the approach list, and use the large **FMS** Knob to move the cursor to the Approach 'Channel' Field.

b) Use the **FMS** Knob to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.

6) Select a transition for the selected approach. Press the **ENT** Key.

7) Press the **ENT** Key to load the selected approach procedure.

Activating a previously loaded approach:

1) Press the **PROC** Key. The 'Procedures' Window is displayed with 'Activate Approach' highlighted.

2) Press the **ENT** Key to activate the approach.

Activating a previously loaded approach with vectors to final:

1) Press the **PROC** Key to display the 'Procedures' Window.
2) Highlight 'Activate Vector-to-Final' and press the **ENT** Key.

Loading and activating an approach using the MENU Key:

1) From the 'PROC – Approach Loading' Page, press the **MENU** Key. The 'Page Menu' Window is displayed with 'Load & Activate Approach' highlighted.
2) Press the **ENT** Key.

   When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the ENT Key.

   Or:

1) Press the **PROC** Key.
2) Use the large **FMS** Knob to highlight 'Select Approach' and press the **ENT** Key.
3) From the 'PROC – Approach Loading' Page, press the **MENU** Key for the MFD. The 'Page Menu' Window is displayed with 'Load & Activate Approach' highlighted.
4) Press the **ENT** Key.

   When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the ENT Key.

Removing an Approach

Removing an approach from the active or stored flight plan:

1) Open the appropriate flight plan page:

   For the active flight plan, press the **FPL** Key, or turn the **FMS** Knobs to select the 'FPL – Active Flight Plan' Page.

   Or:

   For a stored flight plan:

   a) Turn the **FMS** Knobs to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
   b) Turn the **FMS** Knob to highlight the desired flight plan.
   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
2) Remove the approach:
   a) Press the **MENU** Key, and highlight 'Remove Approach'.
   b) Press the **ENT** Key. A confirmation window is displayed listing the approach procedure.

c) With 'OK' highlighted, press the **ENT** Key.

Or:

a) Push the **FMS** Knob to activate the cursor if not already activated.

b) Turn the large **FMS** Knob to highlight the approach header in the active flight plan.

c) Press the **CLR** Key. A confirmation window is displayed listing the approach procedure.

d) With 'OK' highlighted, press the **ENT** Key.

e) Push the **FMS** Knob to remove the flashing cursor.

Missed Approach

Activating a missed approach in the active flight plan:

Press the Go-Around Button.

Or:

Fly past the MAP, and press the **SUSP** Softkey on the PFD.

Or:

1) Press the **PROC** Key.
2) Turn the **FMS** Knob to highlight 'Activate Missed Approach'. (This option is selectable after the leg to the FAF becomes active and GPS is the active NAV source.)
3) Press the **ENT** Key.

Temperature Compensated Altitude

Temperature Compensation for approach altitudes

Manually setting temperature compensation for approach waypoint altitudes:

1) From the 'FPL – Active Flight Plan' Page, press the **MENU** Key. The 'Page Menu' Window is displayed.
2) Turn the **FMS** Knob to highlight 'Temperature Compensation'.
3) Press the **ENT** Key. The 'Temperature Compensation' Window is displayed with the temperature highlighted.
4) Use the small **FMS** Knob to change the 'Temperature at <airport>' Field. The compensated altitude is computed as the temperature is selected.
5) Press the **ENT** Key. 'Activate Compensation?' is highlighted.
6) Press the **ENT** Key. The compensated altitudes for the approach are shown in the flight plan.

Cancelling temperature compensation setting for approach waypoint altitudes:

1) From the 'FPL – Active Flight Plan' Page, press the **MENU** Key. The 'Page Menu' Window is displayed.

2) Turn the **FMS** Knob to highlight 'Temperature Compensation'.
3) Press the **ENT** Key. The 'Temperature Compensation' Window is displayed.
4) Press the **ENT** Key. 'Cancel Compensation?' is highlighted.
5) Press the **ENT** Key.

Temperature Compensation for Approach Minimums

Entering a temperature compensated minimum into an approach:

1) From the 'FPL – Active Flight Plan' Page, press the **PROC** Key. The 'Procedures' Window is displayed.
2) If necessary, turn the large **FMS** Knob to highlight 'Select Approach'. Press the **ENT** Key.
3) If necessary, use the **FMS** Knob and the **ENT** Key to select the desired airport, approach, and transition.
4) Use the **FMS** Knob to place the flashing cursor in the 'Minimums' Box. Turn the small **FMS** Knob to select 'TEMP COMP'. Press the **ENT** Key.
5) Turn the small **FMS** Knob to enter the minimums altitude. Press the **ENT** Key. The cursor is placed in the 'TEMP AT <destination airport>' Field.
6) Turn the small **FMS** Knob to enter the temperature at the destination. Press the **ENT** Key.
7) Press the **ENT** Key with either 'Load?' or 'Activate?' highlighted. The approach is added to the active flight plan, and the temperature compensated minimums are displayed on the PFD.

TRIP PLANNING

Selecting automatic or manual page mode:

From the 'Aux – Trip Planning' Page, press the **Auto** Softkey or the **Manual** Softkey; or press the **MENU** Key, highlight 'Auto Mode' or 'Manual Mode', and press the **ENT** Key.

Selecting flight plan or waypoint mode:

From the 'Aux – Trip Planning' Page, press the **FPL** Softkey or the **WPTs** Softkey; or press the **MENU** Key, highlight 'Flight Plan Mode' or 'Waypoints Mode', and press the **ENT** Key.

Selecting a flight plan and leg for trip statistics:

1) From the 'Aux – Trip Planning' Page, push the **FMS** Knob to activate the cursor in the 'FPL' Field.
2) Turn the small **FMS** Knob to select the desired flight plan number.
3) Turn the large **FMS** Knob to highlight 'CUM' or 'REM'. The statistics for each leg can be viewed by turning the small **FMS** Knob to select the desired leg. The Trip Planning Map also displays the selected data.

Selecting waypoints for waypoint mode:

1) From the 'Aux – Trip Planning' Page, press the **WPTs** Softkey; or press the **MENU** Key, highlight 'Waypoints Mode', and press the **ENT** Key. The cursor is positioned in the waypoint field directly below the 'FPL' Field.
2) Turn the **FMS** Knobs to select the desired waypoint (or select from the 'Page Menu' Window 'Set WPT to Present Position' if that is what is desired), and press the **ENT** Key. The cursor moves to the second waypoint field.
3) Turn the **FMS** Knobs to select the desired waypoint, and press the **ENT** Key. The statistics for the selected leg are displayed.

Entering manual data for trip statistics calculations:

1) From the 'Aux – Trip Planning' Page, press the **Manual** Softkey or select 'Manual Mode' from the 'Page Menu' Window, and press the **ENT** Key. The cursor may now be positioned in any field within the input data box.
2) Turn the **FMS** Knobs to move the cursor onto the 'Departure Time' Field and enter the desired value. Press the **ENT** Key. The statistics are calculated using the new value and the cursor moves to the next entry field. Repeat until all desired values have been entered.

RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM) PREDICTION

In most cases, performing a RAIM prediction is not necessary. However, in some cases, the selected approach may be outside the SBAS coverage area and it may be necessary to perform a RAIM prediction for the intended approach.

Receiver Autonomous Integrity Monitoring (RAIM) is a GPS receiver function that performs a consistency check on all tracked satellites. RAIM ensures the available satellite geometry allows the receiver to calculate a position within a specified RAIM protection limit (2.0 nm for oceanic and enroute, 1.0 nm for terminal, and 0.3 nm for non-precision approaches). During oceanic, enroute, and terminal phases of flight, RAIM is available nearly 100% of the time.

The RAIM prediction function also indicates whether RAIM is available at a specified date and time. RAIM computations predict satellite coverage within ±15 min of the specified arrival date and time.

Because of the tighter protection limit on approaches, there may be times when RAIM is not available. The system automatically monitors RAIM and warns with an alert message when it is not available. If RAIM is not predicted to be available for the final approach course, the approach does not become active, as indicated by the messages 'Approach is not active' and 'RAIM not available from FAF to MAP'. If RAIM is not available when crossing the FAF, the missed approach procedure must be flown.

NOTE: *The system's RAIM prediction capability does not meet all RAIM prediction requirements. Reference the RAIM/Fault Detection and Exclusion (FDE) Prediction Tool at flygarmin.com, as required.*

Predicting RAIM availability at a selected waypoint:

1) Use the **FMS** Knob to select the 'Aux – GPS Status' Page.
2) If necessary, press the **RAIM** Softkey.
3) Push the **FMS** Knob. The 'Waypoint' Field is highlighted.
4) Turn the small **FMS** Knob to display the 'Waypoint Information' Window.
5) Use the **FMS** Knob to enter the desired waypoint by identifier, facility, or city name and press the **ENT** Key.

   Or:

   a) Turn the small **FMS** Knob counter-clockwise to display a list of Flight Plan waypoints (the flight plan list is populated only when navigating a flight plan).

   b) Turn the small **FMS** Knob clockwise to display the Nearest, Recent, or User waypoints, if required.

   c) Turn the large **FMS** Knob clockwise to select the desired waypoint. Press the **ENT** Key. The system automatically fills in the identifier, facility, and city fields with the information for the selected waypoint.

   d) Press the **ENT** Key again to accept the waypoint entry.
6) Use the **FMS** Knob to enter an arrival time and press the **ENT** Key.
7) Use the **FMS** Knob to enter an arrival date and press the **ENT** Key.
8) With the cursor highlighting 'Compute RAIM?', press the **ENT** Key. Once RAIM availability is computed, one of the following is displayed:

   • 'Compute RAIM?'— RAIM has not been computed for the current waypoint, time, and date combination.

   • 'Computing Availability'— RAIM calculation in progress.

   • 'RAIM Available'— RAIM is predicted to be available for the specified waypoint, time, and date.

   • 'RAIM Not Available'— RAIM is predicted to be unavailable for the specified waypoint, time, and date.

Predicting RAIM availability at present position:

1) Use the **FMS** Knob to select the 'Aux – GPS Status' Page.
2) If necessary, press the **RAIM** Softkey.
3) Push the **FMS** Knob. 'P.POS' in the 'Waypoint' Field is highlighted.

4) Press the **ENT** Key to accept the present position waypoint entry.
5) Use the **FMS** Knob to enter an arrival time and press the **ENT** Key.
6) Use the **FMS** Knob to enter an arrival date and press the **ENT** Key.
7) With the cursor highlighting 'Compute RAIM?', press the **ENT** Key. Once RAIM availability is computed, one of the following is displayed:

   • 'Compute RAIM?' — RAIM has not been computed for the current waypoint, time, and date combination.

   • 'Computing Availability' — RAIM calculation in progress.

   • 'RAIM Available' — RAIM is predicted to be available for the specified waypoint, time, and date.

   • 'RAIM not Available' — RAIM is predicted to be unavailable for the specified waypoint, time, and date.

HAZARD AVOIDANCE

DATA LINK WEATHER

WARNING: *Do not use data link weather information for maneuvering in, near, or around areas of hazardous weather. Information contained within data link weather products may not accurately depict current weather conditions.*

WARNING: *Do not use the indicated data link weather product age to determine the age of the weather information shown by the data link weather product. Due to time delays inherent in gathering and processing weather data for data link transmission, the weather information shown by the data link weather product may be older than the indicated weather product age.*

ACTIVATING DATA LINK WEATHER SERVICES

Activating the SiriusXM Weather Service

Establishing an account for SiriusXM services:

1) Select the XM Radio Page in the Aux Page Group.
2) If necessary, press the **Info** Softkey to display the 'Aux - XM Information' Page.
3) Note the Data Radio ID (for SiriusXM Weather data) and/or the Audio Radio ID (for SiriusXM Satellite Radio).
4) Contact SiriusXM customer service through the phone number listed on its website, www.siriusxm.com.
5) Provide SiriusXM customer service the Data Radio ID and/or Audio Radio ID, in addition to payment information, and the desired weather product subscription package.

After SiriusXM has been contacted, it may take approximately 15 minutes until the activation occurs.

Verifying the SiriusXM Weather service activation:

1) Once a SiriusXM Weather account has been established, select the XM Radio Page in the Auxiliary Page Group.
2) If necessary, press the **Info** Softkey to display the 'Aux - XM Information' Page.
3) View the list of supported Weather Products. An empty box appears next to an unavailable weather product; a green filled box appears next to an available weather product. During activation, it may take several minutes for weather products in the selected subscription package to become available.

Activating Garmin Connext Weather

Obtaining the LRU serial numbers and System ID:

1) Select the 'Aux - System Status' Page.
2) Press the **LRU** Softkey.
3) Turn the **FMS** Knob to scroll the cursor until 'GSR 1' is visible in the 'LRU Information' window.
4) Note the serial number displayed for 'GSR 1'.
5) Push the **FMS** Knob to deactivate the cursor.

Registering the system to receive Garmin Connext Weather:

1) Go to flygarmin.com. Locate the information for subscribing to Garmin Connext Satellite Services on the website.
2) Choose a desired service which includes weather data and enter the requested information about the aircraft.
3) Note the Access Code provided during the registration process and any additional instructions received.
4) With the aircraft outside and having a clear view of the sky, turn the large **FMS** Knob on the MFD to select the Map page group.
5) Turn the small **FMS** Knob to select the 'Map - Weather Data Link (CNXT)' Page. If another data link weather source such as 'XM' or 'FIS-B' is displayed in the page title, it will be necessary to change the data link weather source to CNXT before continuing. Refer to 'Viewing the Weather Data Link (CNXT) Page' procedure to change the data link source to prior to registration.
6) If the system displays the Connext Registration Window, proceed to step 8. Otherwise, press the **MENU** Key. The page menu window is now displayed.
7) Turn the large **FMS** Knob to select 'Register With Connext' in the menu list.
8) Press the **ENT** Key. The Connext Registration Window appears as shown in the following figure.
9) Enter the access code provided by Garmin in the 'Access Code' field.
10) Press the **ENT** Key. 'Register' is highlighted.
11) Press the **ENT** Key. The system contacts Garmin through the Iridium network. System registration is complete when the Current Registration Window displays the correct information for the Airframe, Tail Number, Airframe Serial Number, and Iridium Serial Number.
12) When finished, push the **FMS** Knob to remove the Connext Registration Window.

WEATHER PRODUCT AGE

Enabling/disabling the weather product age for PFD Maps:

1) With the PFD Inset Map or HSI Map displayed, press the **Map/HSI** Softkey.
2) Press the **WX LGND** to show/remove the weather product age information for PFD maps.

SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
Next-generation Radar (NEXRAD)		30
Cloud Tops		60
Echo Tops		30
SiriusXM Lightning		30
Storm Cell Movement		30
SIGMETs		60
AIRMETs		60
METARs		90
City Forecast		90
Surface Analysis		60
Freezing Levels		120
Winds Aloft		90
County Warnings		60
Cyclone (Hurricane) Warnings		60

SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
Icing Potential (CIP and SLD)		90
Pilot Weather Report (PIREPs)		90
Air Report (AIREPs)		90
Turbulence		180
No Radar Coverage	No product symbol	30
Temporary Flight Restrictions (TFRs)		60
Terminal Aerodrome Reports (TAFs)	No product symbol	60

SiriusXM Weather Product Symbols and Data Timing

FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)
NEXRAD Composite (US)		30
NEXRAD Composite (Regional)		30
METARs		90
Pilot Weather Report (PIREP)		90
Winds Aloft		90
SIGMETs/AIRMETs		60
No Radar Coverage	No product symbol	30

FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)
Terminal Aerodrome Forecast (TAF)	No product symbol	60
Temporary Flight Restriction (TFR)	TFR	60

FIS-B Weather Product Symbols and Data Timing

Garmin Connext Weather Product	Product Symbol	Expiration Time (Minutes)
Connext Radar		30
IR Satellite		60
Connext Lightning		30
SIGMETs	SIGM	60
AIRMETs	AIRM	60
Meteorological Aerodrome Report (METARs)		90
Winds Aloft		90
Pilot Weather Reports (PIREPs)		90
Temporary Flight Restrictions (TFRs)	TFR	60
Terminal Aerodrome Reports (TAFs)	No product symbol	60

The composite precipitation image is updated every 3 minutes, but individual radar sites may take between 3 and 10 minutes to provide new data.

Canadian radar precipitation data provided by Environment Canada.

Australian radar precipitation data provided by the Australia Bureau of Meteorology.

Garmin Connext Weather Product Symbols and Data Timing

DISPLAYING DATA LINK WEATHER PRODUCTS

Weather Data Link Page

Viewing the Weather Data Link Page and changing the data link weather source, if applicable:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Weather Data Link (XM or CNXT or FIS-B) Page. The currently selected data link weather source appears in the page title.
3) If the page title does not contain the desired weather source, press the **MENU** Key.
   a) Turn the **FMS** Knob to highlight 'Display XM Weather', 'Display Connext Weather' or 'Display FIS-B Weather' (choices may vary depending on the installed equipment).
   b) Press the **ENT** Key.

Viewing legends for displayed weather products on the Weather Data Link Page:

1) Select the Weather Data Link Page.
2) Press the **Legend** Softkey to display the legends for the displayed weather products.
   Or:
   a) Press the **MENU** Key.
   b) Select 'Weather Legend' and press the **ENT** Key.
3) Turn the **FMS** Knob to scroll through the legends if more are available than fit in the window.
4) To remove the Weather Legends Window, press the **Legend** Softkey, the **ENT** or the **CLR** Key, or push the **FMS** Knob.

Customizing the Weather Data Link Page

Setting up and customizing the Weather Data Link Page:

1) Select the Weather Data Link Page.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight 'Weather Setup', then press the **ENT** Key.
4) Turn the small **FMS** Knob to select 'Product Group 1' or 'Product Group 2', and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or press the **CLR** Key to return to the Weather Data Link (XM) Page with the changed settings.

Restoring default Weather Data Link Page settings:

1) Select the Weather Data Link Page.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight 'Weather Setup', then press the **ENT** Key.
4) Press the **MENU** Key.
5) Highlight the desired default(s) to restore (all or for selection) and press **ENT** Key.
6) When finished, push the **FMS** Knob or press the **CLR** Key.

Weather Product Map Overlays

Displaying Data Link Weather Products on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the softkey to enable/disable the desired weather product.

Showing/removing the weather legend on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Legend** Softkey to show the weather legends window.
4) When finished, press the **Legend** Softkey again, or press the **FMS** Knob or the **CLR** Key to remove the window.

Setting up and customizing weather data for the navigation maps:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
6) Turn the small **FMS** Knob to scroll through options for each product (ON/OFF, range settings).
7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or press the **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

Displaying Data Link Weather products on the PFD:

1) On the PFD, press the **Map/HSI** Softkey.
2) To enable/disable a data link lightning weather product on a PFD, press the **Lightning** Softkey.
   a) Press the desired source of lightning or press the **LTNG Off** Softkey.
   b) Press the **Back** Softkey twice to return to the top-level PFD Softkeys.

Enabling/disabling the weather product icon and age display (PFD maps):

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **WX LGND** Softkey to enable/disable the weather product age, source, and icon box display on PFD Maps.

CONNEXT DATA REQUESTS

Manually Requesting Garmin Connext Weather information:

1) Select the 'Weather Data Link (CNXT)' Page.
2) Press the **MENU** Key.
3) With 'Connext Data Request' highlighted, press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the desired coverage option(s) and press the **ENT** Key to show or hide a green check mark to select one of more of the following coverage selections:
   - Present Position – Requests data based on current location.
   - Destination – Requests data based on the active flight plan destination (Direct-To destinations excluded). See the Flight Management section for more information about entering and activating flight plans.
     - FPL – Requests data along an active flight plan, if one currently exists. Turn the small **FMS** Knob to select the desired flight plan look-ahead distance option (or choose 'Remaining FPL' to request weather data for the remainder of the flight plan), then press the **ENT** Key.
     - Waypoint – Requests data based on a waypoint (which may be off-route). Turn the large and small **FMS** Knobs to enter a waypoint, then press the **ENT** Key.
5) Turn the large **FMS** Knob highlight to the 'Diameter / Route Width' distance field and turn the small **FMS** Knob to select the desired diameter and route width of the request, then press the **ENT** Key.
6) Turn the large **FMS** Knob until the 'Send Request' field is highlighted. Press the **ENT** Key to initiate the request immediately or push the **FMS** Knob to return to the 'Map - Weather Data Link (CNXT)' Page without requesting weather data.

Cancelling a Connext Data Request in Progress:

1) Select the 'Weather Data Link (CNXT)' Page.
2) Press the **MENU** Key.
3) With 'Connext Data Request' highlighted, press the **ENT** Key.
4) Turn the large **FMS** Knob to select the 'Cancel Request' field and press the **ENT** Key. The request status box indicates 'Request Cancelled'.
5) Push the **FMS** Knob to return to the 'Weather Data Link (CNXT)' Page.

Enabling/disabling automatic Connext Data Requests:

1) Select the 'Weather Data Link (CNXT)' Page.
2) Press the **MENU** Key.
3) With 'Connext Data Request' highlighted, press the **ENT** Key.
4) Choose the desired weather coverage options.
5) Turn the large **FMS** Knob to select the 'Update Rate' field. Then turn the small **FMS** Knob to highlight the desired automatic update frequency (Off, 5 Min, 10 Min, 15 Min, 20 Min, 30 Min, 45 Min, or 60 Min), then press the **ENT** Key.
6) The 'Send Request' field is highlighted and a countdown timer is displayed in the 'Request Status' Window based on the currently selected update rate. Press the **ENT** Key to immediately send an immediate Connext Data Request.
7) Push the **FMS** Knob to return to the 'Weather Data Link (CNXT)' Page.

WEATHER PRODUCT OVERVIEW

NEXRAD (SiriusXM)

Displaying the NEXRAD weather product on the 'Map - Weather Data Link (XM)' Page

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **NEXRAD** Softkey.

Displaying the NEXRAD weather product on the 'Map - Navigation Map' Page

1) Press the **Map Opt** Softkey.
2) Press the **NEXRAD** Softkey.

Displaying the NEXRAD weather product on PFD maps

1) Press the **Map/HSI** Softkey.
2) Press the **NEXRAD** Softkey to enable/disable the display of NEXRAD information.

Selecting the NEXRAD Coverage Region on the 'Map - Weather Data Link (XM)' Page:

1) Press the **MENU** Key.
2) Turn the **FMS** Knob to select 'Weather Setup' and press the **ENT** Key.
3) With Product Group 1 selected, turn the large **FMS** Knob to highlight the NEXRAD Region field.
4) Turn the small **FMS** Knob to select 'US' or 'CNDA', then press the **ENT** Key.
5) To remove the menu, push the **FMS** Knob or the **CLR** Key.

NEXRAD (FIS-B)

Displaying the FIS-B NEXRAD weather product on the 'Map - Weather Data Link (FIS-B)' Page

1) Select the 'Map - Weather Data Link (FIS-B)' Page.
2) Press the **NXRD** Softkey. Each press cycles though a coverage option as the softkey name changes (**NXRD US**, **NXRD REG**, **NXRD OFF**, or **NXRD ALL**).

Or:

1) Press the **MENU** Key.
2) Turn the **FMS** Knob to highlight 'Weather Setup' and press the **ENT** Key.
3) To enable/disable the display of NEXRAD information for the continental United States, turn the small **FMS** Knob to highlight the NEXRAD On/Off field.
   a) Turn the small **FMS** Knob to highlight 'On' to enable the display of NEXRAD or 'Off' to disable.
   b) Press the **ENT** Key.
4) To select the region, turn the small **FMS** Knob to highlight the Region field.
   a) Turn the small **FMS** Knob to select the desired region. (CONUS, Regional, or Combined)
   b) Press the **ENT** Key.
5) When finished, push the **FMS** Knob.

Displaying the FIS-B NEXRAD weather product on the 'Map - Navigation Map' Page

1) Press the **Map Opt** Softkey.
2) Press the **NEXRAD** Softkey. Each press cycles though a coverage option as the softkey name changes (**US**, **RGNL**, or **US/RGNL**).

Or:

3) Press the **MENU** Key.
4) With 'Map Settings' highlighted, press the **ENT** Key.
5) Turn the small **FMS** Knob to select the 'Weather' Group, then press the **ENT** Key.
6) Turn the large **FMS** Knob to highlight the NEXRAD Data Region field.
7) Turn the small **FMS** Knob to highlight 'CONUS' (continental United States), 'RGNL' (regional), or 'Combined', then press the **ENT** Key. This selection also affects display of NEXRAD on the PFD Maps.
8) When finished, push the **FMS** Knob or press the **CLR** Key.

Displaying the FIS-B NEXRAD weather product on PFD maps:

1) Press the **Map/HSI** Softkey.
2) Press the **NEXRAD** Softkey to enable/disable the display of NEXRAD information.

Precipitation (Garmin Connext)

Displaying Precipitation weather information:

1) Press the **Map Opt** Softkey (for PFD maps, press the **Map/HSI** Softkey). This step is not necessary on the 'Map - Weather Data Link (CNXT)' Page.
2) Press the **PRECIP** Softkey.

Echo Tops (SirisuXM)

Displaying Echo Tops information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **Echo Top** Softkey.

Cloud Tops (SiriusXM)

Displaying Cloud Tops information:

1) Select the 'Map - Weather Data Link (XM)' Page with the **FMS** Knob.
2) Press the **CLD Top** Softkey.

Data Link Lightning (SiriusXM, Garmin Connext)

Displaying Data Link Lightning information on Weather Data Link Page:

1) Turn the **FMS** Knob to select the Weather Data Link (XM, CNXT) Page.
2) Press the **XM LTNG** or **DL LTNG** Softkey (softkey name depends on the selected weather source).

Displaying Data Link Lightning information on the 'Map - Navigation Map' Page:

1) Turn the **FMS** Knob to select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **XM LTNG** or **DL LTNG** Softkey.

Enabling/disabling Data Link Lightning information on PFD maps:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Lightning** Softkey.
3) Press the **Datalink** Softkey to enable data link lightning from the selected data link weather source, or press the **LTNG Off** Softkey to disable data link lightning.
4) When finished, press the **Back** Softkey.

Cell Movement (SiriusXM)

Displaying Cell Movement information on the Weather Data Link (XM) Page:

1) Select the 'Map -Weather Data Link (XM)' Page using the **FMS** Knob.
2) Press the **Cell MOV** Softkey.

Setting up the system to display Cell Movement with NEXRAD on navigation maps:

1) Use the **FMS** Knob to select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to highlight 'Weather' and press the **ENT** Key.
5) Turn the large **FMS** Knob to 'On' or 'Off' for the Cell Movement menu option. When set to 'On', Cell Movement is enabled/disabled with the NEXRAD weather product on navigation maps. When set to 'Off', Cell Movement is not displayed on navigation maps.
6) When finished, push the **FMS** Knob or **CLR** Key to remove the menu.

Infrared Satellite (Garmin Connext)

Displaying Intrared Satellite information:

1) Select the 'Weather Data Link (CNXT)' Page.
2) Select the **IR SAT** Softkey.

SIGMETs and AIRMETs

Displaying SIGMETs and AIRMETs:

1) Select the Weather Data Link Page.
2) Press the **SIG/AIR** Softkey.
3) To view the text of the SIGMET or AIRMET, push the **Joystick** and move the Map Pointer over the icon.
4) Press the **ENT** key. The following figure shows sample SIGMET text.

METARs and TAFs

Displaying METAR and TAF text on the MFD:

1) On the Weather Data Link Page, press the **METAR** Softkey.
2) Push the **Joystick** and pan to the desired airport.
3) Press the **ENT** Key. The Weather Information Page is shown with METAR and TAF text.
4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. METAR text must be completely scrolled through before scrolling through the TAF text.
5) Push the **FMS** Knob or the **CLR** Key to return to the Weather Data Link Page.

Or:

1) Turn the large **FMS** Knob to select the Waypoint Page Group
   a) Select the Airport Information Page.
   b) Press the **WX** Softkey to select the Weather Information Page.
2) Push the **FMS** Knob to display the cursor.
3) Use the **FMS** Knob to enter the desired airport and press the **ENT** Key.

4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. Note that the METAR text must be completely scrolled through before scrolling through the TAF text.

Displaying original METAR text on the Active Flight Plan Page:

1) Select the 'FPL - Active Flight Plan' Page on the MFD.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight a waypoint with an available METAR (indicated with a METAR flag next to it). The METAR text will appear in the 'Selected Waypoint Weather' Window below.
4) When finished, push the **FMS** Knob to remove the cursor or press the **FPL** Key to exit the Active Flight Plan Page.

Displaying original METAR text information on the PFD Inset Map:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **METAR** Softkey.
3) Push the **Joystick** and pan to the desired METAR flag. Original METAR text appears on the map.
4) When finished, push the **Joystick** to remove the Map Pointer.

Surface Analysis and City Forecast (SiriusXM)

Displaying Surface Analysis and City Forecast information:

1) Select the 'Map - Weather Data Link' Page.
2) Press the **More WX** Softkey.
3) Press the **SFC** Softkey.
4) Press the softkey for the desired forecast time: **Current**, **12 HR**, **24 HR**, **36 HR**, or **48 HR**. The **SFC** Softkey label changes to show the forecast time selected.

   Or:

   Press the **Off** Softkey to disable the display of the weather product.

Freezing Level (SiriusXM)

Displaying Freezing Level information:

1) Select the 'Map - Weather Data Link' Page.
2) Press the **More WX** Softkey.
3) Press the **FRZ LVL** Softkey.

Winds Aloft

Displaying the Winds Aloft weather product:

1) Select the 'Map - Weather Data Link' Page with the **FMS** Knob.
2) Press the **More WX** Softkey.
3) Press the **Wind** Softkey.
4) Select a softkey for the desired altitude level: **SFC** (surface) up to 42,000 feet. Press the **Next** or **Prev** Softkey to cycle through the altitude softkeys. The **Wind** Softkey label changes to reflect the altitude selected.

Enabling/disabling the Vertical Situation Display (containing winds aloft data):

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **VSD** Softkey to enable/disable the Vertical Situation Display.

Or:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) Turn the FMS Knob to highlight 'Show VSD' or 'Hide VSD' and press the **ENT** Key.

Enabling/disabling winds aloft data display for the VSD:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select 'VSD' and press the **ENT** Key.
5) Turn the large **FMS** Knob to highlight the Winds on/off field.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.
7) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

County Warnings (SiriusXM)

Displaying County Warning information:

1) Select the 'Map - Weather Data Link' Page with the **FMS** Knob.
2) Press the **More WX** Softkey.
3) Press the **County** Softkey.

Cyclone (SiriusXM)

Displaying cyclone (hurricane) track information:

1) Select the 'Map - Weather Data Link' Page with the **FMS** Knob.
2) Press the **More WX** Softkey.
3) Press the **Cyclone** Softkey.

Icing (CIP & SLD) (SiriusXM)

Displaying Icing data:

1) Select the 'Map - Weather Data Link' Page.
2) Press the **More WX** Softkey.
3) Press the **ICNG** Softkey.
4) Select a softkey for the desired altitude level: 1,000 feet up to 30,000 feet. Press the **Next** or **PREV** Softkey to cycle through the altitude softkeys. The **ICNG** Softkey label changes to indicate the altitude selected.

Turbulence (SiriusXM)

Displaying Turbulence data:

1) Select the 'Map - Weather Data Link' Page.
2) Press the **More WX** Softkey.
3) Press the **TURB** Softkey.
4) Select a softkey for the desired altitude: 21,000 feet up to 45,000 feet. Press the **Next** or **PREV** Softkey to cycle through the altitude softkeys. The **TURB** Softkey label changes to indicate the altitude selection.

PIREPs and AIREPs

Displaying PIREP and AIREP text:

1) Select the Map - Weather Data Link Page.
2) Press the **More WX** Softkey.
3) Press the **PIREPS** or **AIREPS** Softkey. (Note the **AIREPS** Softkey is only available with the SiriusXM Weather service.)
4) Push the **Joystick** and pan to the desired weather report. A gray circle will appear around the weather report when it is selected.
5) Press the **ENT** Key. The Weather Information Page is shown with PIREP or AIREP text. The data is first displayed in a decoded fashion, followed by the original text. Note the original text may contain additional information not present in the decoded version.
6) Use the **FMS** Knob or the **ENT** Key to scroll through the PIREP or AIREP text.
7) Push the **FMS** Knob or the **CLR** Key to return to the 'Map - Weather Data Link' Page.

TFRS

Displaying TFR Data:

1) Select the 'Map - Weather Data Link' Page or the 'Map - Navigation Map' Page.
2) Push the **Joystick** and pan the map pointer over a TFR to highlight it. The system displays TFR summary information above the map.
3) Press the **ENT** Key. The system displays a pop-up menu.
4) If necessary, turn the **FMS** Knob to select 'Review Airspaces' and press the **ENT** Key. The system displays the TFR Information window.
5) Push the **FMS** Knob or the **CLR** Key to remove the TFR Information window.

Setting up and customizing TFR data for maps on which TFR data can be displayed:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Aviation' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob to scroll to the TFR product range setting.
6) Turn the small **FMS** Knob to scroll through options (Off, range settings).
7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

FIS-B WEATHER STATUS

Viewing FIS-B status:

1) Turn the large **FMS** Knob to select the Aux Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - ADS-B Status' Page.

Enabling/disabling the FIS-B weather feature:

1) Select the 'Map - Weather Data Link' Page.
2) Press the **MENU** Key.
3) Turn the small **FMS** Knob to highlight 'Enable FIS-B Weather' or 'Disable FIS-B Weather', and press the **ENT** Key.

STORMSCOPE LIGHTNING DETECTION SYSTEM

WARNING: *Do not rely on information from the lightning detection system display as the sole basis for hazardous weather avoidance. Range limitations and interference may cause the system to display inaccurate or incomplete information. Refer to documentation from the lightning detection system manufacturer for detailed information about the system.*

USING THE STORMSCOPE PAGE

Adjusting the Stormscope Map Range:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Stormscope Page.
3) Turn the **Joystick** clockwise to increase the map range or counter-clockwise to decrease the map range.

Selecting 'cell' or 'strike' mode:

1) Select the 'Map - Stormscope®' Page.
2) Press the **Mode** Softkey. The **Cell** and **Strike** softkeys are displayed.
3) Press the **Cell** Softkey to display 'CELL' data or select the **Strike** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box in the upper right corner of the Stormscope Page.
4) Press the **Back** Softkey to return to the top level softkeys for the Stormscope Page.

Or:

1) Select the 'Map - Stormscope®' Page.
2) Press the **MENU** Key to display the Stormscope Page Menu. Either 'Cell Mode' or 'Strike Mode' is highlighted in cyan to indicate the mode to be selected.
3) Press the **ENT** Key to select the highlighted mode and remove the menu. To remove the menu without changing modes, press the **MENU** Key or the **CLR** Key, or push the **FMS** Knob.

Manually clearing Stormscope cell or strike information:

1) Select the 'Map - Stormscope®' Page.
2) Press the **Clear** Softkey.

Or:

a) Press the **MENU** Key.
b) Turn the **FMS** Knob to highlight 'Clear Lightning Data', then press the **ENT** Key.

Or:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight 'Clear Stormscope® Lightning', then press the **ENT** Key.

Displaying Stormscope information on MFD navigation maps:

1) Press the **Map Opt** Softkey.
2) Press the **STRMSCP** Softkey.

Displaying Stormscope information on PFD maps:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Lightning** Softkey.
3) Press the **STRMSCP** Softkey.

SETTING UP STORMSCOPE ON THE NAVIGATION MAP

Setting up Stormscope options on the Navigation Map:

1) On the 'Map - Navigation Map' Page, press the **MENU** Key.
2) With 'Map Settings' selected, press the **ENT** Key.
3) Turn the small **FMS** Knob to display the group selection window. Turn the small **FMS** Knob to select 'Weather', and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight and move between the product selections.
5) When an item is highlighted, turn the small **FMS** Knob to select the option.
6) Press the **ENT** Key.
7) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

Cell and Strike Mode on the Navigation Map

Selecting the 'cell' or 'strike' mode on the Navigation Map:

1) Press the **MENU** Key.
2) With 'Map Settings' selected, press the **ENT** Key.
3) Turn the **FMS** Knob to select the 'Weather' group and press the **ENT** Key.
4) Turn the large **FMS** Knob to select the Stormscope Mode field.
5) Turn the small **FMS** Knob to change between 'Cell' and 'Strike' options. When the desired item is selected, press the **ENT** Key.
6) Push the **FMS** knob to return to the 'Map - Navigation Map' Page.

Manually clearing Stormscope data on the Navigation Map:

1) Press the **MENU** Key.
2) Turn the **FMS** Knob to highlight 'Clear Stormscope® Lightning'.
3) Press the **ENT** Key.

Selecting a Stormscope range on the Navigation Map:

1) Press the **MENU** Key.
2) With 'Map Settings' highlighted, press the **ENT** Key.
3) Turn the **FMS** Knob to highlight the select the 'Weather' group, and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the Stormscope maximum map display range distance.

5) Turn the small **FMS** Knob to select the Stormscope maximum map display range distance.
6) Press the **ENT** Key.
7) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

AIRBORNE COLOR WEATHER RADAR

SAFE OPERATING DISTANCE

WARNING: *Do not operate the weather radar in a transmitting mode when personnel or objects are within the MPEL boundary.*

WARNING: *Overflight of thunderstorms should not be considered safe, as extreme turbulence may exist significantly above observed returns.*

Phase of Flight	Tilt Angle	Range Setting	Notes
Taxi	Up 7.50° to 10.00°	20 NM	Activate weather mode when clear of ramp area.
Takeoff / Initial Climb	Up 7.50° to 10.00° Altitude Compensated Tilt On	40 - 60 NM	If precipitation is observed in the departure path, gain can be reduced to aid in identification of intense returns.
10,000 Ft. AGL	Up 3.00 to 5.00° Altitude Compensated Tilt On	60 - 80 NM	Range setting is dependent upon ground speed and time available for deviations.
Cruise	Tilt to Minimize Clutter Altitude Compensated Tilt On	60 - 120 NM	Range setting is dependent upon ground speed and time available for deviations. Tilt angle set to show minimal ground clutter.
Descent To 10,000 FT	Tilt to Minimize Clutter Altitude Compensated Tilt On	60 - 120 NM	Range setting is dependent upon ground speed and time available for deviation.
Descent Below 10,000 FT	Up 7.50° to 10.00° Altitude Compensated Tilt On	40 - 60 NM	Range setting is dependent upon ground speed and time available for deviation. Tilt angle set to show ground clutter in outer 1/3 of radar display.
Approach	Up 7.50° to 10.00° Altitude Compensated Tilt On	20 NM	These settings allow for observation of the approach area and the missed approach holding area.

Typical Tilt Settings by Phase of Flight

Altitude Compensated Tilt (ACT)

After the pilot has identified an area of precipitation using manual antenna tilt controls, the Altitude Compensated Tilt (ACT) feature can help maintain the display of the identified precipitation during climbs or descents. ACT automatically adjusts the antenna tilt angle setting as the aircraft altitude changes. It keeps the center of the radar beam at a constant altitude at 75% of the map range.

For example, if the ACT feature is enabled and the aircraft climbs, the system compensates by adjusting the tilt downward. As the aircraft descends with ACT enabled, the system adjusts the antenna tilt upward. The system uses the ground as a reference for adjusting the antenna tilt setting with ACT enabled. The ACT feature is not typically used for an extended period during level flight.

Weather Display Interpretation

Weather Mode Color	Intensity (in dBz)
Black	< 23 dBZ
Green	23 dBZ to < 33 dBZ
Yellow	33 dBZ to < 41 dBZ
Red	41 dBZ and greater
Magenta (Optional)	TURB- (Optional) Turbulence Detection uses the color magenta to show areas of rain or hail that may also contain turbulence

Precipitation Intensity Levels (GWX-70)

Weather Mode Color	Intensity (in dBz)
Black	< 23 dBZ
Green	23 dBZ or 24 dBZ
Green	25 dBZ or 26 dBZ
Green	27 dBZ or 28 dBZ
Green	29 dBZ or 30 dBZ
Green	31 dBZ or 32 dBZ
Yellow	33 dBZ or 34 dBZ
Yellow	35 dBZ or 36 dBZ
Yellow	37 dBZ or 38 dBZ

Weather Mode Color	Intensity (in dBz)
Yellow	39 dBZ or 40 dBZ
Red	41 dBZ or 42 dBZ
Red	43 dBZ or 44 dBZ
Red	45 dBZ or 46 dBZ
Red	47 dBZ or 48 dBZ
Magenta	49 dBZ to 50 dBZ
Magenta	51 dBZ to 53 dBZ
Magenta	> 54 dBZ
White	TURB- Turbulence Detection uses the color white to show areas of rain or hail that may also contain turbulence

Precipitation Intensity Levels (GWX-75)

WARNING: *Overflight of thunderstorms should not be considered safe, as extreme turbulence may exist significantly above observed returns.*

Operation in Weather Mode

WARNING: *Do not operate the weather radar in a transmitting mode when personnel or objects are within the MPEL boundary.*

WARNING: *Do not assume weather radar transmission is disabled unless all display panes displaying weather radar are set to Standby Mode, and are displaying 'STANDBY' in the center of each weather radar display.*

CAUTION: *In Standby mode, the antenna is parked at the center line. It is always a good idea to ensure the radar is in Standby mode before taxiing the aircraft to prevent the antenna from bouncing on the bottom stop and possibly causing damage to the radar assembly.*

Displaying weather on the Weather Radar Page:

1) Select the Weather Radar Page in the Map Page Group with the **FMS** Knob.
2) Select the **Mode** Softkey.

3) While on the ground, select the **Standby** Softkey.
   a) Select the **Weather** Softkey. A confirmation window is displayed.
   b) Turn the small **FMS** Knob to highlight '**Yes**' and press the **ENT** Key to continue radar activation.

   Or:

   If the aircraft is airborne, select the **Weather** Softkey.
4) Turn the **Joystick** to select the desired map range.
5) The horizontal scan is initially displayed. If desired, select the **Vertical** Softkey to change to vertical scanning.

Vertically scanning a storm cell:

1) While in the Horizontal Scan view, press the **BRG** Softkey. This places the cursor in the 'Bearing' field and displays the Bearing Line.

   If the Bearing Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select 'Show Bearing Line'. Press the **ENT** Key.
2) Press the **ENT** Key.
3) Turn the small **FMS** Knob to place the Bearing Line on the desired storm cell or other area to be vertically scanned.
4) Press the **Vertical** Softkey. A vertical scan of the selected area is now displayed.
5) The small **FMS** Knob may be used to move the scanned bearing line a few degrees right or left.
6) Turn the **Joystick** to adjust the range.
7) Press the **FMS** Knob to remove the cursor.
8) To select a new area to be vertically scanned, press the **Horizontal** Softkey to return to the Horizontal Scan view and repeat the previous steps.

Adjusting Antenna Tilt Angle

Adjusting antenna tilt on the Horizontal Scan display:

1) Press the **FMS** Knob to activate the cursor in the 'Tilt' Field.
2) Turn the small **FMS** Knob to select the desired antenna tilt angle.
3) Press the **ENT** Key.
4) Press the **FMS** Knob to remove the cursor.

The **Joystick** can also be used to adjust tilt up and down.

Adjusting antenna tilt on the Vertical Scan display:

1) Press the **Tilt** Softkey to activate the cursor in the 'Tilt' Field and display the Tilt Line.

   If the Tilt Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select Show Tilt Line. Press the **ENT** Key.

2) Turn the small **FMS** Knob to adjust the antenna tilt angle. The selected tilt angle is implemented when Horizontal Scan is again selected.

The **Joystick** can also be used to adjust tilt.

Enabling/disabling manual gain adjustment:

1) Press the **CAL Gain** Softkey to activate the cursor in the 'Gain' Field.
2) Turn the small **FMS** Knob to adjust the gain for the desirable level. The gain setting is visible in the 'Gain' Field as a movable horizontal bar in a flashing box. The line pointer is a reference depicting the calibrated position.
3) Press the **FMS** Knob to remove the cursor.
4) Press the **CAL Gain** Softkey again to return to the calibrated gain setting. 'Calibrated' is displayed in the 'Gain' Field.

WARNING: *Changing the gain in weather mode causes precipitation intensity to be displayed as a color not representative of the true intensity. Remember to return the gain setting to Calibrated for viewing the actual intensity of precipitation.*

Enabling/disabling Sector Scanning:

1) While in horizontal scan mode, press the **BRG** Softkey to display the Bearing Line and place the cursor in the 'Bearing' Field. If the Bearing Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select Show Bearing Line.
2) Press the **ENT** Key.
3) Turn the small **FMS** Knob to place the Bearing Line in the desired position. The location of the Bearing Line becomes the center point of the Sector Scan.
4) Turn the large **FMS** Knob to place the cursor in the 'Sector Scan' Field.
5) Turn the small **FMS** Knob to highlight the desired scan. Selecting 'Full' enables a 120º scan.
6) If desired, readjust the Bearing Line as discussed previously to change the center of the Sector Scan.
7) Press the **BRG** Softkey again to remove the Bearing Line and cursor. The bearing reference is reset to 0º.

Turbulence Detection

Enabling/Disabling Turbulence Detection during a Horizontal Scan:

1) Select the 'Map - Weather Radar' Page.
2) With the radar in weather mode, press the **Features** Softkey.
3) To activate or deactivate the turbulence detection feature, press the **TURB** Softkey. Turbulence detection is enabled when the softkey annunciator is green; turbulence detection is disabled when the softkey annunciator is gray. The system indicates the current turbulence detection feature status in the upper right of the 'Map - Weather Radar' Page.

Weather Attenuated Color Highlight (WATCH™)

Enabling/Disabling Weather Attenuated Color Highlight (WATCH) during a Horizontal Scan:

1) Select the 'Map - Weather Radar' Page.
2) With the radar in weather mode, press the **Features** Softkey.
3) To activate or deactivate the WATCH feature, press the **WATCH** Softkey. The WATCH feature is enabled when the softkey annunciator is green; WATCH is disabled when the softkey annunciator is gray.

Removing Ground Clutter

Enabling/disabling Ground Clutter Suppression:

1) Select the 'Map - Weather Radar' Page.
2) Press the **Mode** Softkey.
3) To enable or disable the ground clutter suppression feature, press the **GCS** Softkey. Ground clutter suppression is enabled when the softkey annunciator is green; ground clutter suppression is disabled when the annunciator is gray.

Weather Alert Bands and PFD Alert

Enabling/disabling the Weather Alerts Bands and Alerts Window Message:

1) Select the 'Map - Weather Radar' Page.
2) Select the **Features** Softkey.
3) Select the **WX ALRT** Softkey to enable/disable the Weather Alert Bands and 'Alerts' Window message for severe weather head.
4) Select the **Back** Softkey to return to the top-level softkeys.

Enabling/disabling the Weather Alerts Bands and Alerts Window Message on the PFD.

1) If necessary, enable the HSI Map on the PFD.
2) On the PFD, press the **Map/HSI** Softkey.

3) Press the **WX Radar** Softkey to enable/disable the airborne weather radar HSI Map overlay.
4) Press the **RDR Opt** Softkey.
5) Press the **Features** Softkey.
6) Press the **WX ALRT** Softkey to enable/disable the Weather Alert Bands and 'Alerts' Window message for severe weather head.
7) Press the **Back** Softkey three times to return to the top-level softkeys.

GROUND MAPPING AND INTERPRETATION

Ground Map Mode Color	Intensity
Black	0 to 2 dB
Cyan	3 dB to < 13 dB
Yellow	13 dB to less than 21 dB
Magenta	21 dB to less than 29 dB
Blue	29 dB and greater

Ground Target Return Intensity Levels

Operation in Ground Map Mode:

1) Press the **Mode** Softkey.
2) Press the **Ground** Softkey to place the radar in Ground Map mode.
3) Press the **Back** Softkey.
4) Press the **FMS** Knob to activate the cursor.
5) Turn the large **FMS** Knob to place the cursor in the 'Tilt' Field.
6) Adjust the antenna tilt angle by turning the small **FMS** Knob to display ground returns at the desired distance.
7) Press the **FMS** Knob to remove the cursor.

ADDITIONAL WEATHER RADAR DISPLAYS

Enabling/disabling Airborne Weather Radar Overlay on the 'Map - Navigation Map' Page:

1) Select the 'Map- Navigation Map' Page.
2) Select the **Map Opt** Softkey.
3) Select the **WX Radar** Softkey.

Or:

1) On the 'Map - Navigation Map' Page, press the **MENU** Key.
2) With 'Map Settings' highlighted, press the **ENT** Key.

3) Turn the small **FMS** Knob to select the 'Weather' group, then press the **ENT** Key.
4) Turn the large **FMS** Knob to scroll through the product selections and highlight the 'Weather Radar' overlay selection ('On' or 'Off'). Turn the small **FMS** knob to highlight the desired selection.
5) To remove the menu, press the **FMS** Knob or **CLR** Key.

Adjusting the bearing and antenna tilt angle on the 'Map - Navigation Map' Page:

1) With the weather radar overlay enabled, push the **Joystick** twice. The bearing and tilt legend is displayed.
2) Move the **Joystick** up to adjust the antenna tilt angle downward, or move the **Joystick** up to adjust the antenna tilt angle upward.
3) Move the **Joystick** left or right to adjust the bearing line in the desired direction. The bearing line is displayed during and momentarily after adjustment.

Controlling of weather radar information on the HSI Map (GWX-70/75):

1) If necessary, enable the HSI Map on the PFD.
2) On the PFD, press the **Map/HSI** Softkey.
3) Press the **Wx Radar** Softkey to enable/disable the airborne weather radar HSI Map overlay.
4) Press the **RDR Opt** Softkey.
5) To select a weather radar mode, press the **Mode SEL** Softkey
   a) Press a softkey for the desired mode: **Standby**, **Weather,** or **Ground**.
   b) When finished, press the **Back** Softkey.
6) Press the **Gain-** Softkey to decrease the gain setting or press the **Gain+** Softkey to increase the gain setting in increments of 0.5 with each press, or press and hold the softkey for continuous adjustment. A gain setting of 0.0 is equivalent to the calibrated gain setting.
7) Move the PFD **Joystick** up to adjust the antenna tilt angle downward, or move the **Joystick** down to adjust the antenna tilt angle upward.
8) Press the **WX Alert** Softkey to enable/disable the display of Weather Alerts.
9) Press the **ACT** Softkey to enable/disable the Altitude Compensated Tilt feature.
10) Press the **GCS** Softkey to enable/disable the optional Ground Clutter Suppression feature.
11) Press the **TURB** Softkey to enable/disable the optional Turbulence Detection feature.
12) When finished adjusting the HSI Map display of the airborne weather radar, press the **Back** Softkey.

TERRAIN DISPLAYS

WARNING: *Do not use terrain avoidance displays as the sole source of information for maintaining separation from terrain and obstacles. Garmin obtains terrain and obstacle data from third party sources and cannot independently verify the accuracy of the information.*

Displaying terrain and obstacle information (MFD maps other than the terrain page):

1) Press the **Map Opt** Softkey (for the PFD Inset Map, press the **Map/HSI** Softkey).
2) Press the **TER** Softkey to cycle through a terrain option with each press. The selected mode is displayed in cyan: Off, Topo, REL. Press the **TER** Softkey as needed until 'REL' is displayed on the softkey.

Displaying relative terrain information on PFD Inset Map or HSI Map

1) Press the **Map/HSI** Softkey.
2) Press the **Rel Ter** Softkey.

Customizing terrain and obstacle display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
   - Terrain Display - Turns the display of relative ('REL') terrain data on or off and sets maximum range at which terrain is shown.
   - Point Obstacle– Turns the display of obstacle data on or off and sets maximum range at which obstacles are shown
   - Wire Obstacle – Enables/disables the display of wire obstacle data and sets maximum range at which wire obstacles are shown
6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or press the **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

Terrain Page

Displaying the terrain page:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Terrain Proximity Page/Terrain-SVT' Page.

Showing/hiding aviation information on the terrain page:

1) Press the **MENU** Key.
2) Select 'Show Aviation Data' or 'Hide Aviation Data' (choice dependent on current state) and press the **ENT** Key.

TRAFFIC INFORMATION SERVICE (TIS)

WARNING: *Do not rely solely upon the display of traffic information for collision avoidance maneuvering. The traffic display does not provide collision avoidance resolution advisories and does not under any circumstances or conditions relieve the pilot's responsibility to see and avoid other aircraft.*

DISPLAYING TRAFFIC DATA

Enabling/disabling traffic overlays (MFD navigation maps):

1) Press the **Map Opt** Softkey.
2) Press the **Traffic** Softkey. Traffic is now displayed on the navigation map.

Enabling/disabling traffic information on the PFD Inset Map or HSI Map:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Traffic** Softkey to enable/disable the display traffic information on the Inset Map or HSI Map.

Customizing traffic display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Traffic' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
   - Traffic – Turns the display of traffic data on or off
   - Traffic Mode – Selects the traffic mode for display; select from:
     - All Traffic - Displays all traffic
     - TA/PA - Traffic Alerts and Proximity Alerts.
     - TA Only - Displays Traffic Alerts only
   - Traffic Symbols – Selects the maximum range at which traffic symbols are shown
   - Traffic Labels – Selects the maximum range at which traffic labels are shown (with the option to turn off)
6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings, etc.).

7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

TRAFFIC MAP PAGE

Displaying traffic on the Traffic Map Page:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Traffic Map' Page.
3) Confirm TIS is in Operating Mode:
   a) Press the **TIS OPER** Softkey to begin displaying traffic.

   Or:

   a) Press the **MENU** Key.
   b) Select 'Operate Mode' (shown if TIS is in Standby Mode) and press the **ENT** Key.

TIS ALERTS

Muting the "TIS Not Available" voice alert:

1) Select the 'Map - Traffic Map' Page.
2) Press the **TNA Mute** Softkey. The status is displayed in the upper left corner of the Traffic Map Page.

   Or:

   a) Press the **MENU** Key.
   b) Select "'Not Available" Mute On' (shown if TNA muting is currently off) and press the **ENT** Key.

SYSTEM STATUS

Switching between TIS modes:

1) Select the 'Map - Traffic Map' Page.
2) Press the **Standby** or **Operate** Softkey to switch between modes. The mode is displayed in the upper right corner of the Traffic Map Page.

   Or:

   a) Press the **MENU** Key.
   b) Select 'Operate Mode' or 'Standby Mode' (choice dependent on current state) and press the **ENT** Key.

TAS TRAFFIC

WARNING: *Do not rely solely upon the display of traffic information for collision avoidance maneuvering. The traffic display does not provide collision avoidance resolution advisories and does not under any circumstances or conditions relieve the pilot's responsibility to see and avoid other aircraft.*

WARNING: *Do not rely solely upon the display of traffic information to accurately depict all of the traffic information within range of the aircraft. Due to lack of equipment, poor signal reception, and/or inaccurate information from other aircraft, traffic may be present but not represented on the display.*

Traffic Symbol	Description
	Other Non-Threat Traffic
	Proximity Advisory (PA)
	Traffic Advisory (TA)
	Traffic Advisory Off Scale

TAS Symbol Description

Traffic Symbol	Description
	Traffic Advisory with ADS-B directional information. Points in the direction of the intruder aircraft track.
	Proximity Advisory with ADS-B directional information. Points in the direction of the aircraft track.
	Other Non-threat traffic with ADS-B directional information. Points in the direction of the intruder aircraft track.

Traffic with ADS-B Symbology (GTX 335R Transponder)

Symbol	Description
	Traffic Advisory with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory with ADS-B directional information is beyond the selected display range. Displayed at outer range ring at proper bearing. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with ADS-B directional information. Arrow points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with ADS-B directional information. Arrow points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Pointed end indicates direction of travel. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

ADS-B Traffic Symbology with GTX 345R Transponder

SYSTEM TEST

Testing the traffic system:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Traffic Map' Page.
3) Turn the **Joystick** to set the range to 2/6 nm to allow for full test pattern to be displayed during test.
4) Press the **Standby** or **TAS STBY** Softkey.
5) Press the **Test** Softkey.

Or:

1) With the Traffic system in Standby mode, press the MENU Key.
2) Turn the small **FMS** Knob to select 'Test Mode'.
3) Press the **ENT** Key.

OPERATION

Changing traffic system modes on the 'Map - Traffic Map' Page:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Traffic Map' Page.
3) Press the **Operate** or **TAS OPER** Softkey to begin displaying traffic. 'TAS: OPERATING' is displayed in the Traffic mode field.
4) Press the **Standby** or **TAS STBY** Softkey to place the system in the Standby mode. 'TAS: STANDBY' is displayed in the Traffic mode field.

Or:

1) With the 'Map - Traffic Map' Page displayed, press the **MENU** Key.
2) Turn the small **FMS** knob to highlight the desired mode.
3) Press the **ENT** Key.

Altitude Display Mode

Changing the altitude range:

1) On the 'Map - Traffic Map' Page, select the **ALT Mode** Softkey.
2) Select one of the following Softkeys:

   • **Above:** Displays Other Non-Threat and Proximity Advisory traffic from 9900 feet above the aircraft to 2700 feet below the aircraft. Typically used during climb phase of flight.

   • **Normal:** Displays Other Non-Threat and Proximity Advisory traffic from 2700 feet above the aircraft to 2700 feet below the aircraft. Typically used during enroute phase of flight.

- **Below:** Displays Other Non-Threat and Proximity Advisory traffic from 2700 feet above the aircraft to 9900 feet below the aircraft. Typically used during descent phase of flight.
- **UNREST** (unrestricted)**:** All traffic is displayed from 9900 feet above and 9900 feet below the aircraft.

3) To return to the Traffic Page, select the **Back** Softkey.

Or:

1) Press the **MENU** Key.
2) Turn the small **FMS** Knob to select one of the following (see softkey description in the previous step 2):
   - Above
   - Normal
   - Below
   - Unrestricted
3) Select the **ENT** Softkey.

Traffic Map Page Display Range

Changing the display range on the 'Map - Traffic Map' Page:

1) Turn the **Joystick**.
2) The following range options are available:
   - 750 ft (with optional ADS-B)
   - 750 ft and 1500 ft (with optional ADS-B)
   - 1500 ft and 0.5 nm (with optional ADS-B)
   - 0.5 nm and 1 nm (with optional ADS-B)
   - 1 nm and 2 nm (with optional ADS-B)
   - 2 nm
   - 2 and 6 nm
   - 6 and 12 nm
   - 12 and 24 nm
   - 24 and 40 nm (available with ADS-B)

Additional Traffic Displays

Enabling/disabling traffic information (MFD maps other than the 'Map - Traffic Map' Page):

1) Press the **Map Opt** Softkey.
2) Press the **Traffic** Softkey. Traffic is now displayed on the map.

Customizing the traffic display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the Traffic Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through the selections.
   - Traffic – Turns the display of traffic data on or off
   - Traffic Mode – Selects the traffic mode for display; select from:
     - All Traffic - Displays all traffic
     - TA/PA - Displays only Traffic Advisories and Proximity Advisories
     - TA Only - Displays Traffic Advisories only
   - Traffic Symbols – Selects the maximum range at which traffic symbols are shown
   - Traffic Labels – Selects the maximum range at which traffic labels (relative altitude, vertical trend) are shown with the option to turn off
6) Turn the small **FMS** Knob to scroll through options (On/Off, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page.

Enabling/disabling traffic overlay on PFD navigation maps:

1) With the Inset Map or HSI Map displayed, press the **Map/HSI** Softkey on the PFD.
2) Press the **Traffic** Softkey to enable/disable the display traffic information.

ADS-B TRAFFIC

WARNING: *Do not rely solely upon the display of traffic information for collision avoidance maneuvering. The traffic display does not provide collision avoidance resolution advisories and does not under any circumstances or conditions relieve the pilot's responsibility to see and avoid other aircraft.*

WARNING: *Do not rely solely upon the display of traffic information to accurately depict all of the traffic information within range of the aircraft. Due to lack of equipment, poor signal reception, and/or inaccurate information from other aircraft, traffic may be present but not represented on the display.*

Symbol	Description
	Traffic Advisory with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory with ADS-B directional information is beyond the selected display range. Displayed at outer range ring at proper bearing. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with ADS-B directional information. Arrow points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with ADS-B directional information. Arrow points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Pointed end indicates direction of travel. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

ADS-B Traffic Symbology

OPERATION

Traffic MAP Page

Enabling/disabling the display of ADS-B traffic:

1) Select the 'Map - Traffic Map' Page.
2) Press the **ADS-B** Softkey.

   Or:

   a) Press the **MENU** Key and turn the small **FMS** Knob to highlight 'ADS-B On' or 'ADS-B Off'.

   b) Press the **ENT** Key.

Testing the display of ADS-B traffic:

1) Select the 'Map - Traffic Map' Page.
2) If necessary, turn the Joystick to select a map range of 2 and 6 nm to ensure full test pattern display.
3) Ensure the **ADS-B** Softkey is disabled.
4) If the optional TAS is installed, ensure the **TAS STBY** Softkey is enabled.
5) Press the **Test** Softkey.

   Or:

   a) Press the **MENU** Key.

   b) Turn the small **FMS** Knob to highlight 'Test Mode'.

   c) Press the **ENT** Key.

Changing the altitude range:

1) On the 'Map - Traffic Map' Page, press the **ALT Mode** Softkey.
2) Press one of the following softkeys:

   • **Above:** Displays Other Non-Threat and proximity traffic from 9000 feet above the aircraft to 2700 feet below the aircraft. Typically used during climb phase of flight.

   • **Normal:** Displays Other Non-Threat and proximity traffic from 2700 feet above the aircraft to 2700 feet below the aircraft. Typically used during enroute phase of flight.

   • **Below:** Displays Other Non-Threat and proximity traffic from 2700 feet above the aircraft to 9000 feet below the aircraft. Typically used during descent phase of flight.

   • **UNREST** (unrestricted)**:** All traffic is displayed from 9900 feet above and 9900 feet below the aircraft.
3) To return to the 'Map - Traffic Map' Page, press the **Back** Softkey.

   Or:

1) Press the **MENU** Key.

2) Turn the small **FMS** Knob to highlight one of the following options (see softkey description in the previous step
   - Above
   - Normal
   - Below
   - Unrestricted
3) Press the **ENT** Key.

Displaying Motion Vectors

Enabling/disabling the Motion Vector display:

1) Press the 'Map -Traffic Map' Page.
2) Press the **Motion** Softkey.
3) Select one of the following softkeys:
   - **Absolute:** Displays the motion vector pointing in the absolute direction.
   - **Relative**: Displays the motion vector relative to own aircraft
   - **Off**: Disables the display of the motion vector.

   Or:
1) Select the 'Map -Traffic Map' Page.
2) Press the **MENU** Key.
3) Turn the small **FMS** Knob to highlight 'Relative Motion', 'Absolute Motion' or 'Motion Vector Off'.
4) Press the **ENT** Key.

Adjusting the duration for the Motion Vector projected time:

1) Select the 'Map - Traffic Map' Page.
2) Press the **Motion** Softkey.
3) Press the **Duration** Softkey.
4) Press a softkey for the desired duration (**30 SEC**, **1 MIN**, **2 MIN**, **5 MIN**).
5) When finished, press the **Back** Softkey to return to the 'Map - Traffic Map' Page.

Displaying Additional Traffic Information

Showing additional traffic information:

1) Select the 'Map - Traffic Map' Page.
2) Push the **FMS** Knob. A cyan border appears on the first selected traffic symbol. Additional information appears in a window in the lower-left corner of the 'Map - Traffic Map' Page.

3) To select a different aircraft symbol, turn the **FMS** Knob to move the cyan border until another symbol is selected.
4) When finished, push the **FMS** Knob again to disable the traffic selection.

Traffic Map Page Display Range

Changing the display range on the Traffic Map Page:

1) Turn the **Joystick**.
2) The following range options are available:
   - 750 feet
   - 750 feet and 1500 feet
   - 1500 feet and 0.5 nm
   - 0.5 and 1 nm
   - 1 and 2 nm
   - 2 and 6 nm
   - 6 and 12 nm
   - 12 and 24 nm
   - 24 and 40 nm

ADS-B SYSTEM STATUS

Viewing ADS-B Traffic Status:

1) Turn the large **FMS** Knob to select the Aux Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - ADS-B Status' Page.

AUTOMATIC FLIGHT CONTROL SYSTEM

NOTE: The approved current, pertinent flight manual always supersedes the information in this Pilot's Guide.

BASIC AUTOPILOT OPERATION

– **Autopilot Engagement —** The autopilot may be engaged by pushing the **AP** Key. Annunciations regarding the engagement are indicated on the PFD.

– **Autopilot Engagement with Flight Director Off —** Upon engagement, the autopilot will be set to hold the current attitude of the airplane, if the flight director was not previously on. In this case, 'PIT' and 'ROL' will be annunciated.

– **Autopilot Engagement with Flight Director On —** If the flight director is on, the autopilot will smoothly pitch and roll the airplane to capture the FD command bars. The prior flight director modes remain unchanged.

– **Autopilot Disengagement —** The most common way to disconnect the autopilot is to press and release the **AP DISC/AP TRIM** Switch, which is located on the control stick. An autopilot disconnect tone will be heard and annunciated on the PFD. Other ways to disconnect the autopilot include:

» Pressing the **AP Key**

» Pressing the **AP TRIM** switch (disengages the autopilot, but leaves the YD engaged)

» Pulling the autopilot circuit breaker

In the event of unexpected autopilot behavior, pressing and holding the **AP DISC/AP TRIM** Switch will disconnect the autopilot and remove all power to the servos.

FLIGHT DIRECTOR OPERATION

ACTIVATING THE FLIGHT DIRECTOR

Control Pressed	Modes Selected			
	Lateral		Vertical	
FD Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
CWS Button	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
GO AROUND Button	Takeoff (on ground) Go Around (in air)	TO GA	Takeoff (on ground) Go Around (in air)	TO GA
ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
VNV Key	Roll Hold (default)	ROL	Vertical Path Tracking[1]	VPTH
NAV Key	Navigation[2]	GPS VOR LOC BC	Pitch Hold (default)	PIT
APR Key	Approach[2]	GPS VOR LOC	Pitch Hold (default)	PIT GP GS
HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT

[1] *Valid VNV flight plan must be entered before* **VNV** *Key press activates the Flight Director.*

[2] *The selected navigation receiver must have a valid VOR or LOC signal or active GPS course before* ***NAV*** *or* ***APR*** *Key press activates the Flight Director.*

AFCS MODES

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation	
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/descend to the Selected Altitude	(default)	PIT	
Selected Altitude Capture	Captures the Selected Altitude	[1]	ALTS	
Altitude Hold	Holds the current Altitude Reference	**ALT** Key	ALT	nnnnn FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	**VS** Key	VS	nnnn FPM
Flight Level Change	Maintains the current aircraft airspeed while the aircraft is climbing/descending to the Selected Altitude	**FLC** Key	FLC	nnn KT

[1] *ALTS armed automatically when PIT, VS, FLC, TO, or GA active, and under VPTH when Selected Altitude is to be captured instead of VNV Target Altitude*

LATERAL MODES

Lateral Mode	Description	Control	Annunciation	Maximum Roll Command Limit
Roll Hold	Holds the current aircraft roll attitude or rolls the wings level, depending on the commanded bank angle	(default)	ROL	25°
Heading Select	Captures and tracks the Selected Heading	**HDG** Key	HDG	25°
Navigation, GPS	Captures and tracks the selected navigation source (GPS, VOR, LOC)	**NAV** Key	GPS	25°
Navigation, VOR Enroute Arm/ Capture/Track			VOR	25° Capture 10° Track
Navigation, LOC Capture/Track (No Glideslope)			LOC	25° Capture 10° Track

COMBINATION MODES

Mode	Description	Control	Annunciation
Vertical Path Tracking	Captures and tracks descent legs of an active vertical profile	**VNV** Key	VPTH
VNV Target Altitude Capture	Captures the Vertical Navigation (VNV) Target Altitude	[1]	ALTV
Glidepath	Captures and tracks the SBAS glidepath on approach	**APR** Key	GP
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Backcourse Arm/Capture/ Track	Captures and tracks a localizer signal for backcourse approaches	**BC** Key	BC

Mode	Description	Control	Annunciation
Approach, GPS Arm/ Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	**APR** Key	GPS
Approach, VOR Arm/ Capture/Track			VAPP
Approach, ILS Arm/Capture/ Track (Glideslope Mode automatically armed)			LOC
Takeoff	Commands a constant pitch angle and wings level on the ground in preparation for takeoff	**GO-AROUND** Button	TO
Go Around[2]	Commands a constant pitch angle and wings level in the air	**GO-AROUND** Button	GA
Level	Autopilot engages and commands pitch angle necessary to establish zero vertical fpm	[3]	LVL

[1] *ALTV is armed automatically under VPTH when VNV Target Altitude is to be captured instead of Selected Altitude.*

[2] *Go Around mode disengages the autopilot unless a compatible lift computer is installed.*

[3] *Level mode can only become activated as a function of Electronic Stability and Protection (ESP). Refer to the Additional Features section for a detailed discussion of the optional ESP feature.*

Selecting Glidepath Mode:

1) Ensure a GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).
2) Ensure that GPS is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).
3) Press the **APR** Key.

NOTE: *Some RNAV (GPS) approaches provide a vertical descent angle as an aid in flying a stabilized approach. These approaches are NOT considered Approaches with Vertical Guidance (APV). Approaches that are annunciated on the HSI as LNAV or LNAV+V should be flown to an MDA, until visual with the landing surface, even though vertical glidepath (GP) information may be provided.*

WARNING: *Do not rely on the autopilot to level the aircraft at the MDA/DH when flying an approach with vertical guidance. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.*

Selecting Glideslope Mode:

1) Ensure a valid localizer frequency is tuned.
2) Ensure that LOC is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).
3) Press the **APR** Key.

Or:

1) Ensure that GPS is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).
2) Ensure a LOC/ILS approach is loaded into the active flight plan.
3) Ensure the corresponding LOC frequency is tuned.
4) Press the **APR** Key.

Selecting VOR Approach Mode:

1) Ensure a valid VOR frequency is tuned
2) Ensure that VOR is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).
3) Press the **APR** Key.

Selecting GPS Approach Mode:

1) Ensure a GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).

2) Ensure that GPS is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).

3) Press the **APR** Key.

Selecting LOC Approach Mode:

1) Ensure a valid localizer frequency is tuned.

2) Ensure that LOC is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).

3) Press the **APR** Key.

Or:

1) Ensure that GPS is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).

2) Ensure a LOC/ILS approach is loaded into the active flight plan.

3) Ensure the corresponding LOC frequency is tuned.

4) Press the **APR** Key.

NOTE: *When making a backcourse approach, set the Selected Course to the localizer front course.*

Blank Page

ADDITIONAL FEATURES

SAFETAXI

SafeTaxi is an enhanced feature that gives greater map detail when viewing airports at close range. The maximum map ranges for enhanced detail are pilot configurable. When viewing at ranges close enough to show the airport detail, the map reveals taxiways with identifying letters/numbers, airport Hot Spots, and airport landmarks including ramps, buildings, control towers, and other prominent features.

Configuring SafeTaxi range:

1) While viewing the 'Map-Navigation Map' Page, press the **MENU** Key to display the 'Page Menu.'
2) Turn the large **FMS** Knob to highlight the 'Map Settings' Menu Option and press the **ENT** Key.
3) Turn the **FMS** Knob to select the 'Aviation' Group and press the **ENT** Key.
4) Turn the large **FMS** Knob to scroll through the 'Aviation' Group options to SafeTaxi.
5) Turn the small **FMS** Knob to display the range of distances.
6) Turn either **FMS** Knob to select the desired distance for maximum SafeTaxi display range.
7) Press the **ENT** Key to complete the selection.
8) Press the **FMS** Knob to return to the 'Map-Navigation Map' Page.

SURFACEWATCH

WARNING: *Do not use SurfaceWatch™ information as the primary method of flight guidance during airborne or ground operations. SurfaceWatch does not have NOTAM or ATIS information regarding the current active runway, condition, or information about the position of hold lines.*

NOTE: *The SafeTaxi database must be available to provide information regarding taxiways, aprons, and other objects in the airport environment.*

NOTE: *When the flight plan is modified, data manually entered on the 'FPL - SurfaceWatch' Page will be cleared.*

Entering origin/destination airport:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the Origin or Destination Airport field.
4) Use the **FMS** Knobs to input the desired Origin or Destination Airport.

Selecting origin/destination runway:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the Runway or Landing Runway field.
4) Turn the small **FMS** Knob to select the desired available Runway or Landing Runway. As the small **FMS** Knob is turned, the preview of the selected runway or landing runway is also displayed.

Selecting required takeoff/landing distance:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the REQD Takeoff DIS or REQD Landing DIS field.
4) Use the **FMS** Knobs to enter the required takeoff or landing distance. Upon pushing the **FMS** Knob and committing the required takeoff or landing distance, the Runway Length field will turn amber if an insufficient runway length exists.

WARNING: *Always refer to current aeronautical charts and NOTAMs for verification of displayed aeronautical information. Displayed aeronautical data may not incorporate the latest NOTAM information.*

WARNING: *Do not rely on the displayed minimum safe altitude (MSAs) as the sole source of obstacle and terrain avoidance information. Always refer to current aeronautical charts for appropriate minimum clearance altitudes.*

WARNING: *Do not rely on the autopilot to level the aircraft at the MDA/DH when flying an approach with vertical guidance. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.*

NOTE: *Do not rely solely upon datalink services to provide Temporary Flight Restriction (TFR) information. Always confirm TFR information through official sources such as Flight Service Stations or Air Traffic Control.*

NOTE: *Electronic aeronautical charts displayed on this system have been shown to meet the guidance in AC 120-76D as a Type 'B' Electronic Flight Bag (EFB) for FliteCharts and ChartView. The accuracy of the charts is subject to the chart data provider. Own-ship position on airport surface charts cannot be guaranteed to meet the accuracy specified in AC 120-76D. Possible additional requirements may make a secondary source of aeronautical charts, such as traditional paper charts or an additional electronic display, necessary on the aircraft and available to the pilot. If the secondary source of aeronautical charts is a Portable Electronic Device (PED), its use must be consistent with the guidance in AC 120-76D.*

NOTE: *The pilot/operator must have access to Garmin and Jeppesen database alerts and consider their impact on the intended aircraft operation. The database alerts can be viewed at flygarmin.com by selecting 'Aviation Database Alerts.'*

Selecting Preferred Charts Source:

1) While viewing a chart press the **MENU** Softkey to display the Page Menu Options.
2) Turn the large **FMS** Knob to highlight the Chart Setup menu option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move to the Preferred Charts Source option.
4) Turn the small **FMS** Knob to choose between the available options (FliteCharts, ChartView).

FLITECHARTS

FliteCharts resemble the paper version of AeroNav Services terminal procedures charts. The charts are displayed with high-resolution and in color for applicable charts.

The geo-referenced aircraft position is indicated by an aircraft symbol displayed on the chart when the current position is within the boundaries of the chart. Not all charts are geo-referenced. These charts will display an Aircraft Not Shown Icon in the lower right corner of the MFD.

Terminal Procedures Charts

Selecting Terminal Procedures Charts:

While viewing the 'Map-Navigation Map' Page, 'NRST-Nearest Airport' Page, or 'FPL-Active Flight Plan' Page, press the **Charts** Softkey.

Or:

1) From the 'Map-Chart + Navigation Map' page, press the **MENU** Key to display the 'Page Menu.'
2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Show Departure Chart', 'Show Arrival Chart'or 'Show Approach Chart'.
3) Press the **ENT** Key to display the chart.

Selecting a chart:

1) While viewing the 'Map-Navigation Map' Page, 'FPL-Flight Plan' Page, or 'NRST-Nearest Airports' Page, select the **Charts** Softkey. The airport diagram or approach chart is displayed on the 'WPT-Airport Information' Page.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to select either the Airport Identifier Field or the 'Charts' Field.
4) Turn the small and large **FMS** Knob to enter the desired airport identifier.
5) Press the **ENT** Key to complete the airport selection. The flashing cursor is moved to the 'Charts' Field.
6) Turn the small **FMS** Knob to show the approach chart selection choices.
7) Turn either **FMS** Knob to scroll through the available charts.
8) Press the **ENT** Key to complete the chart selection.

Selecting Additional Information:

1) While viewing the Airport Taxi Diagram, press the **WX** Softkey to display the information windows.
2) Push the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the 'Info' Box.
4) Turn the small **FMS** Knob to select the 'Info' Box choices. When the 'Info' Box is selected the softkeys are blank. If multiple choices are available, scroll to the desired choice with the large **FMS** Knob and press the **ENT** Key to complete the selection.
5) Push the **FMS** Knob again to deactivate the cursor.

Selecting full screen On or Off:

1) While viewing a terminal chart press the **MENU** Key to display the 'Page Menu' Options.
2) Turn the large **FMS** Knob to highlight 'Full Scree (On/Off)'.
3) Press the **ENT** Key to enable or disable Full Screen Mode.

Syncing charts to the current phase of flight:

1) While viewing a chart, press the **MENU** Softkey to display the 'Page Menu.'
2) Turn the large **FMS** Knob to highlight the 'Charts Setup' menu option and press the **ENT** Key.

3) Turn the large **FMS** Knob to move to the 'Phase of Flight' option in the 'AUTO Chart Update' Box.
4) With the 'Phase of Flight' option highlighted, turn the small **FMS** Knob to choose either 'On' or 'Off.'

Day/Night View

Selecting Day, Night, or Automatic View:

1) While viewing a terminal chart press the **MENU** Key to display the Page Menu 'Options.'
2) Turn the large **FMS** Knob to highlight the 'Chart Setup' Menu Option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move to the 'Color Scheme' Option.
4) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
5) If Auto Mode is selected, turn the large **FMS** Knob to select the percentage field. Use the small **FMS** Knob to change the percentage value. The percentage value is the day/night crossover point based on the percentage of backlighting intensity. For example, if the value is set to 15%, the day/night display changes when the display backlight reaches 15% of full brightness.

   The display must be changed in order for the new setting to become active. This may be accomplished by selecting another page or changing the display range.
6) Push the **FMS** Knob when finished to remove the 'Chart Setup' Menu.

CHARTVIEW

ChartView resembles the paper version of Jeppesen terminal procedures charts. The charts are displayed in full color with high-resolution. The MFD depiction shows the aircraft position on the moving map in the planview of approach charts and on airport diagrams. Airport Hot Spots are outlined in magenta.

Selecting Terminal Procedures Charts:

While viewing the 'Map-Navigation Map' Page, NRST-Nearest Airport' Page, or 'FPL-Flight Plan' Page, select the **Charts** Softkey.

Or:

1) From the 'Map-Chart + Navigation Map' page, press the **MENU** Key to display the 'Page Menu.'
2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Show Departure Chart', 'Show Arrival Chart'or 'Show Approach Chart'.
3) Press the **ENT** Key to display the chart.

Selecting a chart:

1) While viewing the 'Map-Navigation Map' Page, press the **Charts** Softkey.
2) Press the **FMS** Knob to activate the cursor.

3) Turn the large **FMS** Knob to select either the Airport Identifier Field or the 'Charts' Field.
4) Turn the small and large **FMS** Knob to enter the desired airport identifier.
5) Press the **ENT** Key to complete the airport selection. The flashing cursor is moved to the 'Charts' Field.
6) Turn the small **FMS** Knob to show the approach chart selection choices.
7) Turn either **FMS** Knob to scroll through the available charts.
8) Press the **ENT** Key to complete the chart selection.

Selecting Additional Information:

1) While viewing the Airport Taxi Diagram, press the **Full SCN** Softkey to display the information windows (Airport, Info).
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the Airport, Info, Runways, or Frequencies Box.
4) Turn the small **FMS** Knob to select the Info Box choices. If multiple choices are available, scroll to the desired choice with the large **FMS** Knob and press the **ENT** Key to complete the selection.
5) Press the **FMS** Knob again to deactivate the cursor.

Selecting full screen On or Off:

1) While viewing a terminal chart press the **MENU** Key to display the 'Page Menu' Options.
2) Turn the large **FMS** Knob to highlight 'Full Scree (On/Off)'.
3) Press the **ENT** Key to enable or disable Full Screen Mode.

Selecting Day, Night, or Automatic View:

1) While viewing a terminal chart press the **MENU** Key to display the 'Page Menu' Options.
2) Turn the large **FMS** Knob to highlight the 'Chart Setup' Menu Option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move to the 'Color Scheme' Option.
4) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
5) If Auto Mode is selected, turn the large **FMS** Knob to select the percentage field. Use the small **FMS** Knob to change the percentage value. The percentage value is the day/night crossover point based on the percentage of backlighting intensity. For example, if the value is set to 15%, the day/night display changes when the display backlight reaches 15% of full brightness.

   The display must be changed in order for the new setting to become active. This may be accomplished by selecting another page or changing the display range.
6) Push the **FMS** Knob when finished to remove the 'Chart Setup' Menu.

IFR/VFR CHARTS

Selecting IFR Low, IFR High, VFR Charts:

1) Select the 'Map - IFR/VFR Charts' Page.
2) Press the **VFR**, **IFR Low**, or **IFR High** Softkey to display the desired chart.

Or:

1) Press the **MENU** Key to display the 'Page Menu.'
2) Select 'Display VFR', 'Display IFR Low' or 'Display IFR High' to display the desired chart.
3) Press the **ENT** Key.

DATABASE MANAGEMENT

CAUTION: *Never disconnect power to the system when loading a database. Power interruption during the database loading process could result in maintenance being required to reboot the system.*

Viewing database information:

1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - System Status' Page.
3) Touch the softkey corresponding to the display (**MFD1** or **PFD1**) for which the database information will be viewed.
4) Press the **FMS** Knob to activate the flashing cursor in the 'MFD1 Database' or the 'PFD1 Database' Window.
5) Scroll to display the appropriate database information by turning the **FMS** Knob or pressing the **ENT** Key until the applicable database information is shown.

SIRIUSXM SATELLITE RADIO ACTIVATING SIRIUSXM SATELLITE RADIO SERVICES

The service is activated by providing SiriusXM Satellite Radio with either one or two coded IDs, depending on the equipment. The Audio Radio ID (XM Weather), the Data Radio ID (XM Radio), or both, must be provided to SiriusXM Satellite Radio to activate the entertainment subscription.

It is not required to activate both the entertainment and weather service subscriptions separately with the SiriusXM Datalink Receiver. Either service can be activated. SiriusXM Satellite Radio uses the coded IDs to send an activation signal that, when received by the SiriusXM Datalink Receiver, allows it to play entertainment programming.

These IDs are located:

– On the label on the back of the SiriusXM Datalink Receiver.

– On the 'Aux - XM Information' Page on the MFD.

– On the XM Satellite Radio Activation Instructions included with the unit.

Contact the installer if the Data Radio ID and the Audio Radio ID cannot be located.

Activating the SiriusXM Satellite Radio services:

1) After gathering the Audio Radio ID and the Data Radio ID, contact SiriusXM and complete subscription activation.
2) Turn the large **FMS** Knob to select the 'Aux' Page Group.
3) Turn the small **FMS** Knob to select the 'Aux - XM Radio' Page.
4) Select the **Info** Softkey to display the 'Aux - XM Information' Page.
5) Verify the desired services are activated.
6) Select the **Lock** Softkey. A confirmation window is displayed.
7) Turn the large **FMS** Knob to highlight 'Yes.'
8) To complete activation, press the **ENT** Key.

Selecting the 'Aux - XM Radio' Page:

1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - XM Radio' Page.
3) If not already selected, press the **Radio** Softkey to show the 'Aux - XM Radio' Page where audio entertainment is controlled.

Selecting a channel from the 'Channels' List:

1) While on the 'Aux - XM Radio' Page, press the **Channel** Softkey.
2) Press the **CH +** Softkey to go up through the list of channels, or move down the list with the **CH –** Softkey.

Or:

1) From the 'Aux - XM Radio' Page, press the **FMS** Knob to highlight the 'Channels' List and turn the large **FMS** Knob to scroll through the channels.
2) Press the **ENT** Key to activate the selected channel.

Selecting a channel directly:

1) While on the 'Aux - XM Radio' Page, press the **Channel** Softkey.
2) Press the **Direct CH** Softkey. The channel number in the 'Active Channel' Box is highlighted.
3) Press the numbered softkeys located on the bottom of the display to directly select the desired channel number.
4) Press the **ENT** Key to activate the selected channel.

Selecting a category:

1) While on the 'Aux - XM Radio' Page, press the **Category** Softkey.
2) Press the **CAT +** and **CAT -** softkeys to cycle through the categories.

Or:

1) Press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to select the 'Categories' Field.
3) Using the small **FMS** Knob, highlight the desired category and press the **ENT** Key. Selecting 'All Categories' places all channels in the list.

Setting a preset channel number:

1) On the 'Aux - XM Radio' Page, while listening to an active channel, press the **Presets** Softkey to access the first five preset channels (**Preset 1 - Preset 5**).
2) Press the **More** Softkey to access the next five channels (**Preset 6 – Preset 10**), and again to access the last five channels (**Preset 11 – Preset 15**). Pressing the **More** Softkey repeatedly cycles through the preset channels.
3) Press any one of the (**Preset 1 - Preset 15**) softkeys to assign a number to the active channel.
4) Press the **Set** Softkey on the desired channel number to save the channel as a preset.

Adjusting the volume:

1) With the 'Aux - XM Radio' Page displayed, press the **Volume** Softkey.
2) Press the **VOL –** Softkey to reduce volume or press the **VOL +** Softkey to increase volume. Once the **VOL** Softkey is pressed, the volume can also be adjusted using the small **FMS** Knob. Volume can also be adjusted with the Audio Panel **Volume** Knob. See the Audio Panel and CNS Section for further information. Volume can also be adjusted with the Audio Panel Volume Knob when **MUS1**, **MUS2**, or **MUSIC/MUS** Buttons are pressed, as applicable.

Muting SiriusXM audio:

Refer to the Audio Panel Controls in Section 4 for SiriusXM muting instructions.

SATELLITE TELEPHONE AND DATALINK SERVICES

NOTE: *An account must be established to access the Iridium Satellite Network for voice and SMS Services.*

REGISTERING THE SYSTEM WITH GARMIN CONNEXT

Registering the system for datalink services:

1) Using the **FMS** Knob, select the 'Aux - System Status' Page.
2) Touch the **LRU** Softkey, if not already selected.

3) Press the **FMS** Knob to activate the cursor.
4) Use the large **FMS** Knob to view 'GSR 1.'
5) Note the GSR 1 Serial Number. This number will be needed when contacting Garmin Connext to establish the account.
6) Also note the System ID. It is found in the Airframe Box on the 'Aux - System Status' Page. The System ID will also be needed when contacting Garmin Connext.
7) Contact Garmin Connext to establish an account and receive an access code.

DISABLING/ENABLING THE IRIDIUM TRANSCEIVER

Disabling/enabling telephone and low speed data services:

1) Turn the large **FMS** Knob on the MFD to select the 'Aux' page group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone' Page.
3) If necessary, press the **Phone** Softkey to display the 'Aux - Telephone' Page.
4) Press the **MENU** Key. The 'Page Menu' Window is now displayed.
5) Turn the **FMS** Knob to select 'Disable Iridium Transmission' in the menu list.
6) Press the **ENT** Key. The Iridium transceiver is now disabled.
7) To enable the Iridium transceiver, repeat steps 1 through 4, then select 'Enable Iridium Transceiver.'

CONTACTS

Creating a new contact:

1) With the 'Aux - Telephone Phone' Page displayed, press the **FMS** Knob to display the cursor.
2) If necessary, turn either **FMS** Knob to place the cursor on 'New Entry.'
3) Press the **ENT** Key. The cursor moves the 'Name' Field of the 'Contact Details' Window.
4) Enter the desired name of the new contact. Entry is accomplished through the **FMS** Knob on the MFD.
5) Press the **ENT** Key. The cursor moves to the 'Phone Number' Field.
6) Enter the desired telephone number. Entry is accomplished through the **FMS** Knob on the MFD.
7) Press the **ENT** Key. The cursor moves to the 'Email' Field.
8) Enter the desired email address. Entry is accomplished through the **FMS** Knob on the MFD.
9) The **Symbols** Softkey can display the "@" symbol, the period, and other special characters. Pressing the **More** Softkey will cycle through additional special characters.
10) Press the **ENT** Key. The **Save** Softkey is highlighted.
11) Press the **ENT** Key. The new contact entry is added to the list of saved contacts.

Editing a contact:

1) With the 'Aux - Telephone' Page displayed, press the **FMS** Knob to display the cursor.
2) Turn either **FMS** Knob to place the cursor on the desired contact name.
3) Press the **Edit** Softkey. The cursor is placed in the 'Name' Field. Enter the desired changes. Entry is accomplished through the **FMS** Knob on the MFD.
4) Press the **ENT** Key when each field is complete. The **Save** Button is now highlighted.
5) Press the **ENT** Key to save the changes.

Deleting a contact:

1) With the 'Aux - Telephone' Page displayed, press the **FMS** Knob to display the cursor.
2) Turn either **FMS** Knob to place the cursor on the desired contact name.
3) Press the **Delete** Softkey. A confirmation window is displayed.
4) With 'OK' highlighted, press the **ENT** Key to delete the selected contact.

TELEPHONE COMMUNICATION

Viewing the 'Aux - Telephone' Page:

1) Turn the large **FMS** Knob on the MFD to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone' Page.
3) If necessary, press the **Phone** Softkey to display the 'Aux - Telephone' Page.

NOTE: *The **Push-to-Talk** Switch is not utilized for telephone communication. The microphone is active after pressing the **Answer** Softkey, and stays active until the call is terminated.*

Answering a call from the cockpit:

1) Press the **Phone** Key on the appropriate audio panel.
2) Press the **Answer** Softkey on the MFD.

Or:

While viewing the 'Aux - Satellite Phone' Page, press the **Answer** Softkey on the MFD.

Or:

1) Press the **Phone** Key on the appropriate audio panel.
2) Press the **MENU** Key to display the 'Page Menu.'
3) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call.'
4) Press the **ENT** Key.

Muting incoming call alerts:

1) With the 'Aux - Telephone' Page displayed, press the **MENU** Key on the MFD to display the 'Page Menu.'

2) Turn either **FMS** Knob to place the cursor on 'Disable Incoming Call Alerts.'
3) Press the **ENT** Key. The voice and pop-up alert will not be displayed now when an incoming call is received and in the 'Phone Status' Box, "Incoming Call Alerts Disabled" is displayed.

Satellite System	Country Code
Inmarsat	870
ICO	8810 or 8811
Ellipso	8812 or 8813
Iridium	8816 or 8817
Globalstar	8818 or 8819

Country Codes

Making an external call from the cockpit using the Iridium satellite network:

1) With the 'Aux - Telephone' Page displayed, press the **Phone** Softkey (if not already selected).

   Or:

   Press the **Phone** Key on the appropriate audio panel to display the 'Aux - Telephone' Page. Then press the **Phone** Softkey (if not already selected).
2) Press the **Dial** Softkey on the MFD.
3) Enter the desired telephone number (country code first) by using the **FMS** Knob on the MFD or by pressing the number softkeys on the MFD.
4) Press the **ENT** Key. 'OK' is highlighted.
5) Press the **ENT** Key. The system will begin calling the number.

Making an external call from the cockpit by using the Contact List:

1) With the 'Aux - Telephone' Page displayed, press the **Phone** Softkey (if not already selected).

   Or:

   Press the **Phone** Key on the appropriate audio panel to display the 'Aux - Telephone' Page. Then press the **Phone** Softkey (if not already selected).
2) Press the **FMS** Knob to activate the cursor.
3) Turn the small **FMS** Knob to select the desired contact name in the list of contacts.
4) Press the **Call** Softkey. The external call is initiated and the number associated with the contact name is dialed.

TEXT MESSAGING (SMS)

Viewing the 'Aux - Text Messaging' Page:

1) Turn the large **FMS** Knob on the MFD to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone' Page.
3) Press the **SMS** Softkey to display the 'Aux - Text Messaging' Page.

Enabling/disabling incoming text message pop-up alerts:

1) With the 'Aux - Text Messaging' Page displayed, press the **MENU** Key on the MFD to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Disable New Message Popups' or 'Enable New Message Popups.'
3) Press the **ENT** Key. The pop-up alert will not be displayed when an incoming text message is received. The notification, "New Message Popups Disabled" displays in the 'Notices' Window.

Replying to a text message:

While viewing the text message, press the **Reply** Softkey.

Or:

1) Press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Reply To Message.'
3) Press the **ENT** Key.

Sending a new text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey.

   Or:

   a) While viewing the 'Aux - Text Messaging' Page, press the **MENU** Key to display the 'Page Menu.'

   b) Turn either **FMS** Knob to place the cursor on 'Draft New Message.'

   c) Press the **ENT** Key.
2) The 'SMS Text Message Draft' Window is now displayed with the cursor in the 'To' Field. Enter the desired telephone number or email address.

   Entry is accomplished through use of the **FMS** Knob on the MFD and by use of the softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers, and the "@" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.
3) Press the **ENT** Key. The cursor is now displayed in the 'Message' Field.

4) Enter the desired message using any combination of entry methods as described in step 2.
5) Press the **ENT** Key.
6) Press the **Send** Softkey to send the message immediately. Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted.

   Or:

   Press the **Save** Softkey to save the message in Outbox for sending at a later time.

   Or:

   Press the **Cancel** Softkey to delete the message.

Sending a new text message/email to a saved contact:

1) With the 'Aux - Telephone' Page displayed, press the **FMS** Knob to display the cursor.
2) Turn either **FMS** Knob to place the cursor on the desired contact name.
3) Press either the **Text EML** Softkey to send to the email address saved for the contact or the **Text PHN** Softkey to send to the phone number saved for the contact. The cursor is placed in the 'To' Field. Confirm the contact you wish to send a message to by pressing the **ENT** Key.
4) Enter the desired message, then press the **ENT** Key.
5) Press the **Send** Softkey to send the message immediately. Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted.

   Or:

   Press the **Save** Softkey to save the message as a draft.

   Or:

   Press the **Cancel** Softkey to delete the message.

Creating a predefined text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to select 'Edit Predefined Messages.'
3) Press the **ENT** Key. The Predefined Messages view is now displayed.
4) Press the **NEW** Softkey. The 'Predefined SMS Text Message' Window is now displayed.

   Or:

   a) Press the **MENU** Key to display the 'Page Menu.'
   b) Turn either **FMS** Knob to place the cursor on 'Draft New Predefined Message.'
   c) Press the **ENT** Key. The 'Predefined SMS Text Message' Window is now displayed.

5) The cursor is displayed in the 'Title' Field. Enter the desired message title.

   Entry is accomplished through use of the **FMS** Knob on the MFD and by use of the softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers, and the "at" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.

6) Press the **ENT** Key. The cursor is now displayed in the 'Message' Field.

7) Enter the desired message using any combination of entry methods as described in step 5.

8) Press the **ENT** Key.

9) Press the **Save** Softkey. The new predefined message is now shown in the displayed list. Pressing the **Cancel** Softkey will delete the message without saving.

NOTE: *In order to send a predefined text message, as in the following procedure, a predefined text message must first be created using the previous procedure: 'Creating a predefined text message.'*

Sending a predefined text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey.

2) The 'SMS Text Message Draft' Window is now displayed with the cursor in the 'To' Field. Enter the desired telephone number or email address.

   Entry is accomplished through use of the **FMS** Knob on the MFD and by use of the softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers, and the "at" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.

4) Press the **PREDEFD** Softkey. The 'Predefined Message Menu' Window is displayed.

5) Turn either **FMS** Knob to select the desired predefined message.

6) Press the **ENT** Key. The predefined message text is inserted into the message field. If desired, the message can be edited.

7) Press the **ENT** Key.

8) Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted. Select 'No' to return to the message entry field.

Showing Inbox messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Outbox** Softkey and the **Drafts** Softkey to only display the Inbox Messages. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

1) If the Inbox is not already displayed, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Hide Outbox Messages.'
3) Press the **ENT** Key. Then press the **MENU** Key again to display the 'Page Menu' and turn either **FMS** Knob to place the cursor on 'Hide Draft Messages.' Press the **ENT** Key.
4) The message box selected for viewing is indicated at the bottom left of the list window.

Showing Outbox messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Inbox** Softkey and the **Drafts** Softkey to only display the Outbox. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

1) If the Outbox is not already displayed, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Show Outbox Messages.'
3) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Showing Draft messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Inbox** Softkey and the **Outbox** Softkey to only display the Draft messages. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

1) If the Draft messages are not already displayed, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Show Draft Messages.'
3) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Viewing messages sorted by type:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Type** Softkey (if not already selected).

Or:

1) If not already sorted by type, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Sort By Type.'
3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing messages sorted by date/time:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Time** Softkey (if not already selected).

Or:

1) If not already sorted by date/time, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Sort By Date/Time.'
3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing messages sorted by address:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Address** Softkey (if not already selected).

Or:

1) If not already sorted by address, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Sort By Address.'
3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing the content of a text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **View** Softkey.

   Or:

   Press the **ENT** Key.

   Or:

   a) Press the **MENU** Key to display the 'Page Menu.'
   b) Turn either **FMS** Knob to place the cursor on 'View Selected Message.'
   c) Press the **ENT** Key. The message content is displayed.
4) To close the text message, press the **Close** Softkey.

   Or:

   a) Press the **MENU** Key to display the 'Page Menu.'
   b) Turn either **FMS** Knob to place the cursor on 'Close Message.'
   c) Press the **ENT** Key.

Marking selected message as read:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **MRK Read** Softkey.

   Or:

a) Press the **MENU** Key to display the 'Page Menu.'
b) Turn either **FMS** Knob to place the cursor on 'Mark Selected Message As Read.'
c) Press the **ENT** Key. The message symbol now indicates the message has been opened.

Marking all messages as read:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to place the cursor on 'Mark All New Messages As Read.'
3) Press the **ENT** Key. A confirmation window is displayed.
4) With cursor highlighting 'Yes,' press the **ENT** Key. The message symbols now indicate all the message have been opened.

Deleting a message:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **Delete** Softkey. A confirmation window is displayed.
4) With cursor highlighting 'YES', press the **ENT** Key. The message is now deleted.

   Or:

   a) Press the **MENU** Key to display the 'Page Menu.'
   b) Turn either **FMS** Knob to place the cursor on 'Delete Selected Message.'
   c) Press the **ENT** Key. A confirmation window is displayed.
5) With cursor highlighting 'Yes,' press the **ENT** Key. The message is now deleted.

Deleting all messages:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **MENU** Key to display the 'Page Menu.'
2) Turn either **FMS** Knob to select 'Delete All Messages in List.'
3) Press the **ENT** Softkey. A confirmation window is displayed.
4) With cursor highlighting 'YES', press the **ENT** Key. All messages are now deleted.

CONNEXT

Viewing the 'Aux - Connext Setup' Page:

1) Turn the large **FMS** Knob on the MFD to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - Connext Setup' Page.

Changing the Bluetooth Name:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Bluetooth Name' Field.
3) Enter the desired name by using the large **FMS** Knob to select the character field, and the small **FMS** Knob select the desired alphanumeric character for that field.
4) Press the **ENT** Key. The cursor is removed and the new name is displayed.

Enabling/disabling Flight Plan Importing from Garmin Pilot:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Flight Plan Import' Field.
3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled.'
4) Press the **FMS** Knob to remove the cursor.

Enabling/disabling WiFi Database Importing from Garmin Pilot:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'WiFi Database Import' Field.
3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled.'
4) Press the **FMS** Knob to remove the cursor.

Enabling/disabling automatic reconnection of a paired device:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the desired paired device.
3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled.' Selecting 'Enabled' allows the system to automatically connect to a previously paired device when detected.
4) Press the **FMS** Knob to remove the cursor.

Removing a paired device from the List of Paired Devices:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the desired paired device.
3) Press the **Remove** Softkey. A confirmation screen is displayed.
4) If necessary, turn the large **FMS** Knob to select 'Yes.'
5) Press the **ENT** Key to remove the device from the list of paired devices.

MAINTENANCE WIFI CONNECTIONS

Viewing the WiFi Setup Page:

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Aux-Maintenance WiFi Setup' Page.

Setting up a new WiFi connection:

1) Press the **Avail** Softkey on the MFD. A list of available networks will be displayed in the Available Networks window. Signal strength is shown for each network, as well as security requirements and whether the network has been saved in the system's memory.
2) If necessary, press the **Rescan** Softkey to have the system scan again for available networks.

   Or:

   a) Press the **MENU** Key to display the Page Menu.
   b) Turn either **FMS** Knob to place the cursor on 'Rescan Available Networks'.
   c) Press the **ENT** Key.
3) Push the **FMS** Knob to place the cursor in the list of networks.
4) Turn either **FMS** Knob to select the desired network.
5) Press the **Connect** Softkey.

   Or:

   a) Press the **MENU** Key to display the Page Menu.
   b) Turn either **FMS** Knob to place the cursor on 'Connect to Selected Network'.
   c) Press the **ENT** Key.
6) If the network is secured, a window will be displayed in order to enter the necessary passcode. Use the **FMS** Knobs to enter the desired alpha numeric characters. Press the **CapsLock** Softkey to enter upper case letters. If there is no security associated with the network, proceed to step 9.
7) Press the **ENT** Key. 'OK' will be highlighted.
8) Press the **ENT** Key again.
9) The Save Settings window is now displayed with the cursor highlighting 'Save Connection'.
10) The selected network can be saved to system memory to make re-connection easier at a later time.

    Connecting the selected network without saving:

    a) Turn the large **FMS** Knob to move the cursor to highlight 'Connect'.
    b) Press the **ENT** Key.

    Saving and connect the selected network:

    a) Press the **ENT** Key. A checkmark is placed in the checkbox and the cursor moves to the airport field.
    b) Using the **FMS** Knobs, enter an airport identifier to be associated with the saved network. This aids in identifying the network later in the event of duplicate network names.

c) Press the **ENT** Key. The cursor moves to 'Connect'.

d) Press the **ENT** Key again to connect to the selected network.

Editing a saved network:

1) While viewing list of saved networks, push the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to highlight the network to be edited.
3) Pressing the **ENT** Key at this point will check or uncheck the Auto Connect checkbox. When a checkmark is present, the system will automatically connect to the network when within range.
4) Press the **Edit** Softkey. The cursor now appears in the Connection Settings window.
5) Turn the large **FMS** Knob to select the network attribute to be edited.
6) Turn the small **FMS** Knob to begin editing the field.
7) When the entry is complete, press the **ENT** Key.
8) Turn the large **FMS** Knob or press the **ENT** Key until 'Save' is highlighted.
9) Press the **ENT** Key.

Disconnecting a WiFi network:

Press the **DISCNCT** Softkey.

Or:

1) Press the **MENU** Key to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disconnect From Network'.
3) Press the **ENT** Key.

Deleting a saved WiFi network:

1) While viewing the list of saved networks, push the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to highlight the network to be deleted.
3) Press the **Delete** Softkey. The selected network is removed from the list.

ELECTRONIC STABILITY AND PROTECTION (ESP™) TO ENABLE OR DISABLE ESP™

1) Turn the large **FMS** Knob to select the Aux Page Group.
2) Turn the small **FMS** Knob to select the System Setup Page.
3) If necessary, press the **Setup 2** Softkey to display the 'Aux - System Setup 2' Page. If the 'Aux - System Setup 2' Page is already displayed, proceed to step 4.
4) Push the **FMS** Knob to activate the cursor.
5) Turn the large **FMS** Knob to place the cursor in the Stability & Protection field.
6) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'.
7) Push the **FMS** Knob to remove the cursor.

AUXILIARY VIDEO DISPLAYING AUXILIARY VIDEO

1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
2) Turn the small **FMS** Knob to select the 'Aux-Video' Page.

Control of the 'Aux - Video' Page can also be accessed through the 'Page Menu.'

Selecting video menu options:

1) While viewing the 'Aux - Video' Page press the **MENU** Key to display the 'Page Menu' options.
2) Turn the large **FMS** Knob to highlight the desired video adjustment option and press the **ENT** Key. Once the **ENT** Key is pressed on any option, the 'Page Menu' closes and returns to the 'Aux - Video' Page.

Adjusting the video settings:

1) With the 'Aux - Video' Page displayed, press the **Setup** Softkey.
2) Press the **Contrast -** or **Contrast +** Softkey, to adjust display contrast in five percent increments from 0 to 100%.
3) Press the **Bright -** or **Bright +** Softkey, to adjust display brightness in five percent increments from 0 to 100%.
4) Press the **SAT -** or **SAT +** Softkey, to adjust display saturation in five percent increments from 0 to 100%.
5) If desired, return the display to the default settings by pressing the **Reset** Softkey.
6) Press the **Back** Softkey to return to the previous softkey level.

NOTE: *The checklists presented here are for example only and may differ from checklists available for the airframe. The information described in this section is not intended to replace the checklist information described in the approved current pertinent flight manual or the Pilot Safety and Warning Supplements document.*

NOTE: *Garmin is not responsible for the content of checklists. Checklists are created by the aircraft manufacturer. Modifications or updates to the checklists are coordinated through the aircraft manufacturer. The user cannot edit these checklists.*

Accessing and navigating checklists:

1) From any page on the MFD (except the 'EIS' Page Group), press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'CHKLST' Page Group.
2) Press the **Group** Softkey to choose from the group of checklists.
3) Turn the small **FMS** Knob to select the desired group of checklists and press the **ENT** Key.
4) Turn the large **FMS** Knob to select the desired checklist inside that group and press the **ENT** Key.

5) The system defaults to step 1 selected. The selected checklist item is indicated with white text surrounded by a cyan box.
6) Press the **ENT** Key or the **Check** Softkey to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking. Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item. Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.
7) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not be checked, '*Checklist Not Finished*' will be displayed in amber text.
8) Press the **ENT** Key. 'Go To Next Checklist?' will be highlighted by the cursor.
9) Press the **ENT** Key to advance to the next checklist.
10) Press the **Exit** Softkey to exit the checklist and return to the page last viewed.

Accessing emergency procedures:

1) From any page on the MFD (except the 'EIS' Page Group), press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'CHKLST' Page Group.
2) Press the **EMER** Softkey.
3) Turn the **FMS** Knob to select the desired emergency checklist and press the **ENT** Key.
4) Press the **ENT** Key or **Check** Softkey to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking. Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item. Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.
5) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not be checked, '*Checklist Not Finished*' will be displayed in amber text.
6) Press the **ENT** Key. 'Go To Next Checklist?' will be highlighted by the cursor.
7) Press the **ENT** Key to advance to the next checklist.
8) Press the **Return** Softkey to return to the previous checklist.

CREW PROFILES

System settings may be saved under a crew profile. The system can store up to 25 profiles. The currently active profile, the amount of memory used, and the amount of memory available are shown at the top of the System Setup pages in the box labeled 'Crew Profile'. From here, crew profiles may be created, selected, renamed, or deleted. Crew profiles may also be exported from the system to an SD card, or imported from an SD card into the system.

Creating a profile:

1) Use the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'Create' in the 'Crew Profile' Box.
4) Press the **ENT** Key. A 'Create Profile' Window is displayed.
5) Use the **FMS** Knob to enter a profile name up to 16 characters long and press the **ENT** Key. Crew profile names cannot begin with a blank as the first character.
6) In the next field, use the small **FMS** Knob to select the desired settings upon which to base the new profile. Profiles can be created based on Garmin factory defaults, default profile settings (initially based on Garmin factory defaults unless edited by the pilot), or other previously created (i.e., current) profile settings.
7) Press the **ENT** Key.
8) With 'Create' highlighted, press the **ENT** Key to create the profile.

   Or:

   Use the large **FMS** Knob to select 'Create & Activate' and press the **ENT** Key to activate the new profile.
9) To cancel the process, select 'Cancel' with the large **FMS** Knob and press the **ENT** Key.

Selecting an active profile:

1) Use the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Active' Field in the 'Crew Profile' Box.
4) Turn the small **FMS** Knob to display the crew profile list and highlight the desired profile.
5) Press the **ENT** Key. The system loads and displays the system settings for the selected profile.

Renaming a profile:

1) Use the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'Rename' in the 'Crew Profile' Box.
4) Press the **ENT** Key.
5) In the 'Rename Profile' Window, turn the **FMS** Knob to select the profile to rename.
6) Press the **ENT** Key.
7) Use the **FMS** Knob to enter a new profile name up to 16 characters long and press the **ENT** Key.
8) With 'Rename' highlighted, press the **ENT** Key.
9) To cancel the process, use the large **FMS** Knob to select 'Cancel' and press the **ENT** Key.

Deleting a profile:

1) Use the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'Delete' in the 'Crew Profile' Box.
4) Press the **ENT** Key.
5) In the 'Delete Profile' Window, turn the **FMS** Knob to select the profile to delete.
6) Press the **ENT** Key.
7) With 'Delete' highlighted, press the **ENT** Key.
8) To cancel the process, use the large **FMS** Knob to select 'Cancel' and press the **ENT** Key.

Importing a profile from an SD card:

1) Insert an SD card containing the crew profile(s) into the top card slot on the MFD.
2) Turn the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
3) Press the **Import** Softkey.

   Or:

   a) Press the **MENU** Key.

   b) Turn the **FMS** Knob to highlight 'Import Crew Profile' and press the **ENT** Key.
4) The system displays the 'Crew Profile Importing' Window with 'Import' highlighted. Turn the large **FMS** Knob to highlight the 'Profile Name' Field. Next, scroll to the desired profile name with the **FMS** Knob, then press the **ENT** Key. Press the **ENT** Key with 'Import' highlighted.
5) If the imported profile name is the same as an existing profile on the system, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace the profile on the system with the profile imported from the SD card, or turn the **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key to return to the 'Crew Profile Importing' Window.
6) If successful, the system displays 'Crew profile import succeeded.' in the 'Crew Profile Importing' Window. With 'OK' highlighted, press the **ENT** or **CLR** Key or push the **FMS** Knob to return to the 'Aux – System Setup (1 or 2)' Page. The imported profile becomes the active profile.

Exporting a profile to an SD card:

1) Insert an SD card for storing the crew profile into the top card slot on the MFD.
2) Use the **FMS** Knob to select the 'Aux – System Setup (1 or 2)' Page.
3) Press the **Export** Softkey. The system displays the 'Crew Profile Exporting' Window.

   Or:

   a) Press the **MENU** Key.

   b) Turn the **FMS** Knob to highlight 'Export Crew Profile' and press the **ENT** Key.

4) To export the crew profile using the current selected profile, press the **ENT** Key with 'Export' highlighted. To change the selected profile, turn the large **FMS** Knob to highlight the 'Profile Name' Field. Next, scroll to the desired profile name with the **FMS** Knob, then press the **ENT** Key. Press the **ENT** Key with 'Export' highlighted.

5) If the selected profile to be exported is the same as an existing profile file name on the SD card, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace the profile on the SD card with the profile to be exported, or turn the **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key to return to the 'Crew Profile Exporting' Window without exporting the profile.

6) If successful, the window displays 'Crew profile export succeeded.' With 'OK' highlighted, press the **ENT** or **CLR** Key, or push the **FMS** Knob to return to the 'Aux – System Setup (1 or 2)' Page.

SCHEDULER

The system's scheduler feature can be used to enter and display reminder messages (e.g., "Switch fuel tanks", "Overhaul") in the 'Alerts' Window on the PFD. Messages can be set to display based on a specific date and time (event), once the message timer reaches zero (one-time; default setting), or recurrently whenever the message timer reaches zero (periodic). Message timers set to periodic alerting automatically reset to the original timer value once the message is displayed. When power is cycled, messages are retained until deleted, and message timer countdown is restarted.

Scheduler messages cause the **Alerts** Softkey label to change to a flashing 'Message' label. Pressing the **Message** Softkey opens the 'Alerts' Window and acknowledges the scheduler message. The softkey reverts to the 'Alerts' label. Pressing the **Alerts** Softkey again removes the 'Alerts' Window from the display and the scheduler message is deleted from the message queue.

Entering a scheduler message:

1) Use the **FMS** Knob to select the 'Aux – Utility' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the first empty field within the 'Scheduler' Box.
4) Use the **FMS** Knob to enter text within the 'Message' Field to be displayed in the 'Alerts' Window and press the **ENT** Key.
5) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the 'Type' Field.
6) Turn the small **FMS** Knob to select the message alert type:
   - 'Event' — Message issued at the specified date/time.
   - 'One Time' — Message issued when the message timer reaches zero (default setting).
   - 'Periodic' — Message issued each time the message timer reaches zero.

7) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
8) For periodic and one-time messages, use the **FMS** Knob to enter the timer value (HHH:MM:SS) from which to count down and press the **ENT** Key.
9) For event-based messages:
   a) Use the **FMS** Knob to enter the desired date (DD-MMM-YY) and press the **ENT** Key.
   b) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
   c) Use the **FMS** Knob to enter the desired time (HH:MM) and press the **ENT** Key.
10) Push the **FMS** Knob to remove the cursor, or use the large **FMS** Knob to move the cursor to enter the next message.

Deleting a scheduler message:

1) Use the **FMS** Knob to select the 'Aux – Utility' Page.
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Message' Field of the scheduler message to be deleted.
4) Press the **CLR** Key to clear the message text. If the **CLR** Key is pressed again, the message is restored.
5) Press the **ENT** Key to confirm message deletion.

Blank Page

ABNORMAL OPERATIONS

REVERSIONARY MODE

NOTE: *The system alerts the pilot when backup paths are utilized by the LRUs. Refer to the Appendices for further information regarding system-specific alerts.*

In the event of a display failure, the system automatically switches to reversionary (backup) mode. Reversionary mode may also be manually activated. In reversionary mode, all important flight information is presented on the remaining display in the same format as in normal operating mode.

If a display fails, the appropriate IAU interface is cut off. Thus, the IAU can no longer communicate with the remaining display, and the NAV and COM functions provided to the failed display by the IAU are flagged as invalid on the remaining display. The system reverts to backup paths for the AHRS, ADC, Engine/Airframe Unit, and Transponder, as required. The change to backup paths is completely automated for all LRUs and no pilot action is required.

Reversionary mode may be manually activated by pressing the Audio Panel's red **DISPLAY BACKUP** Button. Pressing this button again deactivates reversionary mode.

ABNORMAL GPS CONDITIONS

The annunciations listed in the following table can appear on the HSI when abnormal GPS conditions occur. GPS navigation will resume automatically once a valid GPS solution is restored (and GPS sensors have not been inhibited).

Abnormal GPS Conditions Annunciated on HSI

Annunciation	Location	Description
GPS LOI	Right of HSI	Loss of Integrity Monitoring–GPS integrity is insufficient for the current phase of flight
GPS INTEG OK	Right of HSI	Integrity OK–GPS integrity has been restored to within normal limits (annunciation displayed for 5 seconds)
DR	Lower left of aircraft symbol	Dead Reckoning–System is using projected position rather than GPS position to compute navigation data and sequence active flight plan waypoints

Dead Reckoning (DR) Mode causes the following items on the PFD to be shown in amber when GPS is the selected navigation source:

- Current Track Bug
- Wind Data (calculated based on GPS information)
- Distances in the Bearing Information Windows
- GPS Bearing Pointers
- Active Flight Plan Distances, Bearings, and ETE Values
- Ground Speed

It is important to note that estimated navigation data supplied by the system in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation.

GARMIN SVT TROUBLESHOOTING

Garmin SVT is intended to be used with traditional attitude, heading, obstacle, terrain, and traffic inputs. SVT is disabled when valid attitude or heading data is not available for the display. In case of invalid SVT data, the PFD display reverts to the standard blue-over-brown attitude display.

SVT becomes disabled without the following data resources:

- Attitude Data
- Heading Data
- GPS Position Data
- Terrain Data
- Obstacle Data
- TAWS Function is not Available, in Test Mode, or Failed
- The Position of the Aircraft Exceeds the Range of the Terrain Database

UNUSUAL ATTITUDES

When the aircraft enters an unusual pitch attitude, red chevrons pointing toward the horizon warn of extreme pitch. The chevrons are displayed on the Attitude Indicator, starting at 50° above and 30° below the horizon line.

If pitch exceeds +30°/-20° or bank exceeds 65°, some information displayed on the PFD is removed. The Altimeter and Airspeed, Attitude, Vertical Speed, and Horizontal Situation indicators remain on the display and the Bearing Information, Alerts, and Annunciation windows can be displayed during such situations. The following information is removed from the PFD and their softkeys are disabled when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- True Airspeed
- Inset Map
- OAT and ISA Temperature Deviation
- Wind Data
- Selected Heading Indication
- Selected Course Indication
- System Time
- Transponder Status Box
- Windows Displayed on the PFD with the Exception of CAS
- Minimum Altitude Alert Setting
- Vertical Deviation, Glideslope, and Glidepath Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude

GARMIN SVT UNUSUAL ATTITUDES

During extreme pitch attitudes, the display shows either a brown or blue colored bar at the top or bottom of the screen to represent earth or sky. The blue colored bar is also displayed when terrain gradient is great enough to completely fill the display. This is intended to prevent losing sight of the horizon during extreme pitch attitudes.

DEAD RECKONING

The system will revert to Dead Reckoning (DR) Mode if the system is no longer using GPS for position fixing. In DR Mode, the system uses its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft's current estimated position. It is important to note that estimated navigation data supplied by the system in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation.

DR Mode is inherently less accurate than the standard GPS/SBAS Mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction compound the relative inaccuracy of DR Mode. Because of this degraded accuracy, other navigation equipment must be relied upon for position awareness until GPS-derived position data is restored.

DR mode is indicated on the system by the appearance of the letters "DR" displayed in amber on the HSI below and to the left of the aircraft symbol, and on top of the aircraft symbol on map displays. The CDI deviation bar is removed. The autopilot will not couple in DR Mode. Lastly, but at the same time, a 'GPS NAV LOST' alert message appears on the PFD. Normal navigation using GPS/SBAS source data resumes automatically once a valid GPS solution is restored.

As a result of operating in DR mode, all data that is dependent upon GPS is displayed as amber text to denote degraded navigation source information. The accuracy of all bearing and distance information on nearest pages (airports, airspaces, and waypoints) and waypoint infor-

mation pages is questionable, and is displayed in amber. If the VSD Inset is enabled, 'VSD Not Available' will be displayed. Airspace alerts continue to function, but with degraded accuracy. Also, while the system is in DR mode, optional SVT and terrain alerting functions are disabled.

ABNORMAL GARMIN CONNEXT DATA REQUEST STATUS MESSAGES

Weather Request Status Message	Description
Auto requests inhibited Send manual request to reset.	The system has disabled automatic weather data requests due to excessive errors. Automatic weather data requests have stopped. Send a manual weather data request to resume automatic updates.
Auto update retry: ## Seconds	The system will attempt another automatic weather data request after an error occurred during the previous request. Timer counts down until the next automatic request occurs.
Connext Comm Error [1]	A general error has occurred. If the error persists, the system should be serviced.
Connext Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.
Connext Comm Error [3]	A general error has occurred. If the error persists, the system should be serviced.
Connext Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GIA is off-line.
Connext Comm Error [5]	This can occur if the Iridium or Garmin Connext services are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
Connext Comm Error [6]	A communications error has occurred. It this error persists, the system should be serviced.
Connext Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the data request.
Connext Comm Error [8]	A server error has occurred or invalid data received.
Connext Comm Error [9]	An error occurred while reading or writing data. If the error persists, the system should be serviced.
Connext Login Invalid	There is a problem with the Garmin Connext registration.

Weather Request Status Message	Description
Connext Server Temp Inop	The Garmin Connext Weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
Connext Server Inop	The Garmin Connext Weather data server will be out of service for at least 30 minutes.
Invalid Coverage Area	The weather data request coverage area does not contain at least one of the following: a waypoint, a flight plan, or a flight plan destination. Verify at least one of the coverage options is enabled (checked) and contains required criteria, then re-send the data request.
No Connext Subscription	The system is not be currently subscribed to Garmin Connext services or the access code is incorrect. Verify the access code.
Reduce Request Area	The size of the received weather data has exceeded system memory limits. Reduce the size of the coverage area and issue another Connext Data Request to ensure all available weather data has been received.
Request Canceled	The user has cancelled a Connext Data Request.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.

SIRIUSXM DATA LINK RECEIVER TROUBLESHOOTING

For troubleshooting purposes, check the LRU Information Box on the 'Aux - System Status' Page for SiriusXM Datalink Receiver status, serial number, and software version number. If a failure has been detected, the status is marked with a red X.

Selecting the 'Aux - System Status' Page:

1) Turn the large **FMS** Knob to select the Aux Page Group.

2) Turn the small **FMS** Knob to select the 'Aux - System Status' Page.

Some quick troubleshooting steps listed below can be performed to find the possible cause of a failure.

– Ensure the installed Data Link Receiver or Iridium Transceiver has an active subscription or account

– Perform a quick check of the circuit breakers to ensure that power is applied to the Data Link Receiver or Iridium Transceiver

Ensure that nothing is plugged into the MUSIC 1 or MUSIC 2 jacks because that would prevent SiriusXM radio from being heard

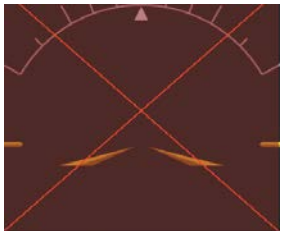
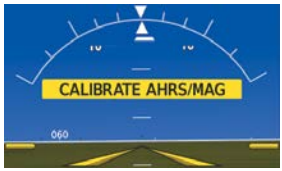
If a failure still exists, the following messages may provide insight as to the possible problem:

Blank Page

ANNUNCIATIONS & ALERTS

SYSTEM ANNUNCIATIONS AND ALERTS

SYSTEM FAILURE ANNUNCIATIONS

System Annunciation	Comment
	AHRS is aligning.
	Display system is not receiving attitude information from the AHRS.
	AHRS calibration incomplete or configuration module failure.
	GPS information is either not present or is invalid for navigational use. Note that AHRS utilizes GPS inputs during normal operation. AHRS operation may be degraded if GPS signals are not present (see pertinent flight manual).
	Display system is not receiving airspeed input from the AHRS.

System Annunciation	Comment
	Display system is not receiving vertical speed input from the AHRS.
	Display system is not receiving valid heading input from the AHRS or Magnetometer.
	Display system is not receiving altitude input from the AHRS.
	Display system is not receiving valid temperature information.
	Display system is not receiving valid transponder information.
Other Various Red or Amber 'X' Indications	A red or amber 'X' through any other display field (such as engine instrumentation fields), indicates the field is not receiving valid data.

CREW PROFILE IMPORT/EXPORT MESSAGES

In certain circumstances, some messages may appear in conjunction with others:

Crew Profile Import/Export Message	Description
'No crew profile plan files found.'	Displayed if the SD card does not have one or more valid crew profile file names.
'Overwrite existing profile?'	Displayed if the profile name matches the name of an existing profile.
'Profile name invalid. Enter a different profile name.'	Displayed if the profile name is invalid.
'All available crew profiles in use. Delete a profile before importing another.'	Displayed if the maximum number of crew profiles has been reached.

Crew Profile Import/Export Message	Description
'Crew profile import failed.'	Displayed if the importing operation fails for any other reason.
'Crew profile import succeeded.'	Displayed if the importing operation succeeds.
'Overwrite existing file?'	Displayed if the file name matches the name of an existing file on the SD card.
'Crew profile export failed.'	Displayed if the export operation fails.
'Crew profile export succeeded.'	Displayed if the export operation succeeds.

GPS CDI SCALING ANNUNCIATIONS

Flight Phase	Annunciation[1]	Automatic CDI Full-scale Deflection
Departure	DPRT	0.3 nm
Terminal	TERM	1.0 nm
Enroute	ENR	2.0 nm
Oceanic	OCN	4.0 nm
Approach- (Non-precision)	LNAV	1.0 nm decreasing to 350 feet, depending on variables.
Approach (Non-precision with Advisory Vertical Guidance)	LNAV + V	
Approach (Non-precision with Advisory Vertical Guidance)	VISUAL	
Approach (LNAV/VNAV)	L/VNAV	1.0 nm decreasing to a specified course width, then 0.3 nm, depending on variables.
Approach (LP)	LP	
Approach (LP+V)	LP+V	
Approach (LPV)	LPV	
Missed Approach	MAPR	0.3 nm

[1] *Flight phase annunciations are normally shown in magenta, but when cautionary conditions exist the color changes to amber.*

NEAREST AIRSPACE MESSAGES

Message	Comments
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
ARSPC AHEAD – Airspace ahead – less than 10 minutes.	Special use airspace is ahead of aircraft track. The aircraft current ground track penetrates the airspace within 10 minutes.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.

VERTICAL SITUATION DISPLAY (VSD) MESSAGES

Message	Description
'Loading…'	VSD is loading data due to a range change, full/half switch, or first being selected for display.
'Flight Plan Not Available'	Flight Plan mode is selected and there is not a flight plan loaded with at least one leg.
'Flight Plan mode unavailable because aircraft off course and active leg over 200 NM'	All of the following are true: - Flight Plan mode is selected - The active leg is greater than 200 nm - The aircraft is outside the swath
'Aircraft Beyond Active Leg'	Flight Plan mode is selected and the aircraft's position, as projected on the flight plan, is past the end of the active leg.
'VSD Not Available'	At least one of the following is true: - Valid terrain database not available - GPS MSL altitude not available - Current barometric altitude not available - Neither current track nor current heading available - GPS position not available - Map range setting is less than 1 nm
'VSD Data is old, disable and enable VSD'	The system has encountered a delay and VSD data has failed to update for 2 seconds or more. This message may be momentarily displayed and then removed as the delay is overcome. In the event the message persists, it is recommended to disable and enable VSD.

FLIGHT PLAN IMPORT/EXPORT MESSAGES

Under certain conditions, some messages may appear when a flight plan is imported or exported.

Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. One or more of these waypoints did not import successfully.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.

Flight Plan Import/Export Results	Description
'Flight plan contains invalid waypoint(s)'	One or more imported flight plan waypoints is/are invalid or locked (this may occur if waypoints in the flight plan were removed in a recent database cycle). The imported flight plan can be deleted or it can be viewed and edited to remove invalid waypoints prior to use.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

WEATHER RADAR ANNUNCIATIONS

RADAR MODES ON THE 'MAP - WEATHER RADAR' PAGE

Radar Mode	Radar Mode Annunciation Box	Center Banner Annunciation
Standby	Standby	STANDBY
Weather	Weather	None
Ground Mapping	Ground Mapping	None
Radar Failed[1]	FAIL	RADAR FAIL

RADAR FEATURE STATUS ANNUNCIATIONS ON THE 'MAP - WEATHER RADAR' PAGE

Radar Feature Status	Description
STAB INOP	The radar is not receiving pitch and roll information. The antenna stabilization feature is inoperative.
ALTITUDE COMP TILT ON	The altitude-compensated tilt feature is selected on.
ALTITUDE COMP TILT OFF	The altitude-compensated tilt feature is selected off.
GND CLTR SUPPRESS ON	The ground clutter suppression feature is selected on.

Radar Feature Status	Description
GND CLTR SUPPRESS INACTIVE	The ground clutter suppression feature is enabled, but the radar is in a mode which cannot support ground clutter suppression (e.g. vertical scan or sector scan).
GND CLTR SUPPRESS UNAVAILABLE	The radar is missing data needed to suppress ground clutter.
TURB DETECTION ON	The turbulence detection feature is selected on.
TURB DETECTION INACTIV	Turbulence detection is inactive when a radar is in a mode which cannot support turbulence detection.
TURB DETECTION UNAVAILABLE	The radar is missing data needed to detect turbulence.

ABNORMAL RADAR STATUS ANNUNCIATIONS ON THE 'MAP - WEATHER RADAR' PAGE

Weather Radar Page Center Banner Annunciation	Description
BAD CONFIG	The radar configuration is invalid. The radar should be serviced.
RDR FAULT	The radar unit is reporting a fault. The radar should be serviced.
RADAR FAIL	The system is not receiving valid data from the radar unit. The system should be serviced.

TERRAIN AND OBSTACLE ANNUNCIATIONS

RELATIVE WIRE OBSTACLES AND COLORS

Wire Obstacle	Wire Obstacle Location
	Red wire obstacle is at or above the aircraft altitude
	Yellow wire obstacle is between the aircraft altitude to within 250 feet below the aircraft altitude
	White wire obstacle is more than 250 ft below the aircraft altitude

TERRAIN-SVT ALERTS SUMMARY

Alert Type	PFD/Terrain-SVT Annunciation	MFD Pop-Up Alert (except Terrain-SVT Page)	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Line Clearance (RLC)	TERRAIN	WARNING – WIRE	"Warning; Wire, Wire"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Imminent Line Impact Caution (ILI)	TERRAIN	CAUTION – WIRE	"Caution, Wire, Wire"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Line Clearance Caution (RLC)	TERRAIN	CAUTION – WIRE	"Caution, Wire, Wire"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"

TAWS-B ALERTS SUMMARY

Alert Type	PFD/MFD[1] Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Excessive Descent Rate Warning (EDR)	PULL UP	PULL–UP	"Pull Up"

Alert Type	PFD/MFD[1] Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN – PULL–UP	"Terrain, Terrain; Pull Up, Pull Up"
Imminent Line Impact Warning (ILI)	PULL UP	WIRE AHEAD – PULL–UP	"Wire Ahead; Pull Up, Pull Up"
Reduced Required LIne Clearance Warning (RLC)	PULL UP	WARNING – WIRE	"Wire, Wire; Pull Up, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN – PULL–UP	"Terrain, Terrain; Pull Up, Pull Up"
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE – PULL–UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE – PULL–UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution, Terrain; Caution, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution, Terrain; Caution, Terrain"
Required Reduced Line Clearance Impact Caution (RLC)	TERRAIN	CAUTION – WIRE	"Caution, Wire; Caution, Wire"
Imminent Line Clearance Impact Caution (ILI)	TERRAIN	WIRE AHEAD	"Wire Ahead; Wire Ahead"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – TERRAIN	"Caution, Obstacle; Caution, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION – OBSTACLE	"Caution, Obstacle; Caution, Obstacle"
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW – TERRAIN	"Too Low, Terrain"
Altitude Voice Callout (VCO) "500"	None	None	"Five-Hundred"

Alert Type	PFD/MFD[1] Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Negative Climb Rate Caution (NCR)	TERRAIN	DONT SINK	"Don't Sink"

[1] *Annunciation is displayed on the MFD when terrain display is enabled.*

TERRAIN-SVT SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/Terrain-SVT Annunciation	Terrain-SVT Page Center Banner Annunciation	Voice Alert
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting Inhibited	TER INH	None	None
No GPS position	TER N/A	NO GPS POSITION	"Terrain System Not Available"[1]
Excessively degraded GPS signal; or Out of database coverage area	TER N/A	None	"Terrain System Not Available"[1]
Terrain System Test Fail; Terrain or Obstacle database unavailable or invalid; Invalid software configuration; or System audio fault	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
MFD Terrain or Obstacle database unavailable or invalid, and Terrain-SVT operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None

[1] *"Terrain System Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.*

TAWS-B SYSTEM TEST STATUS ANNUNCIATIONS

Alert Type	'TAWS' Pane Annunciation	'TAWS' Pane Center Banner Annunciation	Voice Alert
TAWS System Fail	TAWS FAIL		"TAWS System Failure"
TAWS Not Available	TAWS N/A	(if FMS position lost)	"TAWS Not Available"
TAWS Available	None	None	"TAWS Available"
System Test in progress	TAWS TEST		None
TAWS System Test pass	None	None	"TAWS System Test OK"
TAWS PDA/FLTA Alerting Inhibited	TAWS INH	None	None

TAWS-B ABNORMAL STATUS ALERTS

Alert Cause	'TAWS' Pane Annunciation(s)	TAWS Alert Types Not Available
TAWS System Test Fail; Terrain, Airport Terrain or Obstacle database unavailable or invalid on all displays; software mismatch among displays; TAWS audio fault	TAWS FAIL and TAWS FAIL	FLTA, PDA
MFD Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases	TERRAIN DATABASE FAILURE	
No FMS position	TAWS N/A and NO FMS POSITION	FLTA, PDA, VCO*
Excessively degraded GPS signal, or out of database coverage area	TAWS N/A	FLTA, PDA

TRAFFIC ANNUNCIATIONS AND ALERTS

TIS FAILURE ANNUNCIATIONS

Traffic Map Page Center Banner Annunciation	Description
NO DATA	Data is not being received from the transponder[1]
DATA FAILED	Data is being received from the transponder, but a failure is detected in the data stream[1]
FAILED	The transponder has failed[1]
UNAVAILABLE	TIS is unavailable or out of range

[1] *Contact a service center or Garmin dealer for corrective action*

TIS MODES AND STATUS ANNUNCIATIONS

Traffic Map Mode Annunciation	Traffic Map Center Banner Annunciation	Traffic Overlay Status Icon (Navigation Maps)	Description
DATA FAILED	TRFC FAIL		Data is being received from the transponder, but a failure is detected in the data stream[1]
NO DATA	TRFC FAIL		Data is not being received from the transponder[1]
OPERATING	None		TIS is operating and is receiving traffic data from a data link.
OPERATING	UNAVAILABLE		TIS is operating, but the traffic service is currently unavailable or is out of reception range.
STANDBY	STANDBY		TIS is in Standby Mode.
UNIT FAILED	TRFC FAIL		The transponder has failed[1]

[1] *Contact a service center or Garmin dealer for corrective action*

TIS TRAFFIC STATUS ANNUNCIATIONS

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range[1] Annunciation is removed when traffic comes within the selected display range
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory[2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending)
AGE MM:SS	Appears if traffic data is not refreshed within 6 seconds If after another 6 seconds data is not received, traffic is removed from the display The quality of displayed traffic information is reduced as the age increases
TRFC COAST	The displayed data is not current (6 to 12 seconds since last message) The quality of displayed traffic information is reduced when this message is displayed
TRFC RMVD	Traffic is removed because it is too old for coasting (12 to 60 seconds since last message) Traffic may exist within the selected display range, but it is not displayed
TRFC FAIL	Traffic data has failed
NO TRFC DATA	Traffic has not been detected
TRFC UNAVAIL	The traffic service is unavailable or out of range

[1] *Shown as symbol on Traffic Map Page*
[2] *Shown in center of Traffic Map Page*

TRAFFIC MODES

Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Display Status Icon (Other Maps)
Traffic System Test Initiated	**TEST** ('**TEST MODE**' shown in center of page)	
Operating	**OPERATING**	
Standby	**STANDBY** (also shown in white in center of page)	
Traffic System Failed[1]	**FAIL**	

TAS FAILURE ANNUNCIATIONS

Traffic Map Page Center Annunciation	Description
NO DATA	Data is not being received from the TAS unit
DATA FAILED	Data is being received from the TAS unit, but the unit is self-reporting a failure
FAILED	Incorrect data format received from the TAS unit

TAS TRAFFIC STATUS ANNUNCIATIONS

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range.[1] Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory.[2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
TRFC FAIL	TAS unit has failed (unit is self-reporting a failure or sending incorrectly formatted data)
NO TRFC DATA	Data is not being received from the TAS unit

[1] *Shown as symbol on 'Map - Traffic Map' Page*
[2] *Shown in center of 'Map - Traffic Map' Page*

ADS-B MODES

ADS-B Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Map Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B System Test Initiated	ADS-B: TEST	TEST MODE	
ADS-B Operating in Airborne Mode	ADS-B: AIRB	None	
ADS-B Operating in Surface Mode	ADS-B: SURF	None	
ABS-B Traffic Off	ADS-B: OFF	ADS-B TRFC OFF	

ADS-B Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Map Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B Traffic Not Available	ADS-B: N/A	ADS-B TRFC N/A	
ADS-B Failed	ADS-B: FAIL	ADS-B TRFC FAIL	

TRAFFIC FAILURE ANNUNCIATIONS

Traffic Map Page Center Annunciation	Description
NO DATA	Data is not being received from the traffic unit
DATA FAILED	Data is being received from the traffic unit, but the unit is self-reporting a failure
FAILED	Incorrect data format received from the traffic unit

TRAFFIC STATUS ANNUNCIATIONS

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range[1]. Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory[2]. Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
TRFC FAIL	Traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data)
NO TRFC DATA	Data is not being received from the traffic unit

[1] *Shown as symbol on Traffic Map Page*
[2] *Shown in center of Traffic Map Page*

AFCS ALERTS

Alert Condition	Annunciation	Description
Rudder Mistrim Right	RUD→	Yaw servo providing sustained force in the indicated direction. Aircraft rudder retrim after substantial pitch and power changes required.
Rudder Mistrim Left	←RUD	
Aileron Mistrim Right	AIL→	Roll servo providing sustained force in the indicated direction
Aileron Mistrim Left	←AIL	
Elevator Mistrim Down	↓ELE	Pitch servo providing sustained force in the indicated direction. May indicate a failure of the pitch trim servo or trim system.
Elevator Mistrim Up	↑ELE	
Pitch Trim Failure (or stuck **MEPT** Switch)	PTRM	If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move **MEPT** switches separately to unstick
Yaw Damper Failure	YAW	YD control failure
Roll Failure	ROLL	Roll axis control failure; AP inoperative
Pitch Failure	PTCH	Pitch axis control failure; AP inoperative
System Failure	AFCS	AP and MEPT are unavailable; FD may still be available
Preflight Test	PFT	Performing preflight system test; aural alert sounds at completion Do not press the **AP DISC** Switch during servo power-on and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-on tests). Power must be cycled to the servos to remedy the situation.
	PFT	Preflight system test failed; aural alert sounds at failure

SIRIUS XM DATALINK RECEIVER MESSAGES

Message	Message Location	Description
CHECK ANTENNA	XM Information Page (MFD)	Data Link Receiver antenna error; service required
UPDATING	XM Information Page (MFD)	Data Link Receiver updating encryption code

Message	Message Location	Description
NO SIGNAL	XM Information Page Weather Datalink Page (MFD)	Loss of signal; signal strength too low for receiver
LOADING	XM Radio Page (MFD)	Acquiring channel audio or information
OFF AIR	XM Radio Page (MFD)	Channel not in service
--------	XM Radio Page (MFD)	Missing channel information
WEATHER DATA LINK FAILED	Weather Datalink Page (MFD)	No communication from Data Link Receiver within last 5 minutes
ACTIVATION REQUIRED	XM Information Page (MFD)	SiriusXM subscription is not activated
DETECTING ACTIVATION	Weather Datalink Page (MFD)	SiriusXM subscription is activating.
WAITING FOR DATA...	Weather Datalink Page (MFD)	SiriusXM subscription confirmed downloading weather data.

SYSTEM MESSAGE ADVISORIES

Message Advisory	Comments
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	GDC1 is reporting the altitude error correction is unavailable.
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC1 is reporting the airspeed error correction is unavailable.
ADC1 SERVICE – ADC1 needs service. Return unit for repair.	The GDC1 should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
AHRS1 CAL – AHRS1 calibration version error. Srvc req'd.	The #1 AHRS calibration version error. The system should be serviced.
AHRS1 CONFIG – AHRS1 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.

Message Advisory	Comments
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check the current version of the pertinent flight manual limitations. The system system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS1 SERVICE – AHRS 1 needs service. Return unit for repair.	The #1 AHRS should be serviced.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving valid airspeed.	The #1 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APR ADVISORY – SBAS VNAV not available. Using Baro VNAV.	SBAS not available. The system is calculating the VNAV profile using BARO VNAV.
APR DWNGRADE – Approach downgraded.	Use LNAV minima when approach is downgraded.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
APR INACTV – Approach is not active.	The system notifies the pilot the loaded approach is not active. Activate approach when required.
ARM VNAV CLIMB – Reset altitude preselect to arm climb.	Adjust altitude preselect value to enable VNAV climb.
ARM VNAV DESCENT – Reset altitude preselect to arm descent.	Adjust altitude preselect value to enable VNAV descent.

Message Advisory	Comments
AUDIO MANIFEST - Audio software mismatch, communication halted.	The GIA 64W has incorrect software installed. The system should be serviced.
CHECK CRS – Database course for LOC 1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
COM #[1, 2] INOP - CAL - Check COM calibration.	COM 1 and/or COM 2 calibration version error. Check COM calibration.
COM #[1, 2] INOP - CRNT - Check COM current.	COM 1 and/or COM 2 current is low. Check COM current.
COM #[1, 2] INOP - NTRL - Com internal fault.	COM 1 and/or COM 2 has an internal fault.
COM #[1, 2] INOP: VOLT – Check COM Voltage.	COM 1 and/or COM 2 has low voltage.
COM #[1, 2] REDUCED TX POWER - COM synthesizer lock fault.	COM 1 and/or COM 2 has a reduced transmission power.
COM #[1, 2] INOP - SYNTH - COM synthesizer lock fault.	The COM 1 and/or COM 2 has a synthesizer lock fault.
COM1 MANIFEST – COM1 software mismatch, communication halted.	COM 1 has incorrect software installed. The system should be serviced.
COM2 MANIFEST – COM2 software mismatch, communication halted.	COM 2 has incorrect software installed. The system should be serviced.
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.

Message Advisory	Comments
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1. COM1 may still be usable. The system should be serviced when possible.
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
COM2 CONFIG – COM2 config error. Config service req'd.	The COM2 configuration settings do not match backup configuration memory. The system should be serviced
COM2 PTT – COM2 push-to-talk key is stuck.	The COM2 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 SERVICE – COM2 needs service. Return unit for repair.	The system has detected a failure in COM2. COM2 may still be usable. The system should be serviced when possible.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM2. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
Confirm BARO QFE – Confirm BARO QFE Reference Elevation	Confirm BARO QFE Reference Elevation.
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFD with preferred settings, if desired.
DATABASE CHANGE – Database changed. Verify user modified procedures.	This occurs when a stored flight plan contains procedures that have been manually edited. This alert is issued only after an navigation database update. Verify the user-modified procedures in stored flight plans are correct and up to date.
DATABASE CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify use of airways in stored flight plans and reload airways as needed.

Message Advisory	Comments
DATABASES EXPIRED – Restart avionics to activate standby databases.	The databases in the system have expired. Restart the system to move the standby databases to active status.
DATABASES MISMATCHED – Restart displays to correct mismatch.	The GDUs have different database versions or regions. Restart the system to move the standby databases to active status.
DB ERR – Database error exists.	Database verification error. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFD and MFD have different navigation database versions or types installed. Crossfill is off. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFD and MFD have different obstacle database versions or types installed. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFD and MFD have different terrain database versions or types installed. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DIG GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The digital audio panel has incorrect software installed. The system should be serviced.
ESP CONFIG – ESP config error. Config service req'd.	ESP is not configured properly. The system should be serviced.
ESP DEGRADE – ESP IAS mode is inoperative.	IAS mode of ESP is inoperative. The system should be serviced.
ESP FAIL – ESP is inoperative.	The ESP function has failed and is inoperative. The system should be serviced.
ESP OFF – ESP selected off.	Electronic Stability and Protection has been disabled on the Aux-System Setup 2 page.
FAILED PATH – A data path has failed.	A data path connected to the GDU or the GIA 64W has failed.

Message Advisory	Comments
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
FPL WPT LOCK – Flight plan waypoint is locked.	Upon applied power, the system detects that a stored flight plan waypoint is locked. This occurs when an navigation database update eliminates an obsolete waypoint. The flight plan cannot find the specified waypoint and flags this message. This can also occur with user waypoints in a flight plan that is deleted. Remove the waypoint from the flight plan if it no longer exists in any database, OR update the waypoint name/identifier to reflect the new information.
FPL WPT MOVE – Flight plan waypoint moved.	The system has detected that a waypoint coordinate has changed due to a new navigation database update. Verify that stored flight plans contain correct waypoint locations.
FS 510 MANIFEST – FS 510 software mismatch.	Incorrect software version. The system should be serviced.
FS510 CARD ERROR – FS510 not detected in MFD Bottom Slot.	The wireless transceiver (FS 510) multimedia card for the wireless transceiver (FS 510) was removed from the bottom card slot of the MFD. The multimedia card needs to be reinserted.
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1. The system should be serviced.
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1. The receiver may still be available. The system should be serviced when possible.
G/S2 FAIL – G/S2 is inoperative.	A failure has been detected in glideslope receiver 2. The system should be serviced.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 2. The receiver may still be available. The system should be serviced when possible.
GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The GDC 72 has incorrect software installed. The system should be serviced.
GDL59 CONFIG – GDL 59 config error. Config service req'd.	GDL 59 configuration settings do not match those of backup configuration memory. The system should be serviced.

Message Advisory	Comments
GDL59 FAIL – GDL 59 has failed.	A fault has been detected in the GDL 59. The receiver is unavailable. The system should be serviced.
GDL59 MANIFEST – GDL59 software mismatch, communication halted.	The GDL 59 has incorrect software installed. The system should be serviced.
GDL59 RTR FAIL – The GDL 59 router has failed.	A fault has been detected in the GDL 59 router. The system should be serviced.
GDL59 SERVICE – GDL 59 needs service. Return unit for repair.	A fault has been detected in the GDL 59. The system should be serviced.
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69A SXM configuration settings do not match those of backup configuration memory. The system system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69A SXM. The receiver is unavailable. The system system should be serviced.
GDL69 MANIFEST – GDL software mismatch, communication halted.	The 69A SXM has incorrect software installed. The system should be serviced.
GEA # [1, 2] CM INOP: COMM – Check GEA config module connection.	There is a problem with the GEA 1 and/or GEA 2 config module connection. Check the connection.
GEA # [1, 2] CM INOP: TEMP – Check GEA config module connection.	There is a problem with the GEA 1 and/or GEA 2 config module connection. Check the connection.
GEA # [1, 2] INOP: INTRL – GEA internal fault.	GEA 1 and/or GEA 2 has an internal fault. The system should be serviced.
GEA #[1, 2] INOP: POWER – Check GEA power.	GEA 1 and/or GEA 2 power is low. Check GEA power. If the problem persists, the system should be serviced.
GEA # [1, 2] INOP: SENS – Check GEA software and configuration.	There is an error in the GEA 1 and/or GEA 2 software and configuration. Check the software and configuration. If the problem persists, the system should be serviced.
GEA # [1, 2] INOP: TEMP – Check GEA cooling arrangement.	The GEA 1 and/or GEA 2 has insufficient cooling. If the problem persists, the system should be serviced.
GEA # [1, 2] INSPECT REQD – Redundant power supply is not present.	GEA 1 and/or GEA 2 backup power source is not connected. The system should be serviced.

Message Advisory	Comments
GEA # [1, 2] INSPECTION REQUIRED – Redundant power supply is not present.	GEA 1 and/or GEA 2 backup power source is not connected. The system should be serviced.
GEA #[1, 2] INOP: VOLT – Check GEA voltages.	The GEA 1 and/or GEA 2 voltage is low. Check GEA voltages.
GEA #[1, 2] INOP: VOLT EXCIT – Check GEA transducer power outputs.	The GEA 1 and/or GEA 2 transducer power is low. Check GEA transducer power.
GEA1 CONFIG – GEA1 config error. Config service req'd.	The GEA1 configuration settings do not match those of backup configuration memory. The system should be serviced.
GEA1 MANIFEST – GEA1 software mismatch, communication halted.	The GEA 1 has incorrect software installed. The system should be serviced.
GEA2 CONFIG – GEA2 config error. Config service req'd.	The GEA2 configuration settings do not match those of backup configuration memory. The system should be serviced.
GEA2 MANIFEST – GEA2 software mismatch, communication halted.	The #2 GEA has incorrect software installed. The system should be serviced.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA1 COOLING – GIA1 over temperature.	The GIA1 temperature is too high. If problem persists, the system should be serviced.
GIA1 MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 has incorrect software installed. The system should be serviced.

Message Advisory	Comments
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 self-test has detected a problem in the unit. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 COOLING – GIA2 over temperature.	The GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 temperature too low.	The GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 MANIFEST – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	The GIA2 self-test has detected a problem in the unit. The system should be serviced.
GMA XTALK – GMA crosstalk error has occurred.	An error has occurred in transferring data between the two GMAs. The system should be serviced.
GMA1 AUX MANIFEST – Software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA1 INSPECTION REQUIRED – Redundant power supply is not present.	GMA1 backup power source is not connected. The system should be serviced.
GMA1 MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.

Message Advisory	Comments
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.
GPS NAV LOST – Loss of GPS navigation. Enable GPS sensors.	Loss of GPS navigation due to GPS sensors not enabled.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
GPS #[1, 2] INSPECT RQRD - BATT - Check GPS battery.	The GPS battery needs to be checked.
GPS #[1, 2] INSPECT INOP - CAL - Check GPS battery.	GPS 1 and/or GPS 2 calibration version error. Check GPS calibration.
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
GRA1 CAL – GRA1 calibration. Service req'd.	GRA1 has improper calibration. The system should be serviced.
GRA1 CONFIG – GRA1 config error. Config service req'd.	The GRA and GDU have incompatible configurations.
GRA1 MANIFEST – GRA1 software mismatch, communication halted.	The GRA has incorrect software installed. The system should be serviced.
GRA1 SERVICE – GRA1 needs service. Return unit for repair	The GRA self-test has detected a problem in the unit. The system should be serviced.
GRA1 TEMP – GRA1 over temperature.	The system has detected an over temperature condition in GRA1.
GRS1 MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.
GSR1 FAIL – GSR1 has failed.	A failure has been detected in the GSR 56. The transceiver is unavailable. The system should be serviced.

Message Advisory	Comments
GTS CONFIG – GTS Config error. Config service req'd.	The GTS and GDU have different copies of the GTS configuration, or the Mode S address is invalid. The system should be serviced.
GTS MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.
GTX1 MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
GWX CONFIG – GWX config error. Config service req'd.	GWX 70/75 configuration settings do not match those of the GDU configuration. The system should be serviced.
GWX FAIL – GWX is inoperative.	The GDU is not recieving status packet from the GWX 70/75 is reporting a fault. The GWX 70/75 radar system should be serviced.
GWX MANIFEST – GWX software mismatch, communication halted.	The GWX 70/75 has incorrect software installed. The system should be serviced.
GWX SERVICE – Needs service. Return unit for repair.	A failure has been detected in the GWX 70/75. The GWX 70/75 may still be usable.
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the GMU. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
INVALID ADM – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
LRG MAG VAR – Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.

Message Advisory	Comments
LRU CARD1 ERR – LRU card 1 is invalid.	The SD card in the top card slot of the LRU is invalid.
LRU CARD1 REM – LRU card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the LRU. The SD card needs to be reinserted.
LRU CARD2 ERR – LRU card 2 is invalid.	The SD card in the bottom card slot of the LRU is invalid.
LRU CARD2 REM – LRU card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the LRU. The SD card needs to be reinserted.
LRU CARD3 ERR – LRU card 3 is invalid.	The internal SD micro card of the LRU is invalid.
LRU CARD3 REM – LRU card 3 was removed. Reinsert card.	The internal SD micro card was removed. The SD card needs to be reinserted.
LRU CONFIG – LRU config error. Config service req'd.	The LRU configuration settings do not match backup configuration memory. The system should be serviced.
LRU COOLING – LRU has poor cooling. Reducing power usage.	The LRU is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
LRU DB ERR – LRU multiple database errors exists.	The LRU detected a failure in more than one database. If problem persists, the system should be serviced.
LRU DB ERR – LRU obstacle database error exists.	The LRU detected a failure in the obstacle database. Reload the database with new data card. If problem persists, delete database and reload with a new card.
LRU DB ERR – LRU terrain database error exists.	The LRU detected a failure in the terrain database. Reload the database with new data card. If problem persists, delete database and reload with a new card.
LRU DB ERR – LRU terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
LRU REPLACEMENT – [LRU name].	The system has detected an LRU replacement. Perform LRU replacement software or full configuration loading procedure.
LRU SERVICE – LRU needs service. Return unit for repair.	The LRU self-test has detected a problem. The system should be serviced.
LRU SOFTWARE – LRU mismatch, communication halted.	LRU has different software versions installed. The system should be serviced.

Message Advisory	Comments
LRU TERRAIN DSP – LRU Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the LRU is missing or invalid.
LRU VOLTAGE – LRU has low voltage. Reducing power usage.	LRU voltage is low. The system should be serviced.
MANIFEST – MFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – PFD1 software mismatch, communication halted.	
MFD1 CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified MFD contains invalid data.
MFD1 CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified MFD. The SD card needs to be reinserted.
MFD1 CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified MFD contains invalid data.
MFD1 CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified MFD. The SD card needs to be reinserted.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	The MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 Airport Directory database error exists.	The MFD detected a failure in the Airport Directory database. Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD detected a failure in the basemap database.
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD detected a failure in the ChartView database (optional feature). Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD detected a failure in the FliteCharts database (optional feature). Attempt to reload the database. If problem persists, the system should be serviced.

Message Advisory	Comments
MFD1 DB ERR – MFD1 multiple database errors exists.	The MFD detected a failure in more than one database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD detected a failure in the obstacle database. Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD detected a failure in the Safe Taxi database. Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD detected a failure in the terrain database. Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD detected a failure in the terrain database. Attempt to reload the database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
MFD FAN FAIL – The cooling fan for the MFD is inoperative..	The cooling fan in the MFD has failed. The system should be serviced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
MFD1 KEYSTK – MFD1 [key name] is stuck.	A key is stuck on the MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
NAV #[1, 2] INOP - CAL - Check COM calibration.	NAV 1 and/or NAV 2 calibration version error. Check COM calibration.
NAV #[1, 2] INOP - CRNT - Check COM current.	NAV 1 and/or NAV 2 current is low. Check COM current.
NAV #[1, 2] INOP - INTRL - Com internal fault.	NAV 1 and/or NAV 2 has an internal fault.

Message Advisory	Comments
NAV #[1, 2] INOP - SERIAL - Check NAV serial communication.	Loss of NAV 1 and/or NAV 2 serial communication. Check NAV serial communication.
NAV #[1, 2] INOP - SYNTH LOCK - COM synthesiser lock fault.	NAV 1 and/or NAV 2 has a synthesizer lock fault.
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 receiver. The receiver may still be available. The system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	A failure has been detected in the NAV2 receiver. The receiver may still be available. The system should be serviced.
NO RUNWAY POSITION DATA – Inhibit SurfaceWatch. No runway position data.	Inhibit SurfaceWatch.
NON WGS84 WPT – Do not use GPS for navigation to [xxxx]	The position of the selected waypoint [xxxx] is not calculated based on the WGS84 map reference datum and may be positioned in error as displayed. Do not use GPS to navigate to the selected non-WGS84 waypoint..
PFD1 CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified PFD contains invalid data.
PFD1 CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD. The SD card needs to be reinserted.
PFD1 CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified PFD contains invalid data.
PFD1 CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD. The SD card needs to be reinserted.
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.

Message Advisory	Comments
PFD1 DB ERR – PFD1 basemap database error exists.	The PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 multiple database errors exists.	The PFD detected a failure in more than one database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 navigation database error exists.	The PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	The PFD detected a failure in the Safe Taxi database. Attempt to reload the database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	The PFD detected a failure in the terrain database. Attempt to reload the database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD FAN FAIL – The cooling fan for the PFD is inoperative.	The cooling fan in the PFD has failed. The system should be serviced.
PFD1 INOP - DISABLE DISPLAY – Check Disable Display Input Wiring	The specified GDU has insufficient voltage. The system should be serviced.
PFD1 INOP - ECC ERROR – Internal memory unstable - needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.
PFD1 INOP - HTR CRNT – Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
PFD1 INOP - LED STR FAULT – Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
PFD1 INOP - TEMP – Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.
PFD1 INSPECT RQRD – BTM SD - Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.
PFD1 INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.

Message Advisory	Comments
PFD1 INSPECT RQRD – TOP SD - Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
PFD1 KEYSTK – PFD1 [key name] is stuck.	A key is stuck on the PFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT MAG – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to Magnetic.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
SLCT NON-MAG – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to True.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.
SURFACEWATCH DISABLED – Too far north/south.	The SurfaceWatch system has been disabled.

Message Advisory	Comments
SURFACEWATCH FAIL – Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.
SURFACEWATCH FAIL – Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.
SURFACEWATCH FAIL – One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.
SURFACEWATCH INHIBITED – Surfacewatch inhibited.	The SurfaceWatch system has been inhibited.
SVT DISABLED – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVT DISABLED – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (4.9 arc-second or better) is not currently installed.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot the timer has expired.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV UNAVAILABLE. – Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
VNV UNAVAILABLE. – Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
VNV UNAVAILABLE. – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
VNV UNAVAILABLE. – Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
WX ALERT – Possible severe weather ahead.	The GWX 70 indicates severe weather within ±10 degrees of the aircraft heading at a range of 80 to 320 nm.
XPDR1 ADS-B FAIL – XPDR1 unable to transmit ADS-B messages.	ADS-B is inoperative. Other transponder functions may be available. Transponder should be serviced when possible.

Message Advisory	Comments
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.

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APPENDIX

DATABASE MANAGEMENT

Database information is obtained from third party sources. Inaccuracies in the data may be discovered from time to time. Garmin communicates this information by issuing a Database Alert. These notifications are available on flygarmin.com.

Garmin requests the flight crew report any observed discrepancies related to database information. These discrepancies could come in the form of an incorrect procedure; incorrectly identified terrain, obstacles and fixes; or any other displayed item used for navigation or communication in the air or on the ground. Go to flygarmin.com and select Aviation Data Error Report.

A 32 GB Supplemental Data (SD) card (including FS 510 Wireless Transceiver card when used as a storage device) is required to perform database updates. Only cards provided by Garmin or the OEM should be used. In the event there is a file corruption problem with the SD card or Wireless Transceiver card, it may be necessary to reformat the card. This can cause an issue when formatting using Mac OS, where the newly formatted device will not be recognized by the avionics system. When using a Macintosh computer to format the SD card or Wireless Transceiver card, Garmin recommends using the SD Memory Card Formatter application made available by the SD Association as a download from sdcard.org. When running the application, use the Quick Format option.

NOTE: *Use of SD cards that are not Garmin or OEM provided may cause system malfunctions when left in the MFD after the databases are loaded.*

Databases may be loaded through Garmin Pilot™ and Wireless Transceiver. When loading databases through Garmin Pilot™ and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system and the Wireless Transceiver card inserted in the bottom SD slot of the MFD.

LOADING UPDATED DATABASES

CAUTION: *Never disconnect power to the system when loading a database. Power interruption during the database loading process could result in maintenance being required to reboot the system.*

NOTE: *When loading database updates, the 'DB Mismatch' message will be displayed until database synchronization is complete, followed by turning system power off, then on. Synchronization can be monitored on the 'Aux-Database' Page.*

The cycles and dates for both standby and active databases are displayed on the 'Aux – Databases' Page on the MFD. Any active databases with expiration dates in the past will be highlighted with amber text. When an expired active database has a standby database that is ready to become effective, a cyan double-sided arrow will be displayed between the database cycles. When this arrow is visible, it indicates the standby and active databases in that row will be switched on the next power cycle, activating the current standby database. Databases can also be manually selected (or deselected) by highlighting a list item and pressing the **ENT** Key, provided a valid, verified standby database is present.

In some cases it may be necessary to obtain an unlock code from Garmin in order to make the database product functional. It may also be necessary to have the system configured by a Garmin authorized service facility in order to use some database features.

In some cases it may be necessary to obtain an unlock code from Garmin in order to make the database product functional. It may also be necessary to have the system configured by a Garmin authorized service facility in order to use some database features.

UPDATING DATABASES WITH SD CARD OR WIRELESS TRANSCEIVER CARD

All databases are updated through a single SD card or Wireless Transceiver card in the bottom slot of the MFD. When the card is inserted, the databases on the card will be copied to standby and synchronized across all powered, configured units. After update, the card is removed and the databases are stored on the system. When in standby, databases are not immediately available for use, but stored to be activated at a later time.

Database updates can be obtained by following the instructions detailed in the 'Aviation Databases' section of the Garmin website (flygarmin.com). Once the updated files have been downloaded from the website, a personal computer equipped with an appropriate SD card reader is used to unpack and program the new databases onto an existing SD card. When database files are loaded to the SD card, any previously loaded database files of the same type residing on the SD card will be overwritten. This includes loading a database of a different coverage area or data cycle than that currently residing on the SD card. Equipment required to perform the update is as follows:

- PC with Window Vista or later/Mac with OS X 10.9 or later
- SD card Reader: SanDisk SDDR-93, SanDisk SDDR-99, Verbatim #96504, or equivalent.
- Garmin SD card reader for Wireless Transceiver cards.
- Updated databases obtained from the Garmin website.
- Garmin or OEM provided 32 GB SD card or Wireless Transceiver card.

Update Databases:

1) With the system OFF, remove an SD card or Wireless Transceiver card from the bottom SD card slot of the MFD.
2) Download and install the databases on an SD card.

3) Put the card in the bottom SD card slot of the MFD.
4) Turn the system ON.
5) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
6) Turn the large **FMS** Knob and select 'Aux'.
7) Turn the small **FMS** Knob and select 'Databases'.
8) Database synchronization will begin. Monitor the Sync Status on the 'Aux-Databases' Page. Wait for all databases to complete syncing, indicated by 'Sync Complete' being displayed. A cyan double-arrow will appear between the 'Standby' and 'Active' columns to show which Standby databases will be transferred to 'Active' at the next power cycle.

   Or:

   If Automatic Swap is inhibited:

   a) Press the **FMS** Knob. The first database title on the screen will be selected.
   b) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

      Or:

      Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.
   c) Turn the small **FMS** Knob as necessary to select the additional titles.
   d) Repeat steps a through c for additional databases to be transferred.
9) Verify the correct database cycle information is shown in the 'Standby' Column.
10) Remove and reapply power to the system.
11) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.
12) Turn the large **FMS** Knob and select 'Aux'.
13) Turn the small **FMS** Knob and select 'Databases'.
14) Verify the standby databases transferred and are now in the 'Active' Column.
15) To manually activate any databases that did not transfer to the 'Active' Column:
   a) Press the **FMS** Knob. The first database title on the screen will be selected.
   b) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

      Or:

      Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

c) Turn the small **FMS** Knob as necessary to select the additional titles.

d) Repeat steps a through c for additional databases to be transferred.

e) Remove and reapply power to the system.

f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.

g) Turn the large **FMS** Knob and select Aux.

h) Turn the small **FMS** Knob and select Databases.

i) Verify the standby databases transferred and are now in the 'Active' Column.

16) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

Or:

Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.

17) To view database information for an individual display:

a) Turn the large **FMS** Knob and select Aux.

b) Turn the small **FMS** Knob and select System Status.

c) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

UPDATING DATABASES WITH GARMIN PILOT / WIRELESS TRANSCEIVER

In order to load databases through Garmin Pilot™ and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system and inserted in the bottom SD slot of the MFD. A mobile device with Garmin Pilot™ must be paired with the wireless transceiver over Bluetooth (Refer to the Additional Features section). When the system is enabled it will automatically connect to the preferred device. If the preferred device has not been selected or is not available, the system will automatically connect to the first of any available, paired devices. The preferred device can be selected on the 'Aux - Databases' Page from a menu list of paired devices.

Once a connection to the paired mobile device is made, Garmin Pilot™ makes available databases that can be transferred to the Wireless Transceiver. If any of these databases is more recent than the respective standby database on the system, (or if there is no standby database on the system) those databases will be automatically selected to load. The database updates may be initiated from the 'Aux - Databases' Page, or from other pages on the MFD.

NOTE: *The system will only provide a WIFI connection if new databases have been detected for download on Garmin Pilot™ WIFI a valid Bluetooth connection. If there are no database updates required the system will not provide a WiFi signal.*

NOTE: *If the mobile device has previously connected to the Wireless Transceiver, and is not connected to another bluetooth device, the mobile device should connect automatically to the Wireless Transceiver. If the mobile device is connected to another bluetooth device, then the Wireless Transceiver will not connect automatically.*

NOTE: *For these instructions, if Automatic Swap has been disabled, no databases will be selected to transfer from Standby to Active. Use the instructions later in this section to update databases from the 'Aux - Databases' Page, or use the instructions later in this section to enable Automatic Swap.*

Update Databases from any MFD page (except the 'Aux - Databases' Page):

1) Insert the Wireless Transceiver card in the bottom slot of the MFD if not already inserted.
2) Turn the system ON.
3) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
4) On the mobile device, start Garmin Pilot and touch **Home > Connext > Database Concierge.**
5) Turn the large **FMS** Knob and select 'Aux'.
6) Turn the small **FMS** Knob and select the 'Connext Setup'.
7) Ensure that WIFI Database Import is enabled in the 'Device' Window (Refer to Additional Features section for instructions to enable WIFI Database Import).
8) Verify the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.
9) In the 'Paired Devices' Window on the 'Connext Setup' Page, ensure the system is paired with the mobile device in use. (Refer to Additional Features for instructions on connection to a preferred device).

NOTE: *The database updates may now be continued from any MFD page, however, the update windows shown in these instructions will not be shown on the 'Aux - Databases' Page. Use the instructions for updating databases from the 'Aux - Databases' Page if desired.*

10) Press the **Update** Softkey when the following window appears. (Pressing the **View** Softkey will allow database updates to be viewed from the 'Aux Databases' Page, however, the windows shown below will not appear on the 'Aux Databases' Page. Pressing the **Ignore** Softkey will postpone the updates until further action is taken.)

11) If using a device that has not been previously paired with the system, a password prompt will appear on the mobile device. Enter the password shown in the 'Password' Field of the 'Aux - Connext Setup' Page.

12) The following window will appear. Database update progress may be monitored on the mobile device.

13) When the transfer is complete, the following screen will appear.

14) Press the **Close** Softkey.

15) Remove and reapply power to the system.

16) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

17) Turn the large **FMS** Knob and select 'Aux'.

18) Turn the small **FMS** Knob and select 'Databases'.

19) Verify the standby databases transferred and are now in the 'Active' Column.

20) To manually activate any databases that did not transfer to the 'Active' Column:

a) Press the **FMS** Knob. The first database title on the screen will be selected.

b) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

c) Turn the small **FMS** Knob as necessary to select the additional titles.

d) Repeat steps a through c for additional databases to be transferred.

e) Remove and reapply power to the system.

f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.

g) Turn the large **FMS** Knob and select Aux.

h) Turn the small **FMS** Knob and select Databases.

i) Verify the standby databases transferred and are now in the 'Active' Column.

21) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

Or:

Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.

22) To view database information for an individual display:

a) Turn the large **FMS** Knob and select Aux.

b) Turn the small **FMS** Knob and select System Status.

c) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

Update Databases from the 'Aux - Databases' Page:

NOTE: *The system will only provide a WIFI connection if new databases have been detected for download on Garmin Pilot via a valid Bluetooth connection. If there are no database updates required the system will not provide a WIFI signal.*

NOTE: *If the mobile device has previously connected to the Wireless Transceiver, and is not connected to another bluetooth device, the mobile device should connect automatically to the Wireless Transceiver. If the mobile device is connected to another bluetooth device, then the Wireless Transceiver will not connect automatically.*

1) Insert the wireless transceiver SD card in the bottom slot of the MFD if not already inserted.

2) Turn the system ON.

3) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.

4) On the mobile device, start Garmin Pilot and touch **Home > Connext > Database Concierge.**

5) Turn the large **FMS** Knob and select 'Aux'.

6) Turn the small **FMS** Knob and select the 'Connext Setup'.

7) Ensure that WIFI Database Import is enabled in the 'Device' Window (Refer to Additional Features section for instructions to enable WIFI Database Import).

8) Verify the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.

9) In the 'Paired Devices' Window on the 'Connext Setup' Page, ensure the system is paired with the mobile device in use. (Refer to Additional Features for instructions on connection to a preferred device).

10) Press the **Device** Softkey to view databases that are ready to be loaded from the mobile device (pressing the **Stby/Actv** Softkey will again display the current Standby and Active databases).

11) The 'Aux - Databases' Page will show the databases connected to the mobile device in place of the active databases on the system. Databases selected to load to the system will be indicated by a single cyan arrow.

12) Press the **Update** Softkey.

13) If using a device that has not been previously paired with the system, a password prompt will appear on the mobile device. Enter the password shown in the 'Password' Field of the 'Aux - Connext Setup' Page.

14) Database Update status will appear in the 'Status' Window at the top of the page. Monitor update progress in the 'Status' Window, or on the mobile device.

15) When all databases have been successfully transferred from the mobile device, they will appear in the Standby Column.

16) Database synchronization will begin. Monitor the 'Sync Status' on the 'Aux-Databases' Page. Wait for all databases to complete synchronizing, indicated by 'Sync Complete' being displayed. A cyan double-arrow will appear between the 'Standby' and 'Active' Columns to show which Standby databases will be transferred to 'Active' at the next power cycle.

Or:

If Automatic Swap is inhibited:

a) Press the **FMS** Knob. The first database title on the screen will be selected.

b) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

c) Turn the small **FMS** Knob as necessary to select the additional titles.

d) Repeat steps a through c for additional databases to be transferred.

17) Remove and reapply power to the system.

18) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

19) Turn the large **FMS** Knob and select 'Aux'.

20) Turn the small **FMS** Knob and select 'Databases'.

21) Verify the standby databases transferred and are now in the 'Active' Column.

22) To manually activate any databases that did not transfer to the 'Active' Column:

a) Press the **FMS** Knob. The first database title on the screen will be selected.

b) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

c) Turn the small **FMS** Knob as necessary to select the additional titles.

d) Repeat steps a through c for additional databases to be transferred.

e) Remove and reapply power to the system.

f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.

g) Turn the large **FMS** Knob and select Aux.

h) Turn the small **FMS** Knob and select Databases.

i) Verify the standby databases transferred and are now in the 'Active' Column.

23) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

Or:

Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.

24) To view database information for an individual display:

a) Turn the large **FMS** Knob and select Aux.

b) Turn the small **FMS** Knob and select System Status.

c) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

DELETING DATABASES

If databases are not properly loading or functioning, and an attempt has been made to load the databases using a new SD card or multimedia card, it may be necessary to delete the databases from the system.

Deleting the databases:

1) Turn the large **FMS** Knob and select 'Aux'.

2) Turn the small **FMS** Knob and select 'Databases'.

3) Press the **Menu** Key.
4) Turn the small **FMS** Knob to select 'Delete Databases.'
5) Press the **ENT** Key.
6) A prompt will appear to confirm deletion of all internal databases. Push the **ENT** Key.
7) Another prompt will appear to confirm deletion of all internal databases. Push the **ENT** Key.
8) Remove and reapply power to the system.
9) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
10) Turn the large **FMS** Knob and select 'Aux'.
11) Turn the small **FMS** Knob and select 'Databases'.
12) Confirm that all databases have been deleted from the system.

MAGNETIC FIELD VARIATION DATABASE UPDATE

A copy of the current magnetic field variation database (MV DB) is included with the navigation database. At startup, the system compares this version of the MV DB with that presently being used by the AHRS (GRS1). If the system determines the MV DB needs to be updated, a prompt is displayed on the MFD.

Load the magnetic field variation database update:

1) With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed.

When the upload is complete, the system is ready for use.

SOFTKEY MAPS

PFD SOFTKEYS

Level 1	Level 2	Level 3	Level 4	Description
CAS				When available, opens CAS scrolling buttons.
	CAS Up			When available, scrolls up through CAS messages.
	CAS Dn			When available, scrolls down through CAS messages.
Map/HSI				Displays the PFD map display settings softkeys.
	Layout			Displays the PFD map selection softkeys.
		Map Off		Removes the PFD map from display (Inset, HSI, or Traffic).

Level 1	Level 2	Level 3	Level 4	Description
		Inset Map		Displays the Inset Map.
		HSI Map		Displays the HSI Map.
		Inset Trfc		Replaces the Inset Map with a dedicated traffic display.
		HSI Trfc		Replaces the HSI Map with a dedicated traffic display.
	Detail			Selects desired amount of map detail: - **All** (no declutter): All map features visible. - **Detail 3**: Declutters land data. - **Detail 2**: Declutters land and SUA data. - **Detail 1**: Removes everything except for the active flight plan.
	Traffic			Displays traffic information on PFD map.
	TER			Selects desired amount of terrain detail: - **Topo**: Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on PFD map. - **REL**: Displays relative terrain information on the PFD map. - **Off**: Removes terrain.
	WX LGND			Displays/removes the name of the selected weather data provider and the weather product icon and age box (for enabled weather products).
	NEXRAD			Displays NEXRAD weather and coverage on PFD map (optional).
	METAR			Displays METAR information on Inset Map (optional).
	Lightning			Adds/removes the display of lightning information on PFD map (optional).
		LTNG Off		Disables lightning function on PFD map. The softkey annunciator is green when the lightning function is off.
		Datalink		Selects the datalink lightning source for the PFD map.

Level 1	Level 2	Level 3	Level 4	Description
		STRMSCP		Adds or removes the display of Stormscope information on the PFD map.
	WX Radar			Displays the airborne weather radar overlay on HSI Map (optional).
	RDR Opt			Displays softkeys for airborne weather radar options.
		Mode		Displays softkeys for weather radar mode selection.
			Standby	Selects standby weather radar mode.
			Weather	Activates weather radar mode.
			Ground	Activates ground map weather radar mode.
		Gain -		Decreases weather radar gain setting.
		Gain +		Increases weather radar gain setting.
		GCS		Removes ground clutter from the displays.
		Features		Displays softkeys for weather radar feature selection.
			WX Alert	Provides message to crew when a weather alert is within 10 degrees of aircraft heading.
			WX Watch	Activates Weather Attenuated Color Highlight (WATCH).
			ACT	Activates Altitude Compensated Tilt (ACT).
			TURB	Activates the identification of potential erratic movement of high altitude air mass associated winds (i.e., turbulence).
TFC Map				Replaces the PFD map with a dedicated traffic display.
PFD Opt				Displays second-level softkeys for additional PFD options.
	SVT			Displays additional SVT overlay softkeys (optional).
		Pathways		Displays Pathways on the synthetic vision display.
		Terrain		Enables synthetic terrain depiction.

Level 1	Level 2	Level 3	Level 4	Description
		HDG LBL		Displays compass heading along the Zero-Pitch Line.
		APT Sign		Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are displayed when the airport is within approximately 9 nm.
		Wire		Displays power lines on the synthetic vision display.
	Wind			Displays the wind option softkeys.
		Off		Wind information not displayed.
		Option 1		Wind displayed as headwind/tailwind and crosswind arrows with numeric speed components.
		Option 2		Wind displayed as a single arrow which points in the direction the wind is blowing relative to the nose of the aircraft, and a digital display of the magnitude of wind velocity.
		Option 3		Wind displayed as a single arrow which points in the direction the wind is blowing relative to the nose of the aircraft, with a digital display of the headwind/tailwind component of wind velocity, and digital display of the crosswind component of wind velocity.
	ADF/DME			Displays ADF and/or DME information (optional).
	Bearing 1			Cycles the Bearing 1 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, ADF/DME frequency, and Off.
	Bearing 2			Cycles the Bearing 2 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, ADF/DME frequency, and Off.

Level 1	Level 2	Level 3	Level 4	Description
	ALT Units			Displays softkeys to select altitude unit parameters.
		Meters		Displays Altimeter settings in meters.
		IN		Displays the BARO setting as inches of mercury.
		HPA		Displays the BARO setting as hectopascals.
	STD Baro			Sets barometric pressure to 29.92 in Hg (1013 hPa if metric units are selected).
OBS				Selects OBS Mode on the CDI when navigating by GPS (only available with active leg). When OBS is on, the softkey annunciator is green.
CDI				Cycles through GPS, NAV1, and NAV2 navigation modes on the CDI.
ADF/DME				Displays the 'ADF/DME Tuning' Window, allowing selection and tuning of the ADF and DME (optional).
XPDR				Displays the transponder selection softkeys.
	Standby			Selects transponder standby mode (transponder does not reply to any interrogations).
	On			Activates transponder (transponder replies to identification interrogations).
	ALT			Selects altitude reporting mode (transponder replies to identification and altitude interrogations).
	VFR			Automatically enters the VFR code (1200 in the U.S.A. only).
	Code			Displays transponder code selection softkeys 0-7.
		0 – 7		Use numbers to enter code.
		Ident		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
		BKSP		Removes numbers entered, one at a time.

Level 1	Level 2	Level 3	Level 4	Description
	Ident			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
Ident				Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
TMR/REF				Displays 'References' Window.
Nearest				Displays 'Nearest Airports' Window.
Alerts or Message				Displays 'Alerts' Window. System generated messages cause the **Alerts** Softkey to change to a flashing **Message** Softkey. Pressing the **Message** Softkey opens the 'Alerts' Window, acknowledges the message, and the softkey reverts to **Alerts**.

MFD SOFTKEYS

Level 1	Level 2	Level 3	Description
Engine			Displays the 'EIS – Engine' Page and second-level engine softkeys; press again to exit page (see the EIS Section for more information).
	Engine		Returns to previously shown softkeys.
	DEC Fuel		Decreases calculated fuel remaining by 1 gallon for each softkey press.
	INC Fuel		Increases calculated fuel remaining by 1 gallon for each softkey press.
	RST Fuel		Resets calculated fuel remaining to the maximum fuel capacity (50 gallons).
Map Opt			Displays map softkey selectable features.
	Traffic		Displays traffic information on the 'Map – Navigation Map' Page.
	Inset		Displays second level softkeys for the VSD Inset.
		Off	Removes VSD Inset from 'Map – Navigation Map' Page.
		VSD	Displays VSD Inset profile information of terrain/obstacles along the current track, vertical track vector and Selected Altitude.

Level 1	Level 2	Level 3	Description
		VSD	Determines information displayed on VSD Inset: - **Auto**: Automatically displays either VSD profile information for active flight plan or along current track with no active flight plan. - **FPL**: Displays VSD profile information for active flight plan. - **TRK**: Displays VSD profile information along current track.
	TER		Selects desired amount of terrain detail: - **Off**: No terrain information shown on MFD map. - **Topo**: Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on MFD map. - **REL**: Displays relative terrain information on MFD map.
	AWY		Displays airways on the map; cycles through the following: - **Off**: No airways are displayed. - **On**: All airways are displayed. - **LO**: Only low altitude airways are displayed. - **HI**: Only high altitude airways are displayed.
	STRMSCP		Adds or removes the display of Stormscope information on the 'Map – Navigation Map' Page (optional).
	NEXRAD		Displays NEXRAD weather information on the 'Map – Navigation Map' Page (optional).
	XM LTNG		Displays XM lightning information on the 'Map – Navigation Map' Page (optional).
	METAR		Displays METAR information on MFD Map (optional).
	Legend		Displays legends for the displayed weather products (optional).
	WX Radar		Displays weather radar overlay (optional).
Detail			Selects desired amount of map detail: - **All** (no declutter): All map features visible. - **Detail 3**: Declutters land data. - **Detail 2**: Declutters land and SUA data. - **Detail 1**: Removes everything except for the active flight plan.
Charts			Displays optional airport and terminal procedure charts, when available.
	CHRT Opt		Displays chart display settings softkeys, when available.

Level 1	Level 2	Level 3	Description
		ROT CCW	Rotates chart 90 degrees counter clockwise.
		ROT CW	Rotates chart 90 degrees clockwise.
		Fit WDTH	Chart zoom adjusted to fill width of display.
		Full SCN	When the annunciator bar is green, full screen mode is enabled. The annunciator bar is grey when in split screen mode.
	SYNC		Displays the chart associated with the current phase of flight.
	Info		Returns to the selected airport information chart (Airport Diagram, Alternate Minimums, Climb/Descent Table, Diverse Vector Area, Hot Spot, INOP Components, LAHSO, and Takeoff Minimums).
	DP		Displays departure procedure chart.
	STAR		Displays standard terminal arrival procedure chart.
	APR		Displays approach procedure chart.
	NOTAM		Displays NOTAM information for selected airport, when available.
	Charts		Displays optional airport and terminal procedure charts, when available.
	Checklist		Displays optional checklists, when available.
Checklist			Displays optional checklists, when available.

SYSTEM SYMBOLS

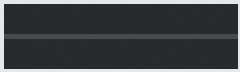
PFD NAVIGATION STATUS BOX

Symbol	Description	Symbol	Description
	Active Leg		Left Holding Pattern
	Direct-to		Vector to Final
	Right Procedure Turn		Right DME Arc/Radius to Fix Leg
	Left Procedure Turn		Left DME Arc/Radius to Fix Leg
	Right Holding Pattern		

MAP DISPLAY SYMBOLS

Land Symbols

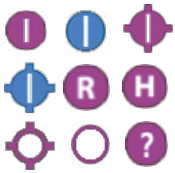
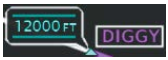
The following items are configured on the land menu:

Land Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
User Waypoint		25	1000
Highways and Roads		(see below)	
Interstate Highway (Freeway)		50	400
International Highway (Freeway)		50	400
US Highway (National Highway)		15	150
State Highway (Local Highway)		2.5	100
Local Road (Local Road)	N/A	4	25
Railroad		7.5	25
Large City (> 200,000)		100	1000
Medium City (> 50,000)		50	400
Small City (> 5,000)		25	100
State/Province		400	1000
River/Lake		75	100
Latitude/Longitude (LAT/LON)		1	1000

Land Symbol Information

Aviation Symbols

The following items are configured on the aviation menu:

Aviation Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Large Airport (Longest Runway ≥ 8100 ft)		100	1000
Medium Airport (8100 ft > Longest Runway ≥ 5000 ft, or Longest Runway < 5000 ft with control tower)		50	400
Small Airport (Longest Runway < 5000 ft without a control tower)		25	100
Taxiways (SafeTaxi)	See Additional Features	1.5	5
Runway Extension		7.5	150
Intersection (INT)		25	40
Non-directional Beacon (NDB)		25	50
VOR (VOR, VOR/DME, DME, VORTAC, TACAN)		50	250
- VOR Compass Rose On/Off		N/A	N/A
Visual Reporting Point (VRP)		25	40
Temporary Flight Restriction (TFR)		250	1000
VNAV Constraints (manually modified) ('Show All' also displays auto-designated and published constraints)		1000	1000

Aviation Symbol Information

Airspace Symbols

The following items are configured on the airspace menu:

Airspace Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Class B Airspace Altitude Label (ceiling/floor)		Variable [1]	
Class C Airspace Altitude Label (ceiling/floor)			
Class D Airspace Altitude Label (ceiling)			
CL B/TMA/AWY	(see below)		
- Class B (CL B) and Terminal Manoeuvring Area (TMA) [2]		50	150
- Airway (AWY) [2]			
CL C/CTA	(see below)		
- Class C Airspace (CL C)		50	100
- Control Area (CTA) [2]			
CL A/D	(see below)		

Airspace Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
- Terminal Radar Service Area (TRSA), Controlled Traffic Region (CTR) [2], and Class A (CL A) [2]		10	100
- Class D			
- Aerodrome Traffic Zone (ATZ) [2]			
- Traffic Information Zone (TIZ) [2]			
Restricted and Prohibited Areas (Restricted)		50	100
Military Operations Areas (MOA (Military))		50	250
Other	(see below)		
- ADIZ		50	250
- Alert			
- Class E [2]			
- Class G [2]			
- Temporary [2]			
- Danger, Warning, Unknown, Special Rules [2], and Training [2]			

[1] *Label placement and range is determined by the system for best display and minimal clutter*

[2] *Not located in the United States*

Airway symbols

The following items are configured on the airways menu:

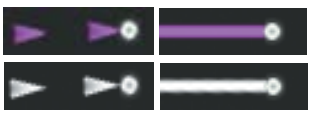
Airway Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Low Altitude Airway (V Routes and T Routes)		50	100
High Altitude Airway (J Routes and Q Routes)		50	100

Miscellaneous Map Display Symbols

The icons in the following table will be displayed when specific map functions are conducted or the heading or GPS solution is invalid:

Symbol Name	Description	Symbol
ARTCC Frequency or FSS Frequency	Displayed when using the Nearest Frequencies function	
Map Pointer	Displayed when panning (see Using Map Displays in Flight Management)	
Measuring Pointer	Displayed when measuring bearing and distance	
No heading aircraft icon	Replaces the normal aircraft icon when aircraft GPS location is valid, but the heading is invalid.	
Dead reckoning aircraft icon	'DR' text displayed over the aircraft icon when the GPS solution is invalid	

FLIGHT PLANNING SYMBOLS

Flight Plan Symbol Name	Description	Symbol
Course Leg	Course leg currently flown	
	A future course leg in the current phase of flight	
	A course leg in either a previously flown course leg, or a future course leg not in the current phase of flight	
Heading Leg	Heading leg currently flown	
	Future heading leg	
Roll Steering Path [1]	Turning path currently flown	
	Turning path for the next flight plan leg	
	Turning path beyond the next flight plan leg	
Turn Anticipation Arc	Displayed when sequencing to the next flight plan leg via a fly-by waypoint, a lead turn is created, adjusting for groundspeed	
Fly-Over Waypoint	Displayed as a fly-over waypoint	
Along Track Waypoint	Displayed when an along track waypoint is created	
Flight Path Fix	A fix that terminates: manually, at a specified altitude, or at a specified distance or radial when flying a heading	
Top of Descent (TOD) and Bottom of Descent (BOD)	When vertically navigating, the system will display where the aircraft will begin complete the descent	
Parallel Track Waypoint	Displayed when a parallel track is created	

[1] *Roll Steering Path transitions between two disconnected legs (i.e. holding), some procedure turn segments, parallel track segments, or after some fly-over waypoints.*

TERRAIN SYMBOLS

Relative Obstacle Symbols and Colors

Unlighted Obstacle		Lighted Obstacle		Obstacle Location
< 1000′ AGL	> 1000′ AGL	< 1000′ AGL	> 1000′ AGL	
				Red obstacle is above or within 100 ft below the aircraft altitude
				Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude
				White obstacle is more than 1000 ft below aircraft altitude

Wind Turbine Obstacles and Colors

Unlighted Wind Turbine Obstacle	Lighted Wind Turbine Obstacle	Wind Turbine Obstacle Location
		Red obstacle is above or within 100 ft below the aircraft altitude
		Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude
		White obstacle is more than 1000 ft below aircraft altitude

Terrain-SVT and TAWS-B Potential Impact Area with Annunciations

Potential Impact Area Examples	Alert Type	Example Annunciation
	Warning	TERRAIN
	Caution	TERRAIN

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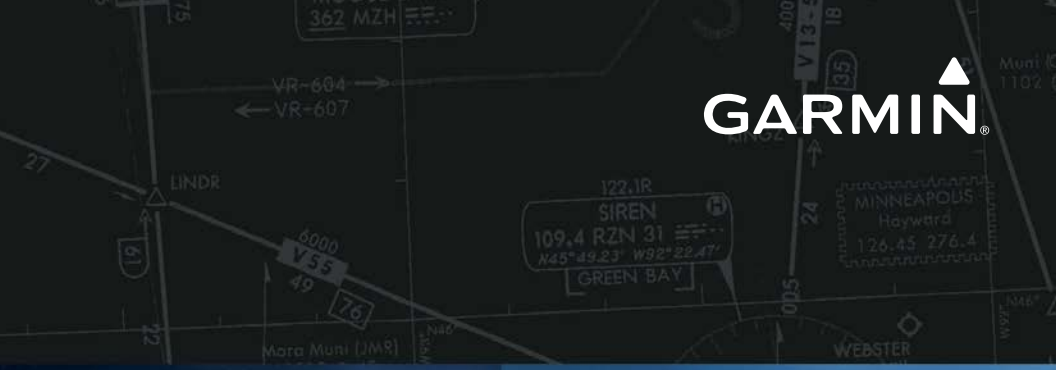

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