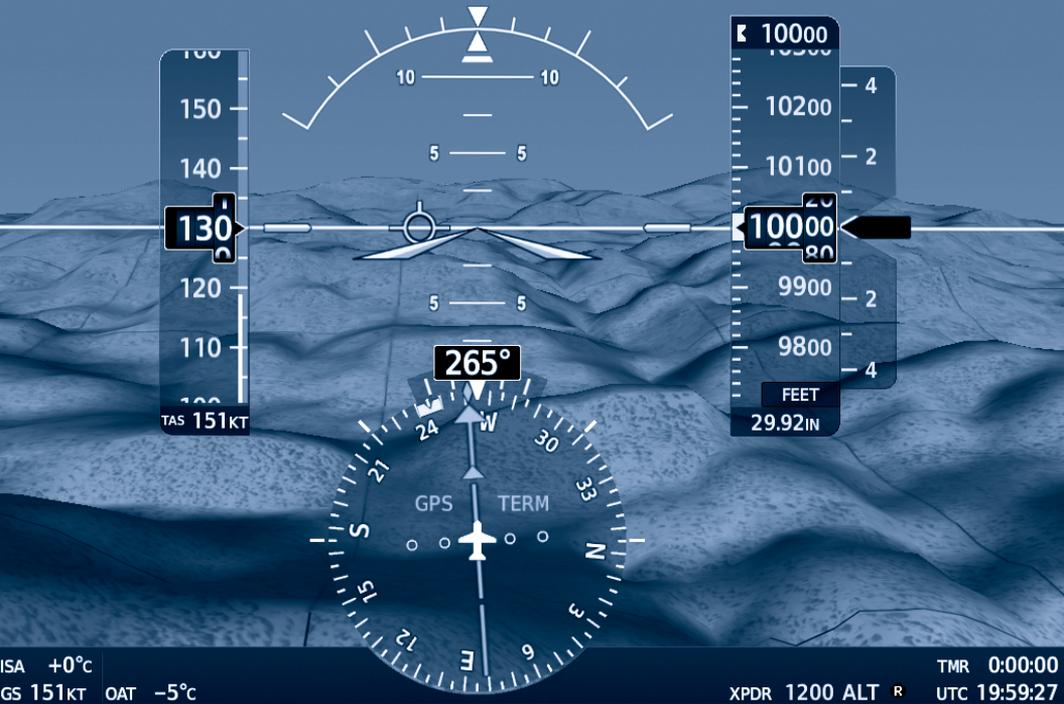


# G1000<sup>®</sup> NXi

## Cockpit Reference Guide



**Diamond DA62**

**System Software Version 2056.10 or later**



**FLIGHT INSTRUMENTS**

**ENGINE INDICATION SYSTEM (EIS)**

**NAV/COM/TRANSPONDER/AUDIO PANEL**

**FLIGHT MANAGEMENT SYSTEM**

**HAZARD AVOIDANCE**

**AUTOMATIC FLIGHT CONTROL SYSTEM**

**ADDITIONAL FEATURES**

**ABNORMAL OPERATIONS**

**ANNUNCIATIONS & ALERTS**

**APPENDIX**

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This manual reflects the operation of System Software version 2056.10 or later for the DA62. 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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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**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.

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

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**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.

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

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

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**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.

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**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.

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**WARNING:** Do not use TAWS information for primary terrain or obstacle avoidance. TAWS is intended only to enhance situational awareness.

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**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.

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

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**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.

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**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.

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**CAUTION:** Avoid areas on the 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.

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**CAUTION:** In Standby mode, the radar 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.

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**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.

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**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.

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**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.

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**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.

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

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**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](http://www.garmin.com/prop65).

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**NOTE:** Operating the system in the vicinity of metal buildings, metal structures, or electromagnetic fields can cause sensor differences that may result in nuisance miscompare 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.

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**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.

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**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 <http://fly.garmin.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.
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**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 [www.flygarmin.com](http://www.flygarmin.com) by selecting 'Database Exclusions List.'

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**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 [www.flygarmin.com](http://www.flygarmin.com) by selecting 'Aviation Database Alerts.'

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**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'.

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**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.

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**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.

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**NOTE:** Terrain and obstacle alerting is not available north of 89° North latitude and south of 89° 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.

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**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.

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

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**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.

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**NOTE:** Operate G1000 NXi system power through at least one cycle in a period of four days of continuous operation to avoid an autonomous system reboot.

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**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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# FLIGHT INSTRUMENTS

## FLIGHT INSTRUMENTS

### AIRSPEED INDICATOR

#### Enabling/disabling and modifying Vspeed bugs:

- 1) Press the **TMR/REF** Softkey to show the 'References' Window.
- 2) Turn the large **FMS** Knob to highlight the desired vspeed bug value.
- 3) Turn the small **FMS** Knobs to adjust the value for the selected vspeed bug.
- 4) 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 default values to 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'.
- 4) Press the **ENT** Key.
- 5) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

#### Setting the generic timer:

- 1) Press the **TMR/REF** Softkey.
- 2) Turn the large **FMS** Knob to select the timer field (HH:MM:SS).
- 3) Use the **FMS** Knob to enter the desired time.
- 4) Press the **ENT** Key. The Up/Dn field is now highlighted.
- 5) Turn the small **FMS** Knob to display the 'UP/DOWN' Window.
- 6) Turn the small **FMS** Knob to select 'Up' or 'Dn'.
- 7) Press the **ENT** Key. 'Start?' is now highlighted.
- 8) Press the **ENT** Key to start the timer. The field changes to 'Stop?'. If the timer is counting DOWN, it will start counting UP after reaching zero.
- 9) To stop the timer, press the **ENT** Key with 'Stop?' highlighted. The field changes to 'Reset?'
- 10) To reset the timer, press the **ENT** Key with 'Reset?' highlighted. The field changes back to 'Start?' and the digits are reset.
- 11) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

## ALTIMETER

### Setting the Selected Altitude:

Turn the **ALT** Knob to set the Selected Altitude. Turn the large knob for 1000-ft increments, small knob for 100-ft increments. If set to Metric mode, the large knob adjusts the Selected Altitude in 500-meter increments; the small knob adjusts the Selected Altitude in 50-meter increments..

If a Minimum Descent Altitude/Decision Height (MDA/DH) value has been set, this altitude is also available for the Selected Altitude.

### Displaying altitude in meters:

- 1) Press the **PFD Opt** Softkey to display the second-level softkeys.
- 2) Press the **ALT Units** Softkey.
- 3) Press the **Meters** Softkey to turn on metric altitude readouts.
- 4) Press the **Back** Softkey twice to return to the top-level softkeys.



**WARNING:** Do not use a QFE altimeter setting with this system. System functions will not operate properly with a QFE altimeter setting. Use only a QHN altimeter setting for the height above mean sea level, or the standard pressure setting, as applicable.

### 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.

### 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.

### Setting the Baro Transition Alert:

- 1) Use the **FMS** Knob to select the 'Aux - System Setup 1' Page on the MFD.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) To enable/disable the Baro Transition Alert based on altitude, turn the large **FMS** Knob to highlight the 'On' or 'Off' field for the BARO Transition Alert Altitude in the BARO Transition Alert Box.

- 4) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Altitude On or Off.
- 5) Turn the large **FMS** Knob to highlight the Altitude field.
- 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 the 'On' or 'Off' field for the BARO Transition Alert Level.
- 8) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Flight Level On or Off.
- 9) Turn the large **FMS** Knob to highlight the Flight Level field.
- 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.

## 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 to select the 'Aux - System Setup 1' Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight Nav Angle in the 'Display Units' Box.
- 4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key.
  - True - References angles to true north (T).
  - Magnetic - Angles corrected to the computed magnetic variation (Mag Var).

### Selecting bearing display and changing sources:

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

### Displaying the DME Information Window:

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **DME** Softkey to display the 'DME Information' Window above the 'BRG1 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.

### Changing the selected GPS CDI setting:

- 1) Use the **FMS** Knob to select the 'Aux - System Setup 1' Page on the MFD.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight Selected 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 **FMS** Knob or the **CLR** Key.

### 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

### WIND DATA

#### Displaying wind data:

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **Wind** Softkey to display wind data to the left of the HSI.
- 3) Press one of the **Option** softkeys to change how wind data is displayed:
  - **Option 1:** Headwind/tailwind and crosswind arrows with numeric speed components.
  - **Option 2:** Wind direction arrow and speed.
  - **Option 3:** Wind direction arrow with headwind/tailwind and crosswind 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. 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.



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

#### Activating and deactivating Pathways:

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **SVT** Softkey.
- 3) Press the **Pathways** Softkey. The Pathway feature will cycle on or off with the **Pathways** Softkey.

### Activating and deactivating Horizon Headings:

- 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.

## 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 **FMS** Knob to select the Map Group 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.

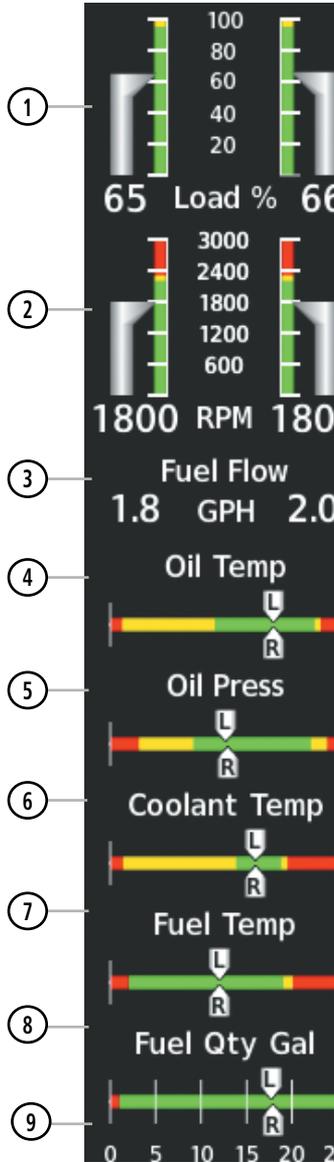
## PFD ANNUNCIATIONS AND ALERTING FUNCTIONS

### Setting the Minimum Altitude Alert and bug:

- 1) Press the **TMR/REF** Softkey.
- 2) Turn the large **FMS** Knob to highlight the 'Minimums' 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)

## EIS DISPLAY



EIS Display

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- Hazard Avoidance
- AFCs
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Flight Instruments

1 **Engine Load Indicator**

Displays current engine loads as percentages

2 **Tachometer**

Displays propeller speeds in revolutions per minute (rpm)

EIS

3 **Fuel Flow Indicator**

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

4 **Oil Temperature Indicator**

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

Nav/Com/XPDR/Audio

5 **Oil Pressure Indicator**

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

Flight Management

6 **Coolant Temperature Indicator**

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

7 **Fuel Temperature Indicator**

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

Hazard Avoidance

8 **Fuel Quantity Indicator**

Displays the fuel quantity in gallons (gal) of fuel in the 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 red range indicates 1 gal of unusable fuel

AFCs

9 **Auxiliary Fuel (Optional)**

Displays digital value of fuel quantity in gallons (gal) of fuel in the auxiliary tanks

Additional Features

## 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. To return to the Engine Display from the Engine Page, press the **Engine** Softkey.

Abnormal Operation

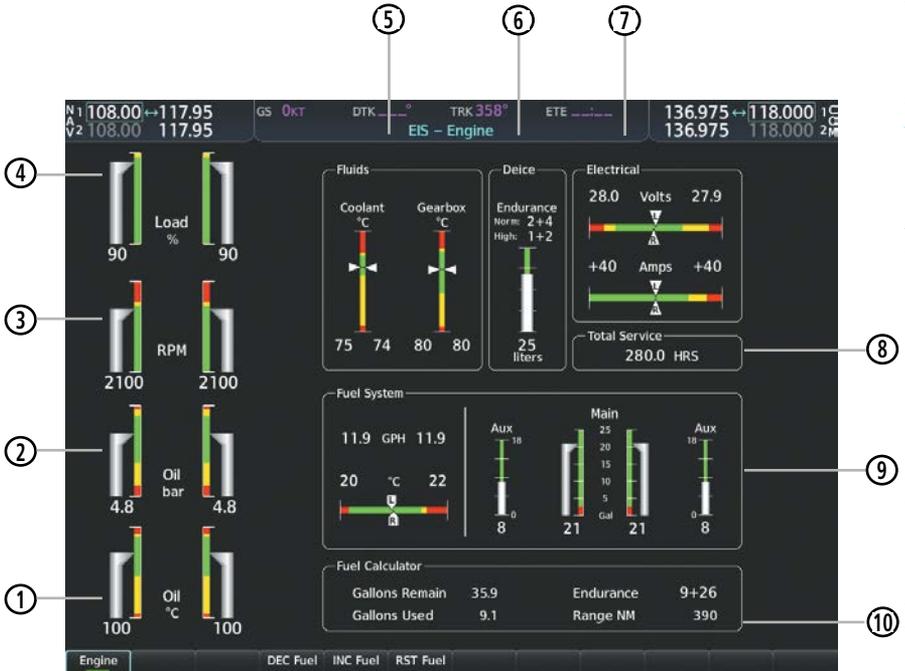
Level 1	Level 2	Description
<b>Engine</b>		Displays 'EIS - Engine' Page and second-level engine softkeys; press again to exit page
	<b>DEC Fuel</b>	Decreases displayed fuel remaining in 1-gal increments
	<b>INC Fuel</b>	Increases displayed fuel remaining in 1-gal increments
	<b>RST Fuel</b>	Resets displayed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

Annun/Alerts

### Engine Page Softkeys

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**Engine Page**

- ① **Oil Temperature Indicator** Displays engine oil temperature ranges in degrees Celsius (°C)
- ② **Oil Pressure Indicator** Displays engine oil pressure ranges in bar
- ③ **Tachometer** Displays propeller speeds in revolutions per minute (rpm)
- ④ **Engine Load Indicator** Displays current engine loads as percentages
- ⑤ **Fluids** Displays coolant temperature ranges  
Displays the temperature of each gearbox in degrees Celsius (°C)
- ⑥ **Deice (Optional)** Displays deice fluid in liters  
Displays in deice fluid time remaining (Endurance) in hours and minutes (HH:MM) for Norm and High settings
- ⑦ **Electrical** Displays the primary bus voltage for each side; pointers labeled L and R indicate the voltage for each side  
Displays each alternator load in amperes (amps); pointers labeled L and R indicate the amps for each side

## 8 Total Service

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

## 9 Fuel System

Displays fuel quantity in the main tanks in gallons (gal)

Displays fuel quantity in the auxiliary tanks (optional) in gallons (gal)

Displays fuel temperature for each tank in degrees Celsius (°C); pointers labeled L and R indicate the fuel temperature in each tank

Displays current fuel flow for each engine in gallons per hour (GPH)

## 10 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 Used).

### 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.

# AUDIO PANEL AND CNS

## COM OPERATION

### 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 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 a COM frequency from the WPT and NRST Pages:

- 1) From any page 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.

### 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 RADIO SELECTION AND ACTIVATION

#### 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 WPT and NRST Pages:

- 1) From any page 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/DME 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 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.

**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

**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 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.

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## FLIGHT ID REPORTING

### Entering a Flight ID:

- 1) Press the **TMR/REF** Softkey to display the Timer/References Window.
- 2) Press the **FMS** Knob to activate the selection cursor, if not already activated.
- 3) Turn the large **FMS** Knob to scroll down to the Flight ID.
- 4) Turn the small **FMS** Knob to enter the desired Flight ID.
- 5) Press the **ENT** Key to complete Flight ID entry.

## ADDITIONAL AUDIO PANEL FUNCTIONS

### INTERCOM

#### Intercom MODES

	Audio Panel	Pilot Hears	Copilot Hears	Passenger Hears
Hazard Avoidance		Selected Radios Aural Alerts	Selected Radios Aural Alerts	Passenger MIC
AFCS		Selected Radios Aural Alerts	Selected Radios Aural Alerts	Selected Radios Aural Alerts Passenger MIC
Additional Features		Selected Radios Aural Alerts	Selected Radios Aural Alerts	Selected Radios Aural Alerts Passenger MIC
Abnormal Operation		Selected Radios Aural Alerts Copilot MIC	Selected Radios Aural Alerts Pilot MIC	Passenger MIC
Annun/Alerts		Selected Radios Aural Alerts	Selectd Radios Aural Alerts Passenger MIC	Selected Radios Aural Alerts Copilot MIC Passenger Mic
Appendix		Selected Radios Aural Alerts	Selectd Radios Aural Alerts Passenger MIC	Selected Radios Aural Alerts Copilot MIC Passenger Mic
Index		Selected Radios Aural Alerts	Selectd Radios Aural Alerts Passenger MIC	Selected Radios Aural Alerts Copilot MIC Passenger Mic

Audio Panel	Pilot Hears	Copilot Hears	Passenger Hears
	Selected Radios Aural Alerts Passenger MIC	Selected Radios Aural Alerts	Selected Radios Aural Alerts Pilot MIC Passenger MIC
	Selected Radios Aural Alerts Copilot MIC Passenger MIC	Selected Radios Aural Alerts Pilot MIC Passenger MIC	Pilot MIC Copilot MIC Passenger MIC

**ICS Isolation Modes**

**Intercom Volume and Squelch**

The **VOL/CRSR** Knob controls selection and volume or manual squelch adjustment for audio sources that may not be adjustable anywhere else in the system. The small knob controls the volume or squelch. Turning the large knob activates and/or moves the cursor (flashing white annunciator or flashing blue annunciator in Blue-Select Mode) to select the audio source to adjust. The cursor will time-out after a few seconds and the position of the cursor will always default back to the **PILOT ICS** Key. Pressing the small knob cancels the cursor.

**BLUE-SELECT MODE (TELEPHONE/ENTERTAINMENT DISTRIBUTION)**

The Blue-Select Mode is entered by pressing the small knob when the volume control cursor (flashing white annunciator) is not active. If the volume control cursor is active, press the small knob twice. The first press will cancel the volume control cursor, the second will activate Blue-Select Mode.

The annunciator over the **TEL** Button will be flashing blue. Any combination of the annunciators over the **PILOT ICS**, **COPLT ICS**, and **PASS ICS** buttons may be blue. Select the desired button to turn the blue annunciator on or off to distribute the telephone audio to selected crew/passenger positions. Turn the large knob to select **MUS1** or **MUS2**, and select the crew/passenger positions to receive the music audio.

Selecting any button other than **PILOT ICS**, **COPLT ICS**, **PASS ICS**, **TEL**, **MUS1**, or **MUS2** will cancel Blue-Select Mode. Pressing the small knob will also cancel Blue-Select Mode. After approximately ten seconds with no input, the Blue-Select Mode will automatically cancel.

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## BLUETOOTH



**NOTE:** Pairing is only necessary during the first attempt to connect a Bluetooth device to the audio panel. Once paired, the audio panel and the device will connect automatically.

### Pairing a Bluetooth Device with the Audio Panel

Press and hold the inner knob for two seconds. The Bluetooth Annunciator flashes to indicate the unit is discoverable and the aural message “**Bluetooth discoverable**” is heard. The audio panel will remain discoverable for 90 seconds or until a successful pair is established. Once paired, the Bluetooth Annunciator turns steady blue and the aural message “**Bluetooth paired**” is heard.

### Assigning an Audio Source to the Bluetooth Device

Press the **TEL**, **MUS1**, or **MUS2** key until the annunciator turns blue (the audio from the Bluetooth source will not be heard until this step is complete). The key annunciator cycles OFF-WHITE-BLUE. WHITE selects the wired audio source. BLUE selects the Bluetooth audio source. The BLUE source assignment will persist through Bluetooth audio connection disruptions.



**NOTE:** The Bluetooth audio can only be assigned to one source at a time. Once the Bluetooth audio is assigned to an audio source, the remaining entertainment audio sources will only cycle between OFF and WHITE.

Bluetooth audio will maintain a separate volume level and Blue Select distribution from the wired audio source. If the Bluetooth connection is supporting a phone call, all intercom positions listening to that source can also speak on the call through the headset MICs.

### Additional Bluetooth Control Functions

When the Audio Panel detects a recording device as the Bluetooth connected device, the Pilot ICS Annunciator will turn blue. All audio heard by the Pilot will be recorded. Press and hold the **PILOT ICS** Key to enable/disable Bluetooth recording mode.

## AUDIO PANEL PREFLIGHT PROCEDURE

### Manually Adjusting the Squelch and Volume Settings:

- 1) Press the **MAN SQ** Key so 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 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 the in-key annunciation is no longer illuminated. Auto Squelch will now be active.

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Blank Page

# FLIGHT MANAGEMENT

## NAVIGATION STATUS BOX AND DATA BAR

### Changing a field in the MFD Navigation Data Bar:

- 1) Select the 'Aux - System Setup 1' Page.
- 2) Press 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 Navigation Map orientation:

- 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' Menu.
- 3) Select the 'Map' Group.
- 4) Press the **ENT** Key.
- 5) Turn the large **FMS** Knob, or press the **ENT** Key once, to select the 'Orientation' Field.
- 6) Turn the small **FMS** Knob to select the desired orientation.
- 7) Press the **ENT** Key to select the new orientation.
- 8) Press 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' Menu 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) Press 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' Menu 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

## MAP PANNING

### Panning the map:

- 1) 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 page displayed 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 'WPT - <Waypoint> Information' Page for the selected waypoint.
- 3) Press the **Go Back** Softkey, the **CLR** Key, or the **ENT** Key to return to the 'Map - Navigation Map' Page showing the selected waypoint.

## Reviewing information for a special-use or controlled airspace:

- 1) With the desired map page displayed 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. (As the Map Pointer crosses the airspace boundary, the boundary is highlighted and airspace information is shown.)
- 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) Press the **FMS** Knob, the **CLR** Key, or the **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 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 all MFD pages displaying navigation maps:

- 1) Press the **Map Opt** Softkey.
- 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 navigation 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 Inset Map or the HSI Map:

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

### Displaying/removing topographic data using the 'Map - Navigation Map' 'Page Menu' Window:

- 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' Menu 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 'Terrain Display' 'Off, Topo, REL' field.
- 6) Turn the small **FMS** Knob to select 'Topo' or 'Off'.
- 7) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

### 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' Menu 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) Press 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' Menu 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' 'On/Off' field.
- 5) Turn the small **FMS** Knob to select 'On' or 'Off'.
- 6) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

## MAP SYMBOLS

### Symbol Setup

#### Setting up the 'Land', 'Aviation' or 'Airspace' 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' Menu 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

## Map Declutter

### Decluttering the MFD navigation map:

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.

**Or:**

- 1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed.
- 2) Turn the **FMS** Knob to highlight 'Declutter'. The current declutter level is shown.
- 3) Press the **ENT** Key to apply the next declutter level and return to the 'Map - Navigation Map' Page.

### 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.

## AIRWAYS

### Displaying/removing airways:

- 1) Press the **Map Opt** Softkey.
- 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).

**Or:**

- 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' Menu 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' On/Off field.
- 5) Turn the small **FMS** Knob to select 'Off' or 'On'.
- 6) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

### 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' Menu 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' 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

## ADDITIONAL NAVIGATION MAP ITEMS

Navigation maps can display some additional items. These items (e.g. track vector, selected altitude intercept arc, wind vector, fuel range ring, and SVT field of view) can be displayed/removed individually.

### 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' Menu 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 5-7 as necessary.
- 9) Press the **FMS** Knob to return to the Navigation Map.

## WAYPOINTS

### AIRPORTS

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

- 1) From the 'WPT - Airport Information' Page (**Info 1** Softkey), press 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) Press the **FMS** Knob to remove the cursor.

#### Selecting a runway:

- 1) With the 'WPT - Airport Information' Page (**Info 1** Softkey) displayed, press 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, press 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. Press the **FMS** Knob to activate the cursor.
- 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 large **FMS** Knob to select the 'NRST' Page Group.
- 2) Turn the small **FMS** Knob 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.

- 3) Press the **APT** Softkey; or press 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.
- 4) Turn the **FMS** Knob to highlight the desired airport. (Pressing the **ENT** Key also moves to the next airport.)
- 5) Press 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 **RNWX** 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) Press 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) Press 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) Press the **FMS** Knob to remove the flashing cursor.

## NON-AIRPORT WAYPOINTS

### Waypoint Information

#### Viewing Non-Airport Waypoints:

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

## Nearest Non-Airport Waypoints

### Viewing Nearest Non-Airport Waypoints:

- 1) Turn the large **FMS** Knob to select the 'NRST' Page Group.
- 2) Turn the small **FMS** Knob to select the 'NRST - Nearest Intersections, NDB, VOR, VRP, or User WPTS' Page.
- 3) Press 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.
- 4) If needed, press the **ENT** Key or turn either **FMS** Knob as needed to select an identifier.
- 5) Press the **FMS** Knob to remove the flashing cursor.

## Creating User Waypoints

### Creating user waypoints from the 'WPT - User WPT Information' Page:

- 1) Press the **New** Softkey, or press the **MENU** Key and select 'Create New User Waypoint'.
- 2) Enter a user waypoint name (up to six characters).
- 3) Press the **ENT** Key. The current aircraft position is the default location of the new waypoint.
- 4) If desired, define the type and location of the waypoint 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' Window 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' Window 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' Window using the **FMS** Knobs.
- 5) Press the **ENT** Key to accept the new waypoint.
- 6) If desired, change the storage method of the waypoint to temporary by moving the cursor to "Temporary" and pressing the **ENT** Key to check or uncheck the box.
- 7) Press the **FMS** Knob to remove the flashing cursor.

### Creating user waypoints from map pages:

- 1) Push the **Joystick** to activate the panning function and pan to the map location of the desired user waypoint.
- 2) Press the **ENT** Key. The 'WPT - User WPT Information' Page is displayed with the capture d position.
- 3) Enter a user waypoint name (up to six characters).
- 4) Press the **ENT** Key to accept the selected name.
- 5) If desired, define the type and location of the waypoint 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' Window 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' Window 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' Window using the **FMS** Knobs.
- 6) Press the **ENT** Key to accept the new waypoint.
- 7) If desired, change the storage method of the waypoint to temporary or normal by moving the cursor to "Temporary" and pressing the **ENT** Key to check or uncheck the box.
- 8) Press the **FMS** Knob to remove the flashing cursor.
- 9) Press the **Go Back** Softkey to return to the map page.

### Editing User Waypoints

#### Editing a user waypoint comment or location:

- 1) With the 'WPT - User WPT Information' Page displayed, press 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) Press 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) Select 'Normal' or 'Temporary' as desired, and press the **ENT** Key.
- 4) Press the **FMS** Knob to remove the flashing cursor and return to the 'WPT - User WPT Information' Page.

## Deleting User Waypoints

### Deleting a single user waypoint:

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

### Or:

- 1) With the 'WPT - User WPT Information' Page displayed, press 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) Press the **MENU** Key.
- 4) Turn the **FMS** Knob to highlight 'Delete User Waypoint'.
- 5) Press the **ENT** Key twice to confirm the selection.
- 6) Press the **FMS** Knob to remove the flashing cursor.

### Deleting all user waypoints:

- 1) With the 'WPT - User WPT Information' Page displayed, press 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) Press the **MENU** Key.
- 4) Turn the **FMS** Knob to highlight 'Delete All User Waypoints.'
- 5) Press the **ENT** Key twice to confirm the selection.
- 6) Press the **FMS** Knob to remove the flashing cursor.

### 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' Menu 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

## 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) Press 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) Press 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) Press 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) Press 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 **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) Select the desired airspace.
- 4) Press 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 cursor is placed in the 'Group' Box of the 'Map Settings' Menu.

- 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) Press the **FMS** Knob to remove the flashing cursor.

## DIRECT-TO-NAVIGATION

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

- 1) Press the **➔** 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 **➔** 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 a list of flight plan waypoints (the FPL list is populated only when navigating a flight plan).
- 3) 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.

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

- 1) Press the **➔** 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 **→** 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 press the **FMS** Knob.
- 2) Use the **FMS** Knob to select the desired airport (the nearest one is already selected).
- 3) Press the **→** 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 **→** 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) Highlight the 'CRS' or 'Course' Field.
- 4) Enter the desired course.
- 5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
- 6) Press the **ENT** Key again to activate the direct-to.

**Reselecting the direct course from the current position:**

- 1) Press the **→** Key. The 'Direct To' Window is displayed with the cursor flashing in the 'Ident, Facility, City' Box.
- 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 pointer:**

- 1) From a 'Map - Navigation Map' Page, push the **Joystick** to display the pointer.
- 2) Move the **Joystick** to place the pointer at the desired destination location.
- 3) If the pointer is placed on an existing airport, NAVAID, or user waypoint, the waypoint name is highlighted.
- 4) Press the **→** Key to display the 'Direct To' Window with the selected point entered as the direct-to destination.
- 5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
- 6) Press the **ENT** Key again to activate the direct-to.

## Canceling a Direct-to:

- 1) Press the **→** 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 PLANNING

### FLIGHT PLAN VIEWS

#### Active Flight Plan Views

##### Changing the flight plan view:

- 1) Press the **FPL** Key on 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..

### CREATING A FLIGHT PLAN

#### Creating an active flight plan:

- 1) Press the **FPL** Key. Press the small **FMS** Knob to activate the cursor (only on MFD).
- 2) Select the origin airport and runway (as required).
  - a) Highlight the field below the Origin header to enter the origin airport identifier using the **FMS** Knob.
  - b) Use the **FMS** Knob or the waypoint submenu to enter the identifier, facility, or city name of the origin waypoint.
  - c) Press the **ENT** Key. The 'Set Airport and 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 origin airport/runway to the flight plan.
- 3) Repeat step number 2 for the destination airport and runway.
- 4) Select the enroute waypoints.
  - a) Highlight the location to insert the waypoint using the **FMS** Knob (If the enroute header is selected, the new waypoint is placed following the header. If an enroute waypoint or the dashes are selected, the new waypoint will be placed ahead of the selected item).

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- b) Use the **FMS** Knob or the waypoint submenu to enter the identifier, facility, or city name of the waypoint. The active 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, press the **FMS** Knob to remove the cursor (if required).

### Creating a stored flight plan:

- 1) From the MFD, press the **FPL** Key.
- 2) Turn the small **FMS** Knob clockwise to display the 'FPL - Flight Plan Catalog' Page.
- 3) Press the **New** Softkey; 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.
- 4) Select the origin airport and runway.
  - a) Highlight the field below the Origin header to enter the origin airport identifier using the **FMS** Knob.
  - b) Use the **FMS** Knob or the waypoint submenu to enter the identifier, facility, or city name of the origin waypoint.
  - c) Press the **ENT** Key. The 'Set Airport and 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 origin airport/runway to the flight plan.
- 5) Repeat step number 4 for the destination airport and runway.
- 6) Select the enroute waypoints.
  - a) Highlight the location to insert the waypoint using the **FMS** Knob (If the enroute header is selected, the new waypoint is placed following the header. If an enroute waypoint or the dashes are selected, the new waypoint will be placed ahead of the selected item.)
  - b) Use the **FMS** Knob or the waypoint submenu to enter the identifier, facility, or city name of the waypoint.
  - c) Press the **ENT** Key. The stored flight plan is modified as each waypoint is entered.
- 7) Repeat step number 6 to enter each additional enroute waypoint.
- 8) When all waypoints have been entered, press the **FMS** Knob to remove the cursor.

## FLIGHT PLAN WAYPOINT AND AIRWAY MODIFICATIONS

### Flight Plan Waypoints

#### *ADDING WAYPOINTS*

## Adding a waypoint to the active flight plan:

- 1) Press the **FPL** Key.
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD).
- 3) 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.
- 4) 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, or user waypoints).
- 5) 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 active flight plan is modified as each waypoint is entered.

## Creating and adding user waypoints to the active flight plan using the map pointer:

- 1) Press the **FPL** Key.
- 2) Press the **FMS** Knob on the MFD to activate the cursor.
- 3) Select the point in the flight plan to add the new waypoint.
- 4) Push the **Joystick** on the MFD to activate the panning function on the 'FPL - Active Flight Plan' Page and pan to the map location of the desired user waypoint.
- 5) 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 USRxxx (using the next available in sequence) and is added to the active flight plan.

## Adding a waypoint to an existing stored flight plan:

- 1) On the 'FPL - Flight Plan Catalog' Page, press the **FMS** Knob to activate the cursor.
- 2) 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) Select the point in the flight plan to add the new waypoint. The new waypoint is placed directly in front of the highlighted waypoint.
- 5) 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).
- 6) 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 new waypoint now exists in the flight plan.

## REMOVING WAYPOINTS

### Removing an individual waypoint from the active flight plan:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and 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) Press the **FMS** Knob to remove the flashing cursor.

### Removing an individual waypoint from a stored flight plan:

- 1) Press the **FPL** Key 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) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 4) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 5) Turn the large **FMS** Knob to highlight the waypoint to be removed.
- 6) Press the **CLR** Key. The 'Remove XXXXX?' window is displayed.
- 7) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 8) Press the **FMS** Knob to remove the flashing cursor.

## FLY-OVER WAYPOINT DESIGNATION

### Designating a fly-over waypoint:

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

#### Or:

For a stored flight plan, highlight the desired flight plan on the 'FPL - Flight Plan Catalog' Page' and press the Edit Softkey.

- 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 the active flight plan:

- 1) Press the **FPL** Key.
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD).
- 3) Turn the large **FMS** Knob to highlight the waypoint after the desired airway entry point. If this waypoint is not a valid airway entry point, a valid entry point should be entered at this time.
- 4) Turn the small **FMS** Knob one click clockwise and press the **LD AIRWY** Softkey (MFD only), or press the **MENU** Key and select "Load Airway". The 'FPL - Select Airway' Page is displayed. The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when a valid airway entry waypoint has been chosen (the waypoint ahead of the cursor position).
- 5) Turn the **FMS** Knob to select 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.
- 6) Turn the **FMS** Knob to select the desired airway exit point from the list, and press the **ENT** Key. 'Load?' is highlighted.
- 7) Press the **ENT** Key. The system returns to editing the flight plan with the new airway inserted.

#### Adding an airway to a stored flight plan:

- 1) On the 'FPL - Flight Plan Catalog' Page, press the **FMS** Knob to activate the cursor.
- 2) 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) Turn the large **FMS** Knob to highlight the waypoint after the desired airway entry point. If this waypoint is not a valid airway entry point, a valid entry point should be entered at this time.
- 5) Turn the small **FMS** Knob one click clockwise and press the **LD AIRWY** Softkey (MFD only), or press the **MENU** Key and select "Load Airway". The 'FPL - Select Airway' Page is displayed. The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when a valid airway entry waypoint has been chosen (the waypoint ahead of the cursor position).

- 6) Turn the **FMS** Knob to select 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.
- 7) Turn the **FMS** Knob to select the desired airway exit point from the list, and press the **ENT** Key. 'Load?' is highlighted.
- 8) Press the **ENT** Key. The system returns to editing the flight plan with the new airway inserted.

## REMOVING AIRWAYS

### Removing an entire airway from the active flight plan:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight 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) Press the **FMS** Knob to remove the flashing cursor.

### Removing an entire airway from a stored flight plan:

- 1) Press the **FPL** Key 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) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 4) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 5) Turn the large **FMS** Knob to highlight the white header of the airway to be removed.
- 6) Press the **CLR** Key. The 'Remove <airway name> from flight plan?' window is displayed.
- 7) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 8) Press the **FMS** Knob to remove the flashing cursor.

## COLLAPSING AIRWAYS

### Collapsing/expanding the airways in the active flight plan:

- 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 'Collapse Airways' or 'Expand Airways', and press the **ENT** Key. The airways are collapsed/expanded.

## 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) Press the **FMS** Knob to activate the cursor (not required on the 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) Press the **FMS** Knob to remove the flashing cursor.

### Along Track Offsets

#### Entering an along track offset distance:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and 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) Press the **FMS** Knob to remove the flashing cursor.

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

- 1) Press the **→** Key to display the 'Direct To' Window.
- 2) Turn the large **FMS** Knob to place the cursor over the 'VNV' Box altitude field.
- 3) Enter the desired altitude using the **FMS** Knob.
- 4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an airport, an additional choice is displayed. If the waypoint is an airfield, 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 'VNV' Box offset distance field.
- 6) Enter the desired along-track distance before the waypoint.
- 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 active flight plan to a selected waypoint:

- 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 'Closest Point Of FPL', and press the **ENT** Key. A window appears with the reference waypoint field highlighted ('From' Box).
- 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' is highlighted.
- 5) Press the **ENT** Key to activate parallel track. Press 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 an active flight plan waypoint:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and 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 entry 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 time/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 the aircraft present position:

- 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 '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 entry 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 time/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.

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

- 1) Press a **→** Key and set up the direct-to waypoint as desired, but select 'Hold?' instead of 'Activate?' when finished (MFD or PFD).
- 2) Use the **FMS** Knobs to edit the entry 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 time/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, the 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.)

### 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 inserted into the active flight plan:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the HOLD waypoint.
- 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 active 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 **Direct To** Key to display the 'Direct To' Window (PFD or MFD).
- 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.

## 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 mobile device, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and an Connex announcement 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 mobile device, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and an Connex announcement 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) Press 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 announcement is removed.  
**Or:**
  - a) Press 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 announcement 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 announcement 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) Press 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.

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Or:

- a) Press 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) Press 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) Press 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) Press 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 to display the 'FPL - Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).

- 2) Press the **MENU** Key, highlight 'Invert Flight Plan', and press the **ENT** Key. An 'Invert active flight plan?' confirmation window is displayed.
- 3) Select 'OK'.
- 4) Press the **ENT** Key to invert and activate the active 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) Press 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 to display the 'FPL - Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
- 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 active 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 on 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) Press 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) Press the **FMS** Knob to exit the 'FPL - Stored Flight Plan' Page.

## Storing an active flight plan from the 'FPL - Active Flight Plan' Page or the 'Flight Plan' Window:

- 1) Press the **MENU** Key.
- 2) 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) Press 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) Press 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) Press 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)****Changing the active flight plan comment:**

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page.
- 2) Press the **FMS** Knob to activate the cursor and turn the large **FMS** Knob to highlight the comment field.
- 3) Use the **FMS** Knobs to edit the comment.
- 4) Press the **ENT** Key to accept the changes.
- 5) Press the **FMS** Knob to remove the flashing cursor.

## Changing a stored flight plan comment:

- 1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL - Flight Plan Catalog' Page.
- 2) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 3) Open the 'FPL - Stored Flight Plan' Page:
  - Press the **Edit** Softkey.
  - Or:**
    - a) Press the **ENT** Key. The 'Activate stored flight plan?' window is displayed.
    - b) Turn the large **FMS** Knob to highlight the 'Edit'.
    - c) Press the **ENT** Key.
  - Or:**
    - a) Press the **MENU** Key.
    - b) Select 'Edit Flight Plan' and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to highlight the comment field.
- 5) Use the **FMS** Knobs to edit the comment.
- 6) Press the **ENT** Key to accept the changes.
- 7) Press the **FMS** Knob to remove the flashing cursor.

## 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.

**CONSTRAINTS**

**Altitude Constraints**

Displayed Text Examples

Active Flight Plan			
KMKC / KCOS			
	DTK	DIS	ALT
BRK	353°	21.5NM	12000FT
KCOS-RNAV <sub>GPS</sub> Y 35R LPV			
HABUK iaf	164°	8.0NM	10280FT
FALUR	290°	5.3NM	8600FT
CEGIX faf	352°	6.4NM	8100FT
RW35R map	352°	6.1NM	
6600FT	352°	0.9NM	6600FT
ADANE mahp	056°	15.6NM	9000FT
HOLD	297°	7.0NM	

System Calculated Advisory Altitude (White Text)

Modified Altitude Constraint (Cyan Text with Pencil Icon)

Auto Designated Altitude (Cyan Text)

White Text with Altitude Restriction Bar

Altitude Constraint Examples

**5000FT**

Cross AT or ABOVE 5,000 ft

**2300FT**

Cross AT or BELOW 3,000 ft

**2300FT**

Cross AT 2,300 ft

**7898FT**

Temperature Compensated

Active Flight Plan - Waypoint Altitude Constraints

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

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White Text	Cyan Text
<p style="text-align: center;"><b>5000FT</b></p> <p>Advisory altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. No white line above or below to indicate a potential constraint.</p>	<p style="text-align: center;"><b>8600FT</b> </p> <p>Altitude is designated for use in determining vertical guidance. A pencil icon indicates manual designation or manual modified data entry.</p>
<p style="text-align: center;"><b>5000FT</b></p> <p>Altitude retrieved from the navigation database. White line above or below indicates the type of constraint, as shown in the preceding figure.</p> <p>These altitudes are provided as a reference, and are not designated to be used in determining vertical guidance.</p>	<p style="text-align: center;"><del><b>8100FT</b></del></p> <p>The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.</p>

**Altitude Constraint Color Coding**

**Entering/designating or modifying an altitude constraint:**

- 1) Press the **FPL** Key on the MFD to display the 'FPL - Active Flight Plan' Page.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Enter an altitude constraint value using the **FMS** Knobs. 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 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.

**Removing/undesignating an altitude constraint:**

- 1) Press the **FPL** Key on the MFD to display the 'FPL - Active Flight Plan' Page.
- 2) Press the **FMS** Knob, 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 on the MFD to display the 'FPL - Active Flight Plan' Page.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.

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- 3) Press the **CLR** Key. A 'Remove or Revert to published VNV altitude of nnnnFT?' confirmation window is displayed.
- 4) Select 'Revert' and press the **ENT** Key. The altitude is changed to the navigation database value.
- 5) Press the **FMS** Knob to remove the flashing cursor.

### Vertical Speed and Flight Path Angle Constraints

#### Modifying the VS TGT and FPA:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page on the MFD.
- 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) Press the **FMS** Knob to remove the flashing cursor.

### VERTICAL SITUATION DISPLAY (VSD)

Constraint Type	Numeric Representation	Altitude Constraint Icon
AT (Designated Altitude Constraint)		
AT or ABOVE (Un-designated Altitude Constraint derived from the database)		
AT or BELOW (Un-designated Altitude Constraint derived from the database)		

Altitude Constraint Icons

#### Enabling 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** Softkey to enable the Vertical Situation Display.
  - 5) Press the VSD Mode softkey to choose between **Auto**, **FPL**, or **TRK**.
- Or:**

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) Turn the **FMS** Knob to highlight 'Show VSD' and press the **ENT** Key.
- 4) Press the **Map Opt** Softkey.
- 5) Press the **Inset** Softkey.
- 6) 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.

**Or:**

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

## 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) Press the **FMS** Knob to activate the cursor and turn the large **FMS** Knob 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) Press 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.

### Viewing available procedures at an airport:

- 1) From the 'WPT - Airport Information' Page (first page in the WPT group), press the **DP**, **STAR**, or **APR** Softkey.

- 2) The 'WPT - Departure Information' Page is displayed, defaulting to the airport displayed on the 'WPT - Airport Information' Page. Press the **FMS** Knob to activate the cursor. To select another airport, 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 **FMS** Knobs, as required, to highlight a runway or transition. Press the **ENT** Key to select the runway or transition. The cursor moves to the next box. 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 or the **Info 2** 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, press 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 highlight the Departure. 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) Select a stored flight plan from the 'FPL - Flight Plan Catalog' Page.
- 2) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan', and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 3) 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.
- 4) Select a departure. Press the **ENT** Key.
- 5) Select a runway served by the selected departure, if required. Press the **ENT** Key.
- 6) Select a transition for the selected departure. Press the **ENT** Key.
- 7) Press the **ENT** Key to load the selected departure procedure.

### Removing a departure procedure from the active flight plan:

- 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, and highlight 'Remove Departure'.
- 3) Press the **ENT** Key. A confirmation window is displayed listing the departure procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

#### Or:

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob, and turn to highlight the departure header in the active flight plan.
- 3) Press the **CLR** Key. A confirmation window is displayed listing the departure procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

### Removing a departure from a stored flight plan:

- 1) Press the **FPL** Key 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) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 4) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 5) Highlight and remove the departure:
  - a) Turn the large **FMS** Knob to highlight the white header of the departure.
  - b) Press the **CLR** Key. The 'Remove <procedure name> from flight plan?' window is displayed.

**Or:**

  - a) Press the **MENU** Key to display the 'Page Menu' Window and turn the **FMS** Knob to highlight 'Remove Departure'.
  - b) Press the **ENT** Key. The 'Remove <procedure name> from flight plan?' window is displayed.
- 6) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 7) Press 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, press 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) Select a stored flight plan from the 'FPL - Flight Plan Catalog' Page.
- 2) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan', and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 3) 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.
- 4) Select an arrival. Press the **ENT** Key.
- 5) Select a transition for the selected arrival. Press the **ENT** Key.
- 6) Select a runway served by the selected arrival, if required. Press the **ENT** Key.
- 7) Press the **ENT** Key to load the selected arrival procedure.

### Removing an arrival from the active flight plan:

- 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, and highlight 'Remove Arrival'.
- 3) Press the **ENT** Key. A confirmation window is displayed listing the arrival procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

### Removing an arrival from a stored flight plan:

- 1) Press the **FPL** Key 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) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 4) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 5) Highlight and remove the arrival:
  - a) Turn the large **FMS** Knob to highlight the white header of the arrival.
  - b) Press the **CLR** Key. The 'Remove <procedure name> from flight plan?' window is displayed.
 

**Or:**

    - a) Press the **MENU** Key to display the 'Page Menu' Window and turn the **FMS** Knob to highlight 'Remove Arrival'.
    - b) Press the **ENT** Key. The 'Remove <procedure name> from flight plan?' window is displayed.
- 6) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 7) Press the **FMS** Knob to remove the flashing cursor.

## APPROACHES

HSI Annunciation	Description
<b>LNAV</b>	GPS approach using LNAV MDA. Available only if GPS available. If GPS unavailable, abort.
<b>LNAV+V</b>	GPS approach using LNAV MDA with advisory vertical guidance. Available only if SBAS is available, otherwise downgrades to LNAV. If GPS unavailable, abort.
<b>L/VNAV</b>	GPS approach using LNAV/VNAV DA. Available with SBAS availability. If SBAS is unavailable, downgrades to published LNAV MDA.
<b>LP</b>	GPS approach using LP MDA. Available only if SBAS available. If SBAS unavailable, downgrades to published LNAV MDA.
<b>LP+V</b>	GPS approach using LP MDA with advisory vertical guidance. Available only if SBAS available. If SBAS unavailable, downgrades to published LNAV MDA.
<b>LPV</b>	GPS approach using LPV DA. Available only if SBAS available. If SBAS unavailable, downgrades to published LNAV MDA.

### Approach Service Levels

## Approach Selection and Removal

### 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) Set minimums:
  - 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.
 

**Or:**

To skip setting minimums, 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) Press 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) Minimums

- 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.

**Or:**

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

- 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) Select a stored flight plan from the 'FPL - Flight Plan Catalog' Page.
- 2) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan', and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 3) 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.
- 4) 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.

- 5) Select a transition for the selected approach. Press the **ENT** Key.
- 6) 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 on 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 from the active flight plan:

- 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, and highlight 'Remove Approach'.
- 3) Press the **ENT** Key. A confirmation window is displayed listing the approach procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'Cancel' and press the **ENT** Key.

**Or:**

- 1) Press the **FPL** Key to display the 'FPL - Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Press the **FMS** Knob, and turn to highlight the approach header in the active flight plan.
- 3) Press the **CLR** Key. A confirmation window is displayed listing the approach procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'Cancel' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

## Removing an approach from a stored flight plan:

- 1) Press the **FPL** Key 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) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the flight plan to be edited.
- 4) Press the **Edit** Softkey; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL - Stored Flight Plan' Page is displayed.
- 5) Highlight and remove the approach:
  - a) Turn the large **FMS** Knob to highlight the white header of the approach.
  - b) Press the **CLR** Key. The 'Remove <procedure name> from flight plan?' window is displayed.  
**Or:**
    - a) Press the **MENU** Key to display the 'Page Menu' Window and turn the **FMS** Knob to highlight 'Remove Approach'.
    - b) Press the **ENT** Key. The 'Remove <procedure name> from flight plan?' window is displayed.
- 6) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 7) Press 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'.
- 3) Press the **ENT** Key.

## Temperature Compensated Altitude

### TEMPERATURE COMPENSATION FOR APPROACH ALTITUDES

#### Manually setting temperature compensation for approach loaded 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.

### Canceling temperature compensation setting for approach loaded 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) Turn the large **FMS** Knob to highlight 'Select Approach'. Press the **ENT** Key.
- 3) Use the **FMS** Knob and the **ENT** Key to select the desired 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 to Load or Activate the approach. 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, press 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.

## RAIM (RECEIVER AUTONOMOUS INTEGRITY MONITORING) 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 that the available satellite geometry allows the receiver to calculate a position within a specified RAIM protection limit (2.0 nautical miles 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  $\pm 15$  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.

### Predicting RAIM availability at a selected waypoint:

- 1) 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) Enter the desired waypoint:

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 FPL list is populated only when navigating a flight plan).
  - b) Turn the small **FMS** Knob clockwise to display the Flight Plan, Nearest, Recent, or User waypoints, if required.
  - c) Turn the large **FMS** Knob clockwise to select the desired waypoint. The system automatically fills in the identifier, facility, and city fields with the information for the selected waypoint.
  - d) Press the **ENT** Key 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) Select the 'Aux - GPS Status' Page.
- 2) If necessary, press the **RAIM** Softkey.
- 3) Push the **FMS** Knob. The 'Waypoint' Field is highlighted.
- 4) Press the **MENU** Key.
- 5) With 'Set WPT to Present Position' highlighted, press the **ENT** Key.
- 6) Press the **ENT** Key to accept the waypoint entry.
- 7) Use the **FMS** Knob to enter an arrival time and press the **ENT** Key.
- 8) Use the **FMS** Knob to enter an arrival date and press the **ENT** Key.
- 9) 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 THE SIRIUSXM WEATHER SERVICE

Before SiriusXM Weather can be used, the service must be activated by providing SiriusXM's customer service the coded ID(s) unique to the installed data link receiver. The Data Radio ID must be provided to activate the weather service. A separate Audio Radio ID, if present, enables the receiver to provide SiriusXM Radio entertainment. To view this information, refer to the following locations:

- The 'Aux - XM Information' Page on the MFD.
- The SiriusXM Activation Instructions included with the Data Link Receiver.
- The label on the back of the Data Link Receiver.

SiriusXM uses the coded IDs to send an activation signal that allows the system to display weather data and/or provide audio entertainment programming through the data link receiver.

### Establishing an account for SiriusXM services:

- 1) 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) 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](http://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. A white 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 Connex Weather

The Garmin Connex weather service requires an active Iridium satellite telephone and weather data subscription. Registration begins by first obtaining the serial number(s) for the installed Iridium Satellite Transceiver (GSR 1), and the System ID. Then go to the website [www.flygarmin.com](http://www.flygarmin.com) and follow the instructions for establishing an account for Garmin Connex data services. Note additional information about the airframe may be required. After an account has been established, Garmin provides an access code that must be entered on the system and successfully transmitted to the Garmin Connex service via the Iridium satellite network.

## Registering the system to receive Garmin Connex Weather:

- 1) Go to [www.flygarmin.com](http://www.flygarmin.com). Locate the information for subscribing to Garmin Connex 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 Connex 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 Connex' in the menu list.
- 8) Press the **ENT** Key. The Connex Registration Window appears as shown in Figure 6-3.
- 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 Connex Registration Window.

## WEATHER PRODUCT AGE

### Enabling/disabling the weather product age for PFD Maps:

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **Layout** Softkey.
- 3) Press the **WX LGND** to show/remove the weather product age information for PFD maps.
- 4) Press the **Back** Softkey twice to return to the top-level softkeys.

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

	SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
Flight Instruments	Winds Aloft		90
EIS	County Warnings		60
Nav/Com/XPDR/Audio	Cyclone (Hurricane) Warnings		60
Flight Management	Icing Potential (CIP and SLD)		90
	Pilot Weather Report (PIREPs)		90
	Air Report (AIREPs)		90
Hazard Avoidance	Turbulence		180
	No Radar Coverage	No product symbol	30
AFCs	Temporary Flight Restrictions (TFRs)	<b>TFR</b>	60
Additional Features	Terminal Aerodrome Reports (TAFs)	No product symbol	60

### SiriusXM Weather Product Symbols and Data Timing

	FIS-B Weather Product	Symbol	Expiration Time (Minutes)
Abnormal Operation	NEXRAD Composite (US)		30
Annun/Alerts	NEXRAD Composite (Regional)		30
Appendix	METARs		90
	Pilot Weather Report (PIREP)		90
	Winds Aloft		90
Index	SIGMETs/AIRMETs	<b>SIGM AIRM</b>	60

FIS-B Weather Product	Symbol	Expiration Time (Minutes)
No Radar Coverage	No product symbol	30
Terminal Aerodrome Forecast (TAF)	No product symbol	60
Temporary Flight Restriction (TFR)		60

FIS-B Weather Product Symbols and Data Timing

Garmin Connex Weather Product	Symbol	Expiration Time (Minutes)
Connex Radar		30
IR Satellite		60
Connex Lightning		30
SIGMETs		60
AIRMETs		60
Meteorological Aerodrome Report (METARs)		90
Winds Aloft		90
Pilot Weather Reports (PIREPs)		90
Temporary Flight Restrictions (TFRs)		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 Connex 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.

Flight Instruments

- 2) Turn the small **FMS** Knob to select the 'Map - Weather Data Link (XM, FIS-B, or CNXT)' 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', or 'Display Connex Weather' (choices may vary depending on the installed equipment).
  - b) Press the **ENT** Key.

EIS

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

- 1) Select the 'Map -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 press the **FMS** Knob.

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

## Customizing the Weather Data Link Page

### Setting up and customizing the Weather Data Link Page:

- 1) Select the 'Map - 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) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Weather Data Link' Page with the changed settings.

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

### Restoring default Weather Data Link Page settings:

- 1) Select the 'Map - 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, press the **FMS** Knob or press the **CLR** Key.

Appendix

Index

## 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) Press the **FMS** Knob or **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) Press the desired weather product softkey(s) to enable/disable the display of data link products on the PFD map.
- 3) To enable/disable a data link lightning weather product on a PFD, press the **Lightning** Softkey.
  - a) Press the **Datalink** Softkey to enable data link 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 WEATHER DATA REQUESTS

### Manually Requesting Garmin Connext Weather information:

- 1) Select the 'Map - 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 or more of the following coverage selections (Figures 6-8, 6-9):
  - 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 press 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 'Map - 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) Press the **FMS** Knob to return to the 'Map - Weather Data Link (CNXT)' Page.

### Enabling/disabling automatic Connext Data Requests:

- 1) Select the 'Map - 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 Connex Data Request.

**Or:**

Press the **FMS** Knob to return to the 'Map -Weather Data Link (CNXT)' Page.

## WEATHER PRODUCT OVERVIEW

### NEXRAD (SiriusXM)



**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.

#### Enabling/disabling NEXRAD weather information on the 'Map - Weather Data Link (XM)' Page:

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

#### Enabling/disabling NEXRAD weather information on MFD navigation maps:

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

#### Enabling/disabling NEXRAD weather information on PFD maps:

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **NEXRAD** Softkey.

#### Changing the NEXRAD coverage region:

- 1) Select the 'Map - Weather Data Link (XM)' Page.
- 2) Press the **MENU** Key.
- 3) Turn the large **FMS** Knob to highlight 'Weather Setup' and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to highlight the 'NEXRAD Region' datafield.
- 5) Turn the small **FMS** Knob to highlight 'US' or 'CNDA' (Canada) and press the **ENT** Key.

## Displaying Time-Lapse NEXRAD Animation 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 Animation' On/Off field.
- 4) Turn the small **FMS** Knob to select 'On' or 'Off', then press the **ENT** Key.

5) To remove the menu, push the **FMS** Knob or the **CLR** Key.

## Displaying Time-Lapse NEXRAD Animation on navigation maps:

- 1) Select the Navigation Map Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Settings' highlighted, press the **ENT** Key.
- 4) Turn the **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
- 5) Turn the large **FMS** Knob to highlight the NEXRAD Animation On/Off field.
- 6) Turn the small **FMS** Knob to highlight 'On' or 'Off' and press the **ENT** Key.
- 7) To remove the menu, push the **FMS** Knob or the **CLR** Key.

## NEXRAD (FIS-B)



**NOTE:** Pilots are encouraged to check additional NOTAM sources to supplement FIS-B NOTAMS. NOTAMS older than 30 minutes will not be displayed by FIS-B. For additional information refer to INFO 18008 and AC 00-63.

## Displaying the 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 **NXR** Softkey. Each selection cycles through a coverage option displayed in cyan on the softkey ('Off', 'US', or 'REG', or '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 for the continental United States or 'Off' to disable.
  - b) Press the **ENT** Key.

- 4) To enable/disable the display of Regional NEXRAD information, turn the small **FMS** Knob to highlight the Regional On/Off field.
  - a) Turn the small **FMS** Knob to highlight 'On' to enable the display of Regional NEXRAD or 'Off' to disable.
  - 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.
- 3) To change the type of NEXRAD displayed, 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, press 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 Connex)

### Displaying Precipitation weather information:

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

## Echo Tops (SiriusXM)

### 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.

Flight Instruments

## Data Link Lightning (SiriusXM, Garmin Connxt)

### Displaying Data Link Lightning information on Weather Data Link Page:

- 1) Turn the **FMS** Knob to select the 'Map - Weather Data Link (XM or CNXT)' Page.
- 2) Press the **XM LTNG** or **DL LTNG** Softkey.

EIS

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

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

Nav/Com/XPDR/Audio

### Displaying 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.
- 4) When finished, press the **Back** Softkey.

Flight Management

Hazard Avoidance

## Cell Movement (SiriusXM)

### Displaying Cell Movement information on the 'Map - Weather Data Link (XM)' Page:

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

AFCs

### 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.

Additional Features

Abnormal Operation

Annun/Alerts

## Infrared Satellite (Garmin Connxt)

### Displaying Infrared Satellite information:

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

Appendix

## SIGMETs and AIRMETS

### Displaying SIGMETs and AIRMETS:

- 1) Select the 'Map - Weather Data Link (XM or CNXT or FIS-B)' Page.
- 2) Press the **SIG/AIR** Softkey.

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- 3) To view the text of the SIGMET or AIRMET, press 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 'Map - Weather Data Link (XM or FIS-B or CNXT)' Page, press the **METAR** Softkey.
- 2) Press 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) Press the **FMS** Knob or the **CLR** Key to return to the Weather Data Link Page.

**Or:**

- 1) Select the Weather Information Page.
  - a) Turn the large **FMS** Knob to select the Waypoint Page Group.
  - b) Press the **WX** Softkey to select the Weather Information Page.
- 2) Press 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: the METAR text must be completely scrolled through before scrolling through the TAF text.

### Displaying original METAR text on the 'Map - Active Flight Plan' Page:

- 1) Select the 'FPL - Active Flight Plan' Page on the MFD.
- 2) Press 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, press 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) Press the **Joystick** and pan to the desired METAR flag. Original METAR text appears on the map.
- 4) When finished, press 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 (XM)' 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 (XM)' 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 (XM)' Page.
- 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) Press 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 (XM)' Page.
- 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 (XM)' Page.
- 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 (XM)' 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 (XM)' 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 (XM or FIS-B or CNXT)' 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) Press 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) Press the **FMS** Knob or the **CLR** Key to return to the 'Map - Weather Data Link (XM)' Page.

## TFRS

### Displaying TFR Data:

- 1) Select the 'Map - Weather Data Link (XM or FIS-B or CNXT)' Page or Navigation Map' Page.
- 2) Press 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) Press 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 settings.
- 6) Turn the small **FMS** Knob to scroll through options (Off, range settings).
- 7) Press the **ENT** Key to select an option.
- 8) Press 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 (FIS-B)' 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.

Lightning Age	Symbol
Strike is less than 6 seconds old	
Strike is between 6 and 60 seconds old	
Strike is between 1 and 2 minutes old	
Strike is between 2 and 3 minutes old	

**Lightning Age and Symbols**

**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 'Map - Stormscope®' Page.
- 3) Turn the **Joystick** clockwise to increase the map range or counter-clockwise to decrease the map range.

Flight Instruments

FIS

Nav/Com/XPDR/Audio

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## Selecting 'cell' or 'strike' mode on the 'Map - Stormscope®' Page:

- 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 press the **Strike** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box in the upper right corner of the 'Map - Stormscope®' Page.
  - 4) Press the **Back** Softkey to return to the top-level softkeys for the 'Map - Stormscope®' Page.
- Or:**
- 1) Select the 'Map - Stormscope®' Page.
  - 2) Press the **MENU** Key to display the 'Map - 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 press the **FMS** Knob.

## ADDITIONAL STORMSCOPE DISPLAYS

### Displaying Stormscope information on MFD navigation maps:

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

### Setting up Stormscope options on the 'Map - Navigation Map' Page:

- 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

### Selecting the 'cell' or 'strike' mode on the 'Map - Navigation Map' Page:

- 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) Press the **FMS** knob to return to the 'Map - Navigation Map' Page.

### Manually clearing Stormscope data on the 'Map - Navigation Map' Page:

- 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 'Map - Navigation Map' Page:

- 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) Press the **FMS** Knob to return to the 'Map - Navigation Map' Page.

### 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.
- 4) Press the **Back** Softkey twice to return to the top-level softkeys.

## STORMSCOPE ABNORMAL OPERATIONS

### 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.

## AIRBORNE COLOR WEATHER RADAR

### BASIC ANTENNA TILT AND RANGE SETUP

Proper antenna tilt management techniques are a major factor for the successful use of any airborne weather system. If the antenna tilt angle is set too low, the radar display will show excessive ground returns, making it difficult for the pilot to distinguish adverse weather phenomena from ground clutter. If the antenna tilt angle is set too high, the radar beam will overscan the top of the adverse weather. In either of these examples, the flight crew would be unable to adequately recognize critical weather information.

The following discussion is a simple method for setting up the weather radar antenna tilt for most situations. It is not to be considered an all encompassing setup that works in all situations, but this method does provide good overall parameters for the monitoring of intense weather threats. Correct application of tilt angle is directly dependent on the storms height and intensity and its relative distance from own ship. Adjusting the airborne weather radar tilt angle setting until minimal ground clutter is displayed is the simplest setup method for general surveillance of precipitation returns. For ranges of up to 80 NM this ground clutter should appear on the outer portion of the radar display. At ranges greater than 80 NM, the displayed ground clutter will move lower on the radar display due to the curvature of the earth. By displaying a minimal amount of ground clutter on the installed weather radar system the flight crew can ensure the system is operating and the air mass above the ground clutter is being scanned.

When a strong a weather return is detected within the ground clutter it must be further investigated to determine the source of this return. Further tilt angle adjustment of the airborne radar may be required to explore this return. Adjusting the radar tilt angle upwards can reveal the radar tops of this return, while adjusting the tilt angle downwards may be necessary to investigate the strongest intensity of a particular return.

Effective airborne weather radar range management during all phases of flight should be based on the volume of air to be scanned for returns ahead of own aircraft, to allow sufficient time needed to investigate, analyze, decide, and tactically maneuver around these hazardous weather returns. Longer ranges may be used to tactically identify intense weather returns that may warrant further investigation, and closer ranges may be used during the investigation process.

There is no one tilt or range setting that works for all situations. It is best to remember that active tilt and range management is necessary to identify and then investigate returns.



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**NOTE:** *When a strong weather return is displayed on the weather radar, the tilt angle may be adjusted to explore return intensities at various altitudes to aid in determination of radar tops.*

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**NOTE:** It is the sole responsibility of the flight crew to avoid areas of hazardous weather by adequate margins.

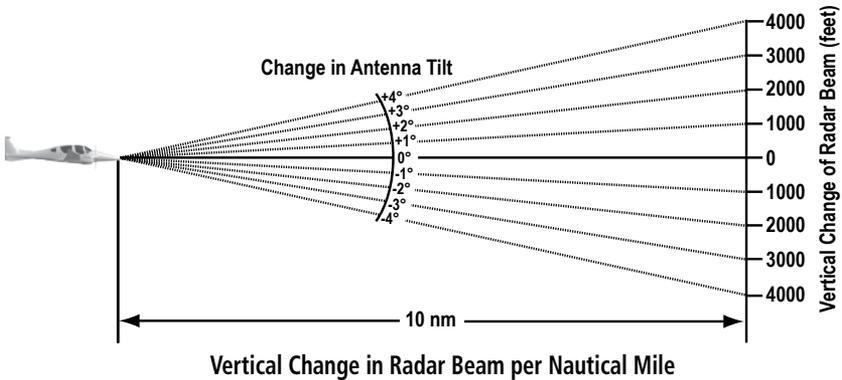


**CAUTION:** Overflight of thunderstorms should not be considered safe, as extreme turbulence and hail may exist significantly above observed returns.

### Managing Tilt Angle and Range

There are many factors to be considered in order to become proficient at using airborne weather radar in all situations. The following setup provides a good starting point for the practical application of radar tilt management.

Radar tilt management can easily be remembered by use of the 1-10-1000 rule. The summary of this rule is the fact that when the flight crew changes the radar tilt angle by 1 degree the resulting change will displace the center of the beam 1000 feet vertically at a range of 10 nautical miles. Applying the 1-10-1000 rule to various distances provides the flight crew with the ability to determine how much a 1-degree change in tilt will move the beam vertically. The radar tilt angle is capable of being adjusted in one-quarter degree increments, allowing for greater accuracy in the placement of the beam center at desired altitudes.



The 10-inch antenna has a certified beam width of 10 degrees, which means the beam is approximately 10,000 feet in height (and width) at 10 NM and approximately 100,000 feet in height (and width) at 100 NM.

- » At 20 NM range the beam height changes by 2,000 ft. per degree of tilt change.
- » At 40 NM range the beam height changes by 4,000 ft. per degree of tilt change.
- » At 100 NM range the beam height changes by 10,000 ft. per degree of tilt change.

Additionally, setting the tilt to UP 4.00 degrees places the bottom of the certified beam at the same altitude as the aircraft, which is a technique used to determine whether radar tops reach your current altitude.

- Flight Instruments
- FIS
- Nav/Com/XPDR/Audio Management
- Flight Management
- Hazard Avoidance
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	Phase of Flight	Tilt Angle	Range Setting	Notes
Flight Instruments	<b>Taxi</b>	Up 7.50° to 10.00°	20 NM	Activate weather mode when clear of ramp area.
EIS	<b>Takeoff / Initial Climb</b>	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.
Nav/Com/XPDR/Audio	<b>10,000 Ft. AGL</b>	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.
Flight Management	<b>Cruise</b>	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.
Hazard Avoidance	<b>Descent To 10,000 FT</b>	Tilt to Minimize Clutter Altitude Compensated Tilt On	60 - 120 NM	Range setting is dependent upon ground speed and time available for deviation.
AFCs	<b>Descent Below 10,000 FT</b>	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.
Additional Features	<b>Approach</b>	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.
Abnormal Operation				

### Typical Tilt Settings by Phase of Flight

#### Altitude Compensated Tilt (ACT)

The Altitude Compensated Tilt feature of the GWX 70 enables the system to automatically adjust the antenna beam tilt angle setting based on aircraft altitude changes. 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.

**Weather Display Interpretation**

Weather Mode Color	Intensity	Approximate Precipitation Rate (in/hr.)
<b>Black</b>	< 23 dBZ	< .01.
<b>Green</b>	23 dBZ to < 33 dBZ	.01 - 0.1.
<b>Yellow</b>	33 dBZ to < 41 dBZ	0.1 - 0.5
<b>Red</b>	41 dBZ and greater	> 0.5

**Precipitation Intensity Levels**

**WEATHER RADAR OPERATION**



**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 'Map - Weather Radar' Page:**

- 1) Select the 'Map - 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. The radar begins transmitting.
- 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.

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## Vertically scanning a storm cell:

- 1) While in the Horizontal Scan view, select 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) Select the **Vertical** Softkey. A vertical scan of the selected area is now displayed (Figure 6-69).
- 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, select the **Horizon** 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.

### Adjusting antenna tilt on the Vertical Scan display:

- 1) Select 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.

## Altitude Compensated Tilt (ACT) Angle Adjustment

### Enabling/Disabling Altitude Compensated Tilt (ACT):

- 1) On the 'Map - Weather Radar' Page, select the **Features** Softkey.
- 2) Select the **ACT** Softkey. When ACT is enabled, 'Altitude Comp Tilt On' is annunciated in upper right corner of the Weather Radar Page.

**Or:**

- 1) On the 'Map - Weather Radar' Page, press the **MENU** Key.
- 2) Turn the **FMS** Knob to highlight 'Altitude Compensated Tilt On' or 'Altitude Compensated Tilt Off', then press the **ENT** Key.

## Adjusting Gain

### Enabling/disabling manual gain adjustment:

- 1) Select the **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) Select the **Gain** Softkey again to return to the calibrated gain setting. 'Calibrated' is displayed in the Gain field.

## Sector Scan

### Enabling/disabling Sector Scanning:

- 1) While in horizontal scan mode, select 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 90° scan.
- 6) If desired, readjust the Bearing Line as discussed previously to change the center of the Sector Scan.
- 7) Select the **BRG** Softkey again to remove the Bearing Line and cursor. The bearing reference is reset to 0°.

## Weather Attenuated Color Highlight (WATCH®)

### Enabling/disabling the WATCH feature:

- 1) On the 'Map - Weather Radar' Page, select the **Features** Softkey.
- 2) Select the **WATCH** Softkey to enable/disable the WATCH feature.
- 3) Select the **Back** Softkey to return to the top-level softkeys.

## 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 Mapping Mode Color	Intensity
<b>Black</b>	3 dB
<b>Cyan</b>	> 3 dB to < 13 dB
<b>Yellow</b>	13 dB to < 21 dB
<b>Magenta</b>	21 dB to < 29 dB
<b>Blue</b>	29 dB and greater

Ground Target Return Intensity Levels

### Operation in Ground Mapping Mode:

- 1) Select the **Mode** Softkey.
- 2) Select the **Ground** Softkey to place the radar in Ground Mapping mode.
- 3) Select 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 in the lower-left corner of the map.
- 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. A dashed bearing line is displayed during and momentarily after adjustment.

Controlling of weather radar information on the HSI Map:

- 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** 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 **Features** Softkey.
- 9) Press the **WX ALERT** Softkey to enable/disable the display of Weather Alerts.
- 10) Press the **ACT** Softkey to enable/disable the Altitude Compensated Tilt feature.
- 11) Press the **WX WATCH** Softkey to enable/disable the optional Weather Watch 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.

On-Ground Legend



In-Air Legend



Relative Terrain Legend

### Enabling/disabling relative terrain information on MFD navigation maps:

- 1) Press the **Map Opt** Softkey.
- 2) Press the **TER** Softkey to cycle through terrain options. The selected mode is displayed in cyan: Off, Topo, Rel. Press the **TER** Softkey until 'Rel' is displayed on the softkey.

### Displaying relative terrain information (PFD Maps):

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **TER** Softkey to cycle through terrain options. The selected mode is displayed in cyan: Off, Topo, Rel. Press the **TER** Softkey until 'Rel' is displayed on the 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** – Selects the display of topographical terrain, relative terrain, or no terrain, and selects the maximum map range at which terrain is shown.
  - **Obstacle Data** – Turns the display of obstacle data on or off and sets maximum range at which obstacles are shown.
- 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) Press the **FMS** Knob or **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 or 'Map -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.

## VERTICAL SITUATION DISPLAY (VSD) TERRAIN

### Enabling/Disabling the Vertical Situation Display (VSD):

- 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 or disable the VSD.

**Or:**

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) Select 'Show VSD' or 'Hide VSD' (choice dependent on current state) and press the **ENT** Key.

### Enabling/Disabling VSD Relative Terrain on the 'Map - Navigation Map' Page (when VSD is enabled):

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **Map Opt** Softkey.
- 3) Press the **TER** Softkey. Each selection cycles though an option displayed in cyan: Off (disables terrain), Topo (to show topographical data) or REL (to show relative terrain).

## Selecting a VSD Mode:

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **Inset** Softkey.
- 3) Press the **VSD** Softkey displaying the VSD mode in cyan. Each press of the softkey cycles through a mode selection: FPL (flight plan), TRK (track), or Auto.

## Customizing the Track Mode Boundary 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 'VSD' Group and press the **ENT** Key.
- 5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
  - **TRK Mode BNDRY** – Enables/disables the display of the Track Mode Boundary and sets maximum range at which Track Mode Boundary is shown.
- 6) Turn the small **FMS** Knob to scroll through options (On/Off, range settings).
- 7) Press the **ENT** Key to select an option.
- 8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

## 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.

TIS Symbol	Description
	Non-Threat Traffic
	Traffic Advisory (TA)
	Traffic Advisory Off Scale

TIS Traffic Symbols

## DISPLAYING TRAFFIC DATA

### Enabling/disabling traffic overlays (MFD navigation maps):

- 1) Select the **Map Opt** Softkey.
- 2) Select 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 Setup' 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 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) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

### Displaying traffic 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) Confirm TIS is in Operating Mode:  
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.

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**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 'Map - 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.

**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 'Map - 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.

**AVIDYNE TAS600 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.

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

TAS Symbol Description with GTX 335R Transponder

Symbol	Description
	Traffic Advisory with directional information. Points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory out of the selected display range with directional information. Displayed at outer range ring at proper bearing.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with directional information. Points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with directional information. Points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with directional information. 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 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 Symbolology with GTX 345R Transponder**

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## 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. 'OPERATING' is displayed in the Traffic mode field.
  - 4) Press the **Standby** or **TAS STBY** Softkey to place the system in the Standby mode. 'STANDBY' is displayed in the Traffic mode field.
- Or:**
- 1) With the Traffic Map Page displayed, press the **MENU** Key.
  - 2) Turn the small **FMS** knob to highlight the desired mode.
  - 3) Press the **ENT** Key.

### 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

The display range on the 'Map - Traffic Map' Page can be changed at any time. Map range is adjustable with the **Joystick**, and rings on the map denote the ranges.

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

- 1) Select the 'Map -Traffic Map' Page.
- 2) Turn the **Joystick**.
- 3) 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 and 6 nm.
  - 6 nm and 12 nm.
  - 12 nm and 24 nm.
  - 24 nm and 40 nm.

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

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

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**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) Press 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.

Symbol	Description
	Traffic Advisory with directional information. Points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.

	Traffic Advisory out of the selected display range with directional information. Displayed at outer range ring at proper bearing.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with directional information. Points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with directional information. Points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with directional information. 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 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. 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**

**Enabling/disabling the display of ADS-B traffic.**

- 1) Select the 'Map - Traffic Map' Page.
- 2) Select 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. Otherwise the test mode is not available.
- 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, select the **ALT Mode** Softkey.
- 2) Select one of the following softkeys:
  - **Above:** Displays Other Non-Threat and proximity 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 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 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 'Map - Traffic Map' Page, select the **Back** Softkey.

**Or:**

- 1) Press the **MENU** Key.
- 2) Turn the small **FMS** Knob to highlight one of the following options:
  - **Above**
  - **Normal**
  - **Below**
  - **Unrestricted**
- 3) Press the **ENT** Key.

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### Enabling/Disabling Flight ID Display:

On the 'Map - Traffic Map' Page, press the **FLT ID** Softkey.

**Or:**

- 1) Press the **MENU** Key.
- 2) Turn the small **FMS** Knob to choose 'Show Flight IDs' or 'Hide Flight IDs' (choice dependent on current state).
- 3) Press the **ENT** Key.

### Enabling/disabling the Motion Vector display:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Select the **Motion** Softkey.
- 3) Press 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, select the **Back** Softkey to return to the 'Map -Traffic Map' Page.

### Showing additional traffic information:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Press the **FMS** Knob. The first selected traffic symbol is highlighted in cyan. Additional information appears in a window in the upper-right corner of the 'Map - Traffic Map' Page.
- 3) To select a different aircraft symbol, turn the **FMS** Knob to move the cyan bracket until the selected aircraft traffic symbol is highlighted.
- 4) When finished, press the **FMS** Knob again to disable the traffic selection.

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

- 1) Select the 'Map - Traffic Map' Page.
- 2) Turn the **Joystick**.
- 3) The following range options are available:
  - 750 ft .
  - 750 ft and 1500 ft.
  - 1500 ft and 0.5 nm.
  - 0.5 nm and 1 nm.
  - 1 nm and 2 nm.
  - 2 nm and 6 nm.
  - 6 nm and 12 nm.
  - 12 nm and 24 nm
  - 24 nm and 40 nm.

## 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

## OVERVIEW



**NOTE:** The current version of the pertinent flight manual always supersedes the information in this Pilot's Guide.



**NOTE:** A failure of the primary (#1) Integrated Avionics Unit (IAU) results in loss of the flight director. Any IAU failure results in loss of the autopilot and manual electric trim.

## BASIC AUTOPILOT OPERATION

- **Autopilot Engagement** — The autopilot may be engaged by pushing the **AP Key** on the MFD. 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 Switch**, which is located on each 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** on the MFD.
  - » Operating the **AP TRIM** Switch.
  - » Pulling the autopilot circuit breaker.

In the event of unexpected autopilot behavior, pressing and holding the **AP DISC 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	
<b>FD</b> Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
<b>AP</b> Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
<b>CWS</b> Button	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
<b>GO-AROUND</b> Button	Takeoff (on ground) Go Around (in air)	TO GA	Takeoff (on ground) Go Around (in air)	TO GA
<b>ALT</b> Key	Roll Hold (default)	ROL	Altitude Hold	ALT
<b>VS</b> Key	Roll Hold (default)	ROL	Vertical Speed	VS
<b>VNV</b> Key	Roll Hold (default)	ROL	Vertical Path Tracking*	VPTH
<b>NAV</b> Key	Navigation**	GPS VOR LOC BC	Pitch Hold (default)	PIT
<b>APR</b> Key	Approach**	GPS VOR LOC	Pitch Hold (default)t	PIT GP GS
<b>HDG</b> Key	Heading Select	HDG	Pitch Hold (default)	PIT

\*A valid VNV Flight Plan must be entered before **VNV** Key press activates the flight director.

\*\*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.

#### Flight Director Activation

## 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	*	ALTS	
Altitude Hold	Holds the current Altitude Reference	<b>ALT</b> Key	ALT	nnnnn FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	<b>VS</b> Key	VS	nnnn FPM
Flight Level Change	Maintains the current aircraft airspeed while the aircraft is climbing/descending to the Selected Altitude	<b>FLC</b> Key	FLC	nnn KT

\*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

#### Flight Director Vertical Modes

### LATERAL MODES

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

#### Flight Director Lateral Modes

## COMBINATION MODES

Mode	Description	Control	Annunciation
<b>Vertical Navigation Modes</b>			
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	*	ALTV
<b>VOR Approach Mode</b>			
VOR Arm/Capture/Track	Captures and tracks the VOR navigation source	APR Key	VAPP
<b>GPS Approach Mode</b>			
GPS Arm/Capture/Track	Captures and tracks the GPS navigation source	APR Key	GPS
Glidepath	Captures and tracks the SBAS glidepath on approach		GP
<b>LOC Approach Mode</b>			
ILS Arm/Capture/Track	Captures and tracks the LOC navigation source	APR Key	LOC
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Backcourse Arm/Capture/Track	Captures and tracks a localizer signal for backcourse approaches	N/A	N/A
<b>Additional Modes</b>			
Takeoff	Commands a constant pitch angle on the ground in preparation for takeoff	GO-AROUND Button	TO
Go Around**	Commands a constant pitch angle and wings level in the air		GA
Level	Autopilot engages and commands pitch angle necessary to establish zero vertical fpm	***	LVL

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

\*\*Go Around mode disengages the autopilot unless a compatible lift computer is installed.

\*\*\*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.

### Flight Director Combination Modes

## Approach Modes (VAPP, GPS, LOC)

### VOR APPROACH MODE

#### 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.

### GPS APPROACH MODE

#### Selecting GPS Approach without a glidepath:

- 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 **NAV** Softkey.

### Glidepath Mode (GP)

#### 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:** When flying an LNAV approach (with vertical descent angle) with the autopilot coupled, the aircraft will not level off at the MDA even if the MDA is set in the altitude preselect.



**NOTE:** Pressing the **CWS** Button while Glidepath Mode is active does not cancel the mode. The autopilot guides the aircraft back to the glidepath upon release of the **CWS** Button.

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## LOCALIZER APPROACH MODE

### Selecting LOC Approach Mode without a glidepath:

- 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 **NAV** Key.

## Glideslope Mode (GS)

### 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.



**NOTE:** Pressing the **CWS** Button while Glideslope Mode is active does not cancel the mode. The autopilot guides the aircraft back to the glideslope upon release of the **CWS** Button.

## Backcourse Mode (BC)



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

Backcourse Mode is armed if the CDI is greater than one dot when the mode is selected. The flight director creates roll steering commands from the Selected Course and deviation when in Backcourse Mode.

# ADDITIONAL FEATURES

## SAFETAXI (OPTIONAL)

### 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.

## ELECTRONIC CHARTS



**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:** 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.

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**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 [www.flyGarmin.com](http://www.flyGarmin.com) by selecting 'Aviation Database Alerts.'



**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.

### Selecting preferred charts source:

- 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 'Preferred Charts Source' option.
- 4) Turn the small **FMS** Knob to choose between the available options (FliteCharts or ChartView).

## FLITECHARTS

### 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) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Chart Mode On' or 'Charts' appropriately.
- 3) Press the **ENT** Key to display the chart.
- 4) After the chart is displayed, press the **Menu** Key and select the desired type of chart (e.g., **Show Departure Page**, **Show Arrival Page**, **Show Approach Page**, etc.) and press the **ENT** Key to display the chart.

### Selecting a chart:

- 1) While viewing the 'Map - Navigation Map' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airports' Page, press the **Charts** Softkey. The airport diagram or approach chart is displayed on the 'WPT - Airport Information' Page.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to select either the 'Airport' Identifier Box or the 'Charts' Box. (Press the **APR** Softkey if not already selected).
- 4) Turn the small and large **FMS** Knob to enter the desired airport identifier.

- 5) Press the **ENT** Key to complete the airport selection.
- 6) Turn the large **FMS** Knob to select the 'Charts' Box.
- 7) Turn the small **FMS** Knob to show the approach chart selection choices.
- 8) Turn either **FMS** Knob to scroll through the available charts.
- 9) Press the **ENT** Key to complete the chart selection.

### 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 the 'Full Screen Off' Option and press the **ENT** Key.

### 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) Press the **FMS** Knob when finished to remove the 'Charts Setup' Menu.

## CHARTVIEW

### 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) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Chart Mode On' or 'Charts' appropriately.
- 3) Press the **ENT** Key to display the chart.
- 4) After the chart is displayed, press the **Menu** Key and select the desired type of chart (e.g., **Show Departure Page, Show Arrival Page, Show Approach Page**, etc.) and press the **ENT** Key to display the chart.

### Selecting a chart:

- 1) While viewing the 'Map - Navigation Map' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airports' Page, press the **Charts** Softkey. The airport diagram or approach chart is displayed on the 'WPT - Airport Information' Page. (Press the **APR** Softkey if not already selected).
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to select either the 'Airport' Identifier Box or the 'Charts' Box.
- 4) Turn the small and large **FMS** Knob to enter the desired airport identifier.
- 5) Press the **ENT** Key to complete the airport selection.
- 6) Turn the large **FMS** Knob to select the 'Charts' Box.
- 7) Turn the small **FMS** Knob to show the approach chart selection choices.
- 8) Turn either **FMS** Knob to scroll through the available charts.
- 9) Press the **ENT** Key to complete the chart selection.

### 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 the 'Full Screen Off' option and press the **ENT** Key.

### 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) Press the **FMS** Knob when finished to remove the 'Chart Setup' Menu.

## IFR/VFR CHARTS

### Selecting the chart to display:

- 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) From the 'Map - IFR/VFR Charts' Page, 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.

### Modifying the IFR Low, IFR High, and VFR Charts settings:

- 1) Select the 'Map - IFR/VFR Charts' Page.
- 2) Press the **Map Opt** Softkey to display the Map Options.
- 3) Press the **Traffic** Softkey to enable/disable traffic overlaid onto the charts displayed.

## SATELLITE TELEPHONE AND DATALINK SERVICES (OPTIONAL)

### 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 Connex 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 Connex.
- 7) Contact Garmin Connex to establish an account and receive an access code.

### DISABLE/ENABLE 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 can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via 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 can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via 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 can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via the **FMS** Knob on the MFD.
- 9) Press the **Symbols** Softkey to display the "at" symbol, the period, and other special characters.
- 10) Press the **ENT** Key. The **Save** Button 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 can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via 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.

Internal Phone	External Phone	Description
 <b>Idle</b>	 <b>Idle</b>	Phone is Idle
 <b>Ringing</b>	 <b>Ringing</b>	Phone is ringing
 <b>Connected</b>	 <b>Connected</b>	Phone has a dial tone (off hook) or connected to another phone
 <b>Dialed is busy</b>	 <b>Dialed is busy</b>	Phone dialed is busy
 <b>Dialing</b>	 <b>Dialing</b>	Phone is dialing another phone
 <b>Failed</b>	 <b>Failed</b>	Phone has failed
 <b>Status Not Known</b>	 <b>Status Not Known</b>	Phone status not known
	 <b>Disabled</b>	Phone is disabled
	 <b>DATA TX</b>	Phone is reserved for data transmission
		Calling other phone or incoming call from other phone
		Other phone is on hold
		Phones are connected

**Telephone Symbols**

Flight Instruments  
EIS  
Nav/Com/XPDR/Audio  
Flight Management  
Hazard Avoidance  
AFCS  
Additional Features  
Abnormal Operation  
Annun/Alerts  
Appendix  
Index

**Answering a call:**

While viewing the 'Aux - Telephone' Page, press the **Answer** Softkey on the MFD.

**Or:**

- 1) While viewing the 'Aux - Telephone' Page, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call.'
- 3) 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.

**Making a call:**

- 1) With the 'Aux - Satellite Phone' Page displayed, press the **Phone** Key (if not already selected).
- 2) Press the **Dial** Softkey on the MFD.

Satellite System	Country Code
Inmarsat	870
ICO	8810 or 8811
Ellipso	8812 or 8813
Iridium	8816 or 8817
Globalstar	8818 or 8819

- 3) Enter the desired telephone number (country code first) by using the **FMS** Knob on the MFD, pressing the number softkeys on the MFD, or by pressing the numeric keys on the MFD Control Unit.
- 4) Press the **ENT** Key. 'OK' is highlighted.
- 5) Press the **ENT** Key. The system will begin calling the number.

**Making a call by selecting a contact:**

- 1) With the 'Aux - Satellite Phone' Page displayed, press the **Phone** Key (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.

## Placing a call on hold:

Press the **Hold** Softkey on the MFD.

**Or:**

- 1) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Put Current Call On Hold.'
- 3) Press the **ENT** Key.

## 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) If necessary, 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.

### 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:

While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey.

**Or:**

- 1) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Draft New Message.'
- 3) Press the **ENT** Key.
- 4) 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 can be accomplished through alphanumeric keys on the PFD/MFD Controller, or by a combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, or numbers can be entered from the MFD by selecting 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.

- 5) Press the **ENT** Key. The cursor is now displayed in the 'Message' Field.
- 6) Enter the desired message using any combination of entry methods as described in step 2.
- 7) Press the **ENT** Key.
- 8) Press the **Send** Softkey to send the message immediately after confirming you want the message to be sent, or press the **Save** Softkey to save the message in Outbox for sending at a later time. 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 Email** Softkey to send to the email address saved for the contact or the **Text Phone** 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) Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted. Select 'No' to return to the message entry field and either press the **Cancel** Softkey to delete the message or press the **Save** Softkey to save the message as a draft.

### 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.

**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 can be accomplished through the alphanumeric keys on the PFD/MFD Controller, or combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, or numbers can be entered from the MFD by selecting 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.

**Or:**

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'Cancel Drafting Message.'
- c) Press the **ENT** Key.

### 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 can be accomplished through the alphanumeric keys on the MFD Controller, or combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, 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) 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 by using the **FMS** Knobs.
- 7) Press the **ENT** Key.
- 8) Press the **Send** Softkey to transmit the message.

### Show 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.

**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 'Show Inbox Messages.'
- 3) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

### Show 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.

**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.

### Show 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.

**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 message date/time:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Time** Softkey if not already selected.

**Or:**

- 1) 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 message type:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Type** Softkey.

**Or:**

- 1) 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 address:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Address** Softkey.

**Or:**

- 1) 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, select the desired message box.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn either **FMS** Knob to select the desired message.
- 4) 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.

Message content is displayed.

- 5) 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.

**Delete 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.  
**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.
- 4) With cursor highlighting 'Yes,' press the **ENT** Key. The message is now deleted.

**CONNEXT SETUP (OPTIONAL)****Viewing the 'Aux - Connex 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 - Connex Setup' Page.

**Changing the Bluetooth Name:**

- 1) While viewing the 'Aux - Connex 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 - Connex 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 - Connex 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 - Connex 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 Specific Paired Device from the List of Paired Devices:

- 1) While viewing the 'Aux - Connex 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.

## SIRIUSXM RADIO (OPTIONAL)

### 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. Either the Audio Radio ID or the Data Radio ID, 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 with the GDL 69A SXM. Either or both services can be activated. SiriusXM Satellite Radio uses one or both of the coded IDs to send an activation signal that, when received by the GDL 69A SXM, allows it to play entertainment programming.

These IDs are located:

- On the label on the back of the Datalink Receiver.
- On the 'Aux - XM Information' Page on the MFD.
- On the XM Satellite Radio Activation Instructions included with the unit (available at [www.flyGarmin.com](http://www.flyGarmin.com), P/N 190-00355-04).

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 above information, contact SiriusXM Satellite Radio. Follow the instructions provided by SiriusXM Satellite Radio services.
- 2) Turn the large **FMS** Knob to select the 'Aux' Page Group.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

- 3) Turn the small **FMS** Knob to select the displayed '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.

## USING SIRIUSXM RADIO

### 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 in the 'Channels' Box, 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) Press the **Category** Softkey on the 'Aux - XM Radio' Page.
- 2) Press the **CAT +** and **CAT -** Softkeys to cycle through the categories.

**Or:**

Turn the small **FMS** Knob to display the 'Categories' List. Highlight the desired category with the small **FMS** Knob 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 when MUS1 or MUS2 Buttons are pressed.

## ELECTRONIC CHECKLISTS

### Accessing and navigating checklists:

- 1) From any page on the MFD (except the 'EIS' Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'Checklist' Page.
- 2) Turn the large **FMS** Knob to select the 'Group' field.
- 3) Turn the small **FMS** Knob to select the desired procedure and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to select the 'Checklist' field.
- 5) Turn the **FMS** Knob to select the desired checklist and press the **ENT** Key. The selected checklist item is indicated with white text surrounded by a white box.
- 6) Press the **FMS** Button to activate the cursor. A cyan box surrounds the first checklist item.
- 7) Press the **ENT** Key or press the **FMS** Button 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.

- 8) 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 been checked, '\*Checklist Not Finished\*' will be displayed in amber text.
- 9) Press the **ENT** Key. 'Go To Next Checklist?' will be highlighted by the cursor.
- 10) Press the **ENT** Key to advance to the next checklist.
- 11) Press the **Exit** Softkey to exit the 'Checklist' Page and return to the page last viewed.

### Accessing emergency procedures:

- 1) From any page on the MFD (except the 'EIS' Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'Checklist' Page.
- 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 emergency checklist item. The line item turns green and a checkmark is placed in the box next to it. The next line item is automatically highlighted 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 been 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.
- 9) Press the **Exit** Softkey to exit the 'Checklist' Page and return to the page last viewed.

## 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 Video and display the 'Aux - Video' Page.
- Control of the 'Aux - Video' Page can also be accessed through the 'Page Menu.'

### Selecting 'Aux - 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.

## VIDEO SETUP

### 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 +**, to adjust display brightness in five percent increments from 0 to 100%.

- 4) Press the **SAT** - or **SAT +**, 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.

## ELECTRONIC STABILITY AND PROTECTION (OPTIONAL)



**NOTE:** *ESP is designed to discourage exceeding the normal flight envelope. It is not designed or capable of performing the necessary recovery procedures due to encounters with adverse flight conditions and environments.*



**NOTE:** *Refer to the current version of the pertinent flight manual to determine approval of ESP functionality.*

The pilot can interrupt ESP by pressing and holding either the Control Wheel Steering (**CWS**) Switch or Autopilot Disconnect (**AP DISC**) Switch. Upon releasing the **CWS** or **AP DISC** Switch, ESP force will again be applied, provided aircraft attitude and/or airspeed are within their respective engagement limits. ESP can also be overridden by overpowering the servo's mechanical torque limit.

### Enabling/disabling ESP:

- 1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 2) Turn the small **FMS** Knob to select the 'Aux - System Setup' Page.
- 3) If necessary, press the **Setup 2** Softkey to display the 'Aux - System Setup 2' Page.
- 4) Press 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) Press the **FMS** Knob to remove the cursor.

ESP is automatically enabled on system initialization.

## DATABASE CYCLE NUMBER AND REVISIONS

### 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.

Some quick troubleshooting steps listed below can be performed to find the possible cause of a failure.

- Ensure the installed Datalink 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 Datalink Receiver or Iridium Transceiver.

## CREW PROFILES

System settings may be saved under a crew profile. When the system is powered on, the last selected crew profile is shown on the MFD Initialization Splash Screen. 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 Page 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) 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 letter.
- 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 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) 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' Profile 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) 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) 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, then scroll to the desired profile name with the large and small **FMS** Knobs, then press the **ENT** Key. Then 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 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 window below. With 'OK' highlighted, press the **ENT** or **CLR** Keys or push the **FMS** Knob to return to the 'Aux - System Setup 1 or 2' Page. The imported profile becomes the active profile.



Crew Profile Importing and Import Results Window



Crew Profiles Available for Import from SD Card



Import Successful

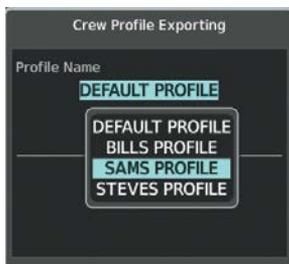
### Pilot Profile Import ('Aux - System Setup' Page)

#### Exporting a profile to an SD card:

- 1) Insert the SD card for storing the Crew Profile 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 **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, then scroll to the desired profile name with the large and small **FMS** Knobs, then press the **ENT** Key. Then 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 'Pilot 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** Keys, or push the **FMS** Knob to return to the 'Aux - System Setup 1 or 2' Page.



**Crew Profile Exporting Window, Enter a Name to Use for Exported Profile**



**Export Successful**

## Pilot Profile Export on the 'Aux - System Setup' Page

## SCHEDULER

The system's Scheduler feature can be used to enter and display reminder messages (e.g., "Change oil", "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.

### Entering a scheduler message:

- 1) 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 set 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 message, use the **FMS** Knob to enter the timer value (HHH:MM:SS) from which to countdown and press the **ENT** Key.
- 9) For event-based messages:
  - a) Use the **FMS** Knob to enter the desired date (DD-MMM-YYY) and press the **ENT** Key.

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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) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to enter the next message.

#### Deleting a scheduler message:

1) Select the 'Aux - Utility' Page.

2) Press 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.

Scheduler messages appear in the Alerts Window on the PFD and cause the **Alerts** Softkey label to change to a flashing 'Message' label. Selecting the **Message** Softkey opens the Alerts Window and acknowledges the scheduler message. The softkey reverts to the 'Alerts' label. Selecting the **Alerts** Softkey again removes the Alerts Window from the display and the scheduler message is deleted from the message queue.

# ABNORMAL OPERATION

## 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 can be manually switched to reversionary (back-up) mode (all remaining displays enter reversionary mode). In reversionary mode, all important flight information is presented on the remaining display(s) in the same format as in normal operating mode.

If a display fails, the appropriate IAU-display Ethernet 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 Table 2-4 can appear on the HSI when abnormal GPS conditions occur. Refer to the Flight Management Section for more information on Dead Reckoning Mode.

Annunciation	Location	Description
<b>GPS LOI</b>	Right of HSI	Loss of Integrity Monitoring – GPS integrity is insufficient for the current phase of flight
<b>GPS INTEG OK</b>	Right of HSI	Integrity OK – GPS integrity has been restored to within normal limits (annunciation displayed for 5 seconds)
<b>DR</b>	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

**Abnormal GPS Conditions Annunciated on HSI**

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**GPS  
INTEG OK**

**GPS LOI**

### Example HSI Annunciations

In Dead Reckoning Mode the CDI is removed from the display when GPS is the selected navigation source. The following items on the PFD are then shown in amber:

- Current Track Indicator
- Wind Data
- Ground Speed
- Distances in the Bearing Information Windows
- GPS bearing pointers

These items should be verified when operating in Dead Reckoning Mode as they become increasingly inaccurate over time.

## SVT TROUBLESHOOTING

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.

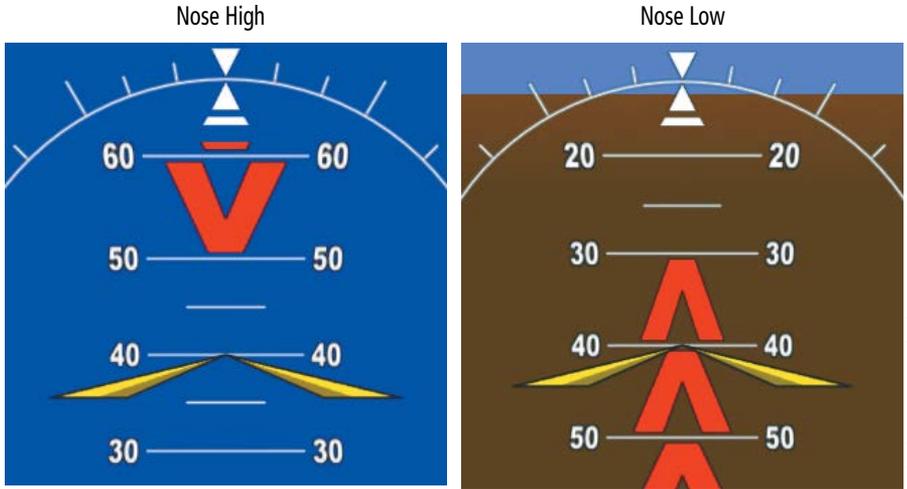
SVT becomes disabled without the following data resources:

- Attitude data
- Heading data
- GPS position data
- 4.9 Arc-second 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.



**Pitch Attitude Warnings**

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 each PFD and their softkeys are disabled when the aircraft experiences unusual attitudes:

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Flight Instruments

- Traffic Annunciations
- AFCS Annunciations
- Inset Map

EIS

- Outside air temperature (OAT)
- ISA temperature deviation
- Wind data

Nav/Com/XPDR/Audio

- Selected Heading readout
- Selected Course readout

Flight Management

- Transponder Status Box
- System Time
- PFD Setup Menu

Hazard Avoidance

- Windows displayed in the lower right corner of the PFD:
- References

- Nearest Airports
- Flight Plan
- Messages
- Procedures
- Minimum Descent Altitude/Decision Height readout
- Vertical Deviation, Glideslope, and Glidepath Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude
- Ground Speed
- True Airspeed

AFCS

## SVT UNUSUAL ATTITUDES

Additional Features

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.

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Blue Band

Terrain Completely Fills Display

Blue Sky Bar with Full Display Terrain

## ABNORMAL COM OPERATION

### STUCK MICROPHONE

If the push-to-talk (PTT) Key becomes stuck, the COM transmitter stops transmitting after 35 seconds of continuous operation. An alert appears in the Alerts Window on the PFD to advise the crew of a stuck microphone.

The **COM1 MIC** or **COM2 MIC** Key Annunciator on the Audio Panel flashes as long as the PTT Key remains stuck.

### COM TUNING FAILURE

In case of a COM system tuning failure, the emergency frequency (121.500 MHz) is automatically tuned in the radio in which the tuning failure occurred. Depending on the failure mode, a red X may appear on the frequency display.

### AUDIO PANEL FAIL-SAFE OPERATION

If there is a failure of the Audio Panel, a fail-safe circuit connects the pilot's headset and microphone directly to the COM1 transceiver.

### REVERSIONARY MODE

The red **DISPLAY BACKUP** Button selects the Reversionary Mode. .

### DEAD RECKONING NAVIGATION

While in Enroute or Oceanic phase of flight, if the system detects an invalid GPS solution or is unable to calculate a GPS position, the system automatically reverts to Dead Reckoning (DR) Mode. 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. If while in DR Mode airspeed and/or heading data is also lost or not available, the DR function may not be capable of accurately tracking estimated position and, consequently, the system may display a path that is different than the actual movement of the aircraft. Estimated position information displayed by the system through DR while there is no heading and/or airspeed data available should not be used for 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' superimposed in amber over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is

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prominently displayed in amber on the HSI slightly below and to the left of the aircraft symbol on the CDI as shown in the following figure. 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 GPS-derived data is computed based upon an estimated position and is displayed as amber text on the display to denote degraded navigation source information as shown in the following figure. If the VSD Inset is selected on the MFD, ‘VSD Not Available’ will be displayed.

Also, while the system is in DR Mode, some terrain functions are not available. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

## SUSPECTED AUTOPILOT MALFUNCTION



**NOTE:** Consult the aircraft documentation for the location of circuit breakers as well as specifics that may supplement or amplify this procedure.

### Mitigating suspected autopilot failure or trim failure:

- 1) Firmly grasp the control stick.
- 2) Press and hold the **AP DISC** Switch. The autopilot will disconnect and power is removed from the trim motor. Power is also removed from all primary servo motors and engaged solenoids. Note the visual and aural alerting indicating autopilot disconnect.
- 3) Retrim the aircraft as needed. Substantial trim adjustment may be needed.
- 4) Pull the appropriate circuit breaker(s) to electrically isolate the servo and solenoid components.
- 5) Release the **AP DISC** Switch.

## OVERPOWERING AUTOPILOT SERVOS

In the context of this discussion, “overpowering” refers to any pressure or force applied to the pitch controls when the autopilot is engaged. A small amount of pressure or force on the pitch controls can cause the autopilot automatic trim to run to an out-of-trim condition. Therefore, any application of pressure or force to the controls should be avoided when the autopilot is engaged.

Overpowering the autopilot during flight will cause the autopilot’s automatic trim to run, resulting in an out-of-trim condition or cause the trim to hit the stop if the action is prolonged. In this case, larger than anticipated control forces are required after the autopilot is disengaged. The following procedure should be added to the preflight checks.

## Checking autopilot servos during the preflight check:

- 1) Check for proper autopilot operation and ensure the autopilot can be overpowered.
- 2) Note the forces required to overpower the autopilot servo clutches.

## GDL 69A SXM TROUBLESHOOTING

For troubleshooting purposes, check the LRU Information Box on the 'Aux - System Status' Page for GDL 69A SXM status, serial number, and software version number. If a failure has been detected in the GDL 69A SXM the status is marked with a red X in front of the 'GDL 69' Field.

### 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 Datalink 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 Datalink Receiver or Iridium Transceiver.

## GDL 69A SXM RADIO

Ensure that nothing is plugged into the MUSIC 1 or MUSIC 2 jacks as this would prevent SiriusXM radio from being heard

If a failure still exists, the following messages may provide insight as to the possible problem:

Message	Message Location	Description
<b>CHECK ANTENNA</b>	'Aux - XM Information' Page (MFD)	Datalink Receiver antenna error; service required
<b>UPDATING</b>	'Aux - XM Information' Page (MFD)	Datalink Receiver updating encryption code
<b>NO SIGNAL</b>	'Aux - XM Information' Page (MFD)	Loss of signal; signal strength too low for receiver
<b>LOADING</b>	'Aux - XM Radio' Page (MFD)	Acquiring channel audio or information
<b>OFF AIR</b>	'Aux - XM Radio' Page (MFD)	Channel not in service
<b>-----</b>	'Aux - XM Radio' Page (MFD)	Missing channel information

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Message	Message Location	Description
<b>ACTIVATION REQUIRED</b>	'Aux - XM Information' Page (MFD)	SiriusXM subscription is not activated
<b>DETECTING ACTIVATION</b>	'Aux - XM Information' Page (MFD)	SiriusXM subscription is activating.
<b>WAITING FOR DATA...</b>	'Aux - XM Information' Page (MFD)	SiriusXM subscription confirmed downloading data.

### GDL 69A SXM Datalink Receiver Messages

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# ANNUNCIATIONS AND ALERTS

## SYSTEM ANNUNCIATIONS



**NOTE:** Upon initialization, certain windows remain invalid as system equipment begins to initialize. All windows should be operational within one minute of initialization. If any window continues to remain flagged, the system should be serviced by a Garmin-authorized repair facility.

### Viewing LRU information:

- 1) Use the **FMS** Knob to select the 'Aux - System Status' Page.
- 2) To place the cursor in the 'LRU Info' Box,  
Press the **LRU** Softkey.  
**Or:**
  - a) Press the **MENU** Key.
  - b) With 'Select LRU Window' highlighted, press the **ENT** Key.
- 3) Use the **FMS** Knob to scroll through the box to view LRU status information.

System Annunciation	Comment
	Air Data, Attitude and Heading Reference System is aligning.
	Display system is not receiving attitude information from the AHRS.
	AHRS calibration incomplete or configuration module failure.

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System Annunciation	Comment
	GPS information is either not present or is invalid for navigation use. Note that AHRS utilizes GPS inputs during normal operation. AHRS operation may be degraded if GPS signals are not present (see POH).
	Display system is not receiving airspeed input from the air data computer.
	Display system is not receiving vertical speed input from the air data computer.
	Display system is not receiving valid heading input from the AHRS or magnetometer.
	Display system is not receiving altitude input from the air data computer.
	Display system is not receiving valid OAT information from the air data computer.
	Display system is not receiving valid transponder information.
Other Various Amber X Indications	An amber 'X' through any other display field (such as engine instrumentation fields) indicates that the field is not receiving valid data.

**System Annunciations**

## CAS MESSAGES

### WARNING MESSAGES

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Annunciation Window Text	'Alerts' Window Message
<b>FWD DOOR</b>	Left or right baggage door is not closed.
<b>L ALTN AMPS</b>	Left engine alternator output is >70 amps.
<b>L DOOR OPEN</b>	Front, left door is not closed.
<b>L ENG FIRE</b>	Left engine fire detected.
<b>L FUEL PRESS</b>	Left engine fuel pressure is low.
<b>L ENG TEMP</b>	Left engine coolant temp is >100 deg C.
<b>L FUEL TEMP</b>	Left fuel temp is greater than 60 deg C.
<b>L GBOX TEMP</b>	Left engine gearbox temp is >120 deg C.
<b>L OIL TEMP</b>	Left engine oil temp is greater than 139 deg C.
<b>L OIL PRES</b>	Left engine oil pressure is less than 0.9 bar.
<b>L STARTER</b>	Left engine starter is engaged.
<b>R ALTN AMPS</b>	Right engine alternator output is >70 amps.
<b>R DOOR OPEN</b>	Front, right door is not closed.
<b>R ENG FIRE</b>	Right engine fire detected.
<b>R ENG TEMP</b>	Right engine coolant temp is >100 deg C.
<b>R FUEL PRESS</b>	Right engine fuel pressure is low.
<b>R FUEL TEMP</b>	Right fuel temp is greater than 60 deg C.
<b>R GBOX TEMP</b>	Right engine gearbox temp is >120 deg C.
<b>R OIL PRES</b>	Right engine oil pressure is less than 0.9 bar.
<b>R OIL TEMP</b>	Right engine oil temp is greater than 139 deg C.
<b>R STARTER</b>	Right engine starter is engaged.
<b>REAR DOOR</b>	Rear door is not closed.
<b>USP ACTIVE*</b>	USP has engaged autopilot due to slow airspeed.

\* *Optional (Garmin AFCS equipped aircraft with ESP™ only)*

## CAUTION MESSAGES

Annunciation Window Text	'Alerts' Window Message
<b>CHECK GEAR</b>	Landing gear is not down and locked
<b>DEICE LVL LO*</b>	De-icing fluid level is low.
<b>DEIC PRES HI*</b>	De-icing pressure is high.
<b>DEIC PRES LO*</b>	De-icing pressure is low.
<b>L ALT AIR*</b>	The alternate air intake door on the left engine is open.
<b>L ALTN FAIL</b>	Left engine alternator has failed.
<b>L AUX FUEL E*</b>	Left auxiliary fuel tank is empty.
<b>L COOL LVL</b>	Left engine coolant level is low.
<b>L ECU A FAIL</b>	Left engine ECU A has failed.
<b>L ECU B FAIL</b>	Left engine ECU B has failed.
<b>L FUEL LOW</b>	Left engine main tank fuel quantity is low.
<b>L VOLTS LOW</b>	Left bus voltage is less than 25 volts.
<b>NO ADC MODES</b>	Autopilot air data modes are not available.
<b>NO VERT MODES</b>	Autopilot vertical modes are not available.
<b>PITOT FAIL</b>	Pitot heat has failed.
<b>PITOT HT OFF</b>	Pitot heat is off.
<b>R ALT AIR*</b>	The alternate air intake door on the right engine is open.
<b>R ALTN FAIL</b>	Right engine alternator has failed.
<b>R AUX FUEL E*</b>	Right auxiliary fuel tank is empty.
<b>R COOL LVL</b>	Right engine coolant level is low.
<b>R ECU A FAIL</b>	Right engine ECU A has failed.
<b>R ECU B FAIL</b>	Right engine ECU B has failed.
<b>R FUEL LOW</b>	Right engine main tank fuel quantity is low.
<b>R VOLTS LOW</b>	Right bus voltage is less than 25 volts.
<b>STAL HT FAIL</b>	Stall warning heat has failed.
<b>STAL HT OFF</b>	Stall warning heat is off.

\* *Optional*

## ADVISORY MESSAGES

Annunciation Window Text	'Alerts' Window Message
<b>ESP CONFIG*</b>	ESP config error. Config service req'd.
<b>ESP DEGRADE*</b>	ESP IAS mode is inoperative.
<b>ESP FAIL*</b>	ESP is inoperative.
<b>ESP OFF*</b>	ESP selected off.
<b>FAILED AP PATH*</b>	An autopilot servo data path has failed.
<b>GIA FAN FAIL</b>	The cooling fan for the GIAs is inoperative.
<b>L AUXPUMP ON*</b>	Left fuel transfer from aux to main in progress.
<b>L GLOW ON</b>	Left engine glow plug active.
<b>MFD FAN FAIL</b>	The cooling fan for the MFD is inoperative.
<b>PFD FAN FAIL</b>	The cooling fan for the PFD is inoperative.
<b>R AUXPUMP ON*</b>	Right fuel transfer from aux to main in progress.
<b>R GLOW ON</b>	Right engine glow plug active.

\* *Optional*

## VOICE ALERTS

Voice Alert	Alert Trigger
"Minimums, Minimums"	Issued when the aircraft transitions through the minimum descent altitude/decision height (MDA/DH)
"Vertical Track"	Aircraft is one minute from Top of Descent - issued only when vertical navigation is enabled
"Traffic"	TIS voice alert - issued when a Traffic Advisory (TA) is issued
"Traffic Not Available"	TIS voice alert - issued when the traffic system fails or cannot communicate
"Traffic, Traffic"	Played when a Traffic Advisory (TA) is issued (TAS system)
"Traffic Advisory System Test Passed"	Played when the TAS system passes a pilot-initiated self test.
"Traffic Advisory System Test Failed"	Played when the TAS system fails a pilot-initiated self test.

### Selecting the audio alert voice:

- 1) Use the **FMS** Knob to select the 'Aux - System Setup' Page.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight the voice in the 'Audio Alert' Box.
- 4) Turn the small **FMS** Knob to select the desired voice, press the **ENT** Key.

## SYSTEM MESSAGES

	System Message	Comments
Flight Instruments	<b>ABORT APR</b> – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
EIS	<b>ADC1 SERVICE</b> – ADC1 needs service. Return unit for repair.	The GDC1 should be serviced.
Nav/Com/XPDR/Audio	<b>AHRS1 CAL</b> – AHRS1 calibration version error. Srvc req'd.	The #1 AHRS calibration version error. The system should be serviced.
Flight Management	<b>AHRS1 GPS</b> – 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.
Hazard Avoidance	<b>AHRS1 GPS</b> – 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 should be serviced.
AFCS	<b>AHRS1 GPS</b> – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
Additional Features	<b>AHRS1 GPS</b> – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
Abnormal Operation	<b>AHRS1 SERVICE</b> – AHRS 1 needs service. Return unit for repair.	The #1 AHRS should be serviced.
Annun/Alerts	<b>AHRS1 SRVC</b> – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
Appendix	<b>AHRS1 TAS</b> – AHRS1 not receiving 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.
Index	<b>APR DWNGRADE</b> – Apr downgraded. <Approach downgraded>	Use LNAV minima when approach is downgraded.
	<b>ARSPC AHEAD</b> – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
	<b>ARSPC NEAR</b> – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
	<b>ARSPC NEAR</b> – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
	<b>APR INACTV</b> – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.
	<b>AUDIO MANIFEST</b> – Audio software mismatch, communication halted.	The GIA has incorrect software installed. The system should be serviced.

System Message	Comments	
<b>CHECK CRS</b> – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.	Flight Instruments
<b>CNFG MODULE</b> – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.	EIS
<b>COM #[1, 2] INOP - CAL</b> – Check COM Calibration.	COM 1 and/or COM 2 calibration version error. Check COM calibration.	Nav/Com/XPDR/Audio
<b>COM #[1, 2] INOP - CRNT</b> – Check COM Current.	COM 1 and/or COM 2 current is low. Check COM current.	Flight Management
<b>COM #[1, 2] INOP - INTRL</b> – COM Internal fault.	COM 1 and/or COM 2 has an internal fault.	Hazard Avoidance
<b>COM #[1, 2] INOP - SYNTH</b> – COM Synthesizer Lock Fault.	The COM 1 and/or COM 2 has a synthesizer lock fault.	AFCS
<b>COM #[1, 2] INOP - VOLT</b> – Check COM Voltage.	COM 1 and/or COM 2 has low voltage.	Additional Features
<b>COM1 PTT</b> – 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.	Abnormal Operation
<b>COM2 PTT</b> – 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.	Annunciations
<b>DATA LOST</b> – 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.	Appendix
<b>DATABASE CHANGE</b> – 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 that the user-modified procedures in stored flight plans are correct and up to date.	Index
<b>DATABASE CHANGE</b> – 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.	
<b>DATABASES EXPIRED</b> – Restart avionics to activate standby databases.	The databases in the system have expired. Restart the system to move the standby databases to active status.	

	System Message	Comments
Flight Instruments	<b>DATABASES MISMATCHED</b> – Restart displays to correct mismatch.	The databases in the system have expired. Restart the system to move the standby databases to active status.
EIS	<b>DB MISMATCH</b> – 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.
Nav/Com/XPDR/Audio	<b>DB MISMATCH</b> – 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.
Flight Management	<b>DB MISMATCH</b> – 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.
Hazard Avoidance	<b>DB MISMATCH</b> – 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.
AFCs	<b>FAILED PATH</b> – A data path has failed.	A data path connected to the GDU or the GIA has failed.
Additional Features	<b>FPL TRUNC</b> – 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.
Abnormal Operation	<b>FPL WPT LOCK</b> – Flight plan waypoint is locked.	Upon power-up, 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.
Annun/Alerts	<b>F5510 CARD ERROR</b> – F5510 not detected in MFD Bottom Slot.	The multimedia card was removed from the bottom card slot of the MFD. The multimedia card needs to be reinserted.
Appendix	<b>G/S1 FAIL</b> – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1. The system should be serviced.
Index		

System Message	Comments	
<b>G/S1 SERVICE</b> – 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.	Flight Instruments
<b>G/S2 FAIL</b> – G/S2 is inoperative.	A failure has been detected in glideslope receiver 2. The system should be serviced.	EIS
<b>G/S2 SERVICE</b> – 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.	Nav/Com/XPDR/Audio
<b>GDC1 MANIFEST</b> – GDC1 software mismatch, communication halted.	The GDC 72 has incorrect software installed. The system should be serviced.	Flight Management
<b>GDL69 CONFIG</b> – 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.	Hazard Avoidance
<b>GDL69 FAIL</b> – GDL 69 has failed.	A failure has been detected in the GDL 69A SXM. The receiver is unavailable. The system system should be serviced.	AFCS
<b>GDL69 MANIFEST</b> – GDL software mismatch, communication halted.	The GDL 69A SXM has incorrect software installed. The system should be serviced.	Additional Features
<b>GEA # 1 INOP - CNFG</b> – Check GEA software and configuration.	There is a problem with the GEA 1 software configuration. Check the configuration. If the problem persists, the system should be serviced.	Abnormal Operation
<b>GEA # 1 INOP - INTRL</b> – GEA internal fault.	GEA 1 has an internal fault. The system should be serviced.	Annun/Alerts
<b>GEA # 1 INOP - SENS</b> – Check GEA software and configuration.	There is an error in the GEA 1 software and configuration. Check the software and configuration. If the problem persists, the system should be serviced.	Appendix
<b>GEA # 1 INOP - TEMP</b> – Check GEA cooling arrangement.	The GEA 1 has insufficient cooling. If the problem persists, the system should be serviced.	Index
<b>GEA # 1 INOP - VOLT</b> – Check GEA voltages.	The GEA 1 voltage is low. Check GEA voltages.	
<b>GEA1 CONFIG</b> – GEA1 config error. Config service req'd.	The GEA 1 configuration settings do not match those of backup configuration memory. The system should be serviced.	
<b>GEA1 MANIFEST</b> – GEA1 software mismatch, communication halted.	The GEA1 has incorrect software installed. The system should be serviced.	
<b>GEO LIMITS</b> – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.	

	System Message	Comments
Flight Instruments	<b>GFC MANIFEST</b> – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
EIS	<b>GIA #[1, 2] INOP - CRNT</b> – Check GIA Current.	GIA 1 and/or GIA 2 current is low. The current should be checked.
	<b>GIA #[1, 2] OVER TEMP</b> – Check GIA Temperature.	GIA 1 and/or GIA 2 is reporting an over-temperature condition.
Nav/Com/XPDR/Audio	<b>GIA #[1, 2] INOP - SERL</b> – Internal GIA Serial Communication Fault.	GIA 1 and/or GIA 2 serial communication fault. Check GIA serial communication.
Flight Management	<b>GIA #[1, 2] INOP - VOLT</b> – Check GIA Voltage.	GIA 1 and/or GIA 2 low voltage. Check voltage.
	<b>GIA1 CONFIG</b> – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
Hazard Avoidance	<b>GIA1 CONFIG</b> – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
	<b>GIA1 MANIFEST</b> – GIA1 software mismatch, communication halted.	The GIA1 has incorrect software installed. The system should be serviced.
AFCs	<b>GIA2 CONFIG</b> – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
	<b>GIA2 CONFIG</b> – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
Additional Features	<b>GIA2 MANIFEST</b> – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
Abnormal Operation	<b>GMA1 CONFIG</b> – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
	<b>GMA1 FAIL</b> – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
Annun/Alerts	<b>GMA1 INSPECTION REQUIRED</b> – Redundant power supply is not present.	GMA1 backup power source is not connected. The system should be serviced.
Appendix	<b>GMA1 MANIFEST</b> – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
Index	<b>GMA1 SERVICE</b> – 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.

System Message	Comments	
<b>GMU1 MANIFEST</b> – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.	Flight Instruments
<b>GPS #[1, 2] INSPECT RQRD - BATT</b> – Check GPS Battery.	The GPS battery needs to be checked.	EIS
<b>GPS #[1, 2] INOP - CAL</b> – Calibration Fault.	GPS 1 and/or GPS 2 calibration version error. Check GPS calibration.	Nav/Com/XPDR/Audio
<b>GRA1 CAL</b> – GRA1 calibration. Service req'd.	GRA1 has improper calibration. The system should be serviced.	Flight Management
<b>GRA1 CONFIG</b> – GRA1 config error. Config service req'd.	The GRA and GDU have incompatible configurations.	Flight Management
<b>GRA1 MANIFEST</b> – GRA1 software mismatch, communication halted.	The GRA has incorrect software installed. The system should be serviced.	Hazard Avoidance
<b>GRA1 SERVICE</b> – GRA1 needs service. Return unit for repair	The GRA self-test has detected a problem in the unit. The system should be serviced.	Hazard Avoidance
<b>GRA1 TEMP</b> – GRA1 over temperature.	The system has detected an over temperature condition in GRA1.	AFCS
<b>GPS NAV LOST</b> – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.	AFCS
<b>GPS NAV LOST</b> – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.	Additional Features
<b>GPS NAV LOST</b> – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.	Additional Features
<b>GPS1 SERVICE</b> – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 receiver. The receiver may still be available. The system should be serviced.	Abnormal Operation
<b>GPS2 SERVICE</b> – GPS2 needs service. Return unit for repair.	A failure has been detected in the GPS2 receiver. The receiver may still be available. The system should be serviced.	Abnormal Operation
<b>GRS1 MANIFEST</b> – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.	Annun/Alerts
<b>GSR1 FAIL</b> – GSR1 has failed.	A failure has been detected in the GSR. The transceiver is unavailable. The system should be serviced.	Appendix
<b>GTX MANIFEST</b> – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.	Index

	System Message	Comments
Flight Instruments	<b>GWX CONFIG</b> – GWX config error. Config service req'd.	GWX configuration settings do not match those of the GDU configuration. The system should be serviced.
EIS	<b>GWX FAIL</b> – GWX is inoperative.	The GDU is not receiving status from the GWX is reporting a fault. The GWX radar system should be serviced.
Nav/Com/XPDR/Audio	<b>GWX MANIFEST</b> – GWX software mismatch, communication halted.	The GWX has incorrect software installed. The system should be serviced.
Flight Management	<b>GWX SERVICE</b> – Needs service. Return unit for repair.	A failure has been detected in the GWX. The GWX may still be usable.
Hazard Avoidance	<b>HDG FAULT</b> – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
AFCs	<b>HW MISMATCH</b> – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
Additional Features	<b>HW MISMATCH</b> – GIA hardware mismatch. GIA2 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
Abnormal Operation	<b>INSIDE ARSPC</b> – Inside airspace.	The aircraft is inside the airspace.
Annun/Alerts	<b>INVALID ADM</b> – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.
Appendix	<b>LOCKED FPL</b> – Cannot navigate locked flight plan.	This occurs when the pilot attempts to activate a stored flight plan that contains locked waypoint. Remove locked waypoint from flight plan. Update flight plan with current waypoint.
Index	<b>LOI</b> – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
	<b>LRG MAG VAR</b> – 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°.
	<b>MFD FAN FAIL</b> – The cooling fan for the MFD is inoperative.	The cooling fan in the MFD has failed. The system should be serviced.
	<b>MFD1 CARD 1 ERR</b> – Card 1 is invalid.	The SD card in the top card slot of the specified MFD contains invalid data.
	<b>MFD1 CARD 1 REM</b> – 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.

System Message	Comments	
<b>MFD1 CARD 2 ERR</b> – Card 2 is invalid.	The SD card in the bottom card slot of the specified MFD contains invalid data.	Flight Instruments
<b>MFD1 CARD 2 REM</b> – 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.	EIS
<b>MFD1 CONFIG</b> – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.	Nav/Com/XPDR/Audio
<b>MFD1 COOLING</b> – 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.	Flight Management
<b>MFD1 DB ERR</b> – MFD1 multiple database errors exists.	The MFD detected a failure in more than one database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.	Hazard Avoidance
<b>MFD1 DB ERR</b> – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.	AFCS
<b>MFD1 DB ERR</b> – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.	Additional Features
<b>MFD1 KEYSTK</b> – 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.	Abnormal Operation
<b>MFD1 MANIFEST</b> – MFD1 software mismatch, communication halted.	The MFD has incorrect software installed. The system should be serviced.	Annun/Alerts
<b>MFD1 VOLTAGE</b> – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.	Appendix
<b>NAV #[1, 2] INOP - CAL</b> – Check NAV Calibration.	NAV 1 and/or NAV 2 calibration version error. Check COM calibration.	Index
<b>NAV #[1, 2] INOP - CONFIG</b> – Check NAV Software And Config.	There is a problem with the NAV 1 and/or NAV 2 software configuration. Check the configuration. If the problem persists, the system should be serviced.	
<b>NAV #[1, 2] INOP - INTRL</b> – NAV Internal Fault.	NAV 1 and/or NAV 2 has an internal fault.	
<b>NAV #[1, 2] INOP - SERL</b> – Internal NAV Serial Communication Fault.	NAV 1 and/or NAV 2 serial communication fault. Check NAV serial communication.	
<b>NAV #[1, 2] INOP - SYNTH</b> – NAV Synthesiser Lock Fault.	NAV 1 and/or NAV 2 has a synthesizer lock fault.	

	System Message	Comments
Flight Instruments	<b>NON WGS84 WPT</b> – 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..
EIS	<b>PFD1 CARD 1 ERR</b> – Card 1 is invalid.	The SD card in the top card slot of the specified PFD contains invalid data.
Nav/Com/XPDR/Audio	<b>PFD1 CARD 1 REM</b> – 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.
Flight Management	<b>PFD1 CARD 2 ERR</b> – Card 2 is invalid.	The SD card in the bottom card slot of the specified PFD contains invalid data.
Flight Management	<b>PFD1 CARD 2 REM</b> – 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.
Hazard Avoidance	<b>PFD1 CONFIG</b> – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
Hazard Avoidance	<b>PFD1 COOLING</b> – 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.
AFCs	<b>PFD1 DB ERR</b> – PFD1 multiple database errors exists.	The PFD detected a failure in more than one database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
Additional Features	<b>PFD1 DB ERR</b> – PFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
Additional Features	<b>PFD1 DB ERR</b> – PFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Abnormal Operation	<b>PFD1 KEYSTK</b> – 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.
Annun/Alerts	<b>PFD1 MANIFEST</b> – PFD1 software mismatch, communication halted.	The PFD has incorrect software installed. The system should be serviced.
Appendix	<b>PFD1 SERVICE</b> – PFD1 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
Appendix	<b>PFD1 VOLTAGE</b> – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
Index	<b>PTK FAIL</b> – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.

System Message	Comments	
<b>PTK FAIL</b> – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.	Flight Instruments
<b>PTK FAIL</b> – Parallel track unavailable: bad geometry.	Bad parallel track geometry.	EIS
<b>REGISTER CONNEXT</b> – Data services are inoperative, register w/ Connex.	The system is not registered with Connex, or its current registration data has failed authentication.	Nav/Com/XPDR/Audio
<b>SCHEDULER [#]</b> – <message>.	Message criteria entered by the user.	Flight Management
<b>SLCT FREQ</b> – 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.	Hazard Avoidance
<b>SLCT MAG</b> – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to Magnetic.	AFCs
<b>SLCT NAV</b> – 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.	Additional Features
<b>SLCT NON-MAG</b> – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to True.	Abnormal Operation
<b>STEEP TURN</b> – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.	Annun/Alerts
<b>STRMSCP FAIL</b> – Stormscope has failed.	Stormscope has failed. The system should be serviced.	Appendix
<b>SVT DISABLED</b> – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.	Index
<b>SVT DISABLED</b> – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution is not currently installed.	
<b>SW MISMATCH</b> – GDU software version mismatch. Xtalk is off.	The MFD and PFD have different software versions installed. The system should be serviced.	
<b>TIMER EXPIRD</b> – Timer has expired.	The system notifies the pilot that the timer has expired.	
<b>TRAFFIC FAIL</b> – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.	
<b>UNABLE V WPT</b> – 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.	
<b>VNV UNAVAILABLE</b> – Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.	

	System Message	Comments
Flight Instruments	<b>VNV UNAVAILABLE</b> – Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
EIS	<b>VNV UNAVAILABLE</b> – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
Nav/Com/XPDR/Audio	<b>VNV UNAVAILABLE</b> – 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.
Flight Management	<b>WPT ARRIVAL</b> – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
Hazard Avoidance	<b>WX ALERT</b> – Possible severe weather ahead.	The GWX indicates severe weather within $\pm 10$ degrees of the aircraft heading at a range of 80 to 320 nm.
AFCS	<b>XPDR1 ADS-B 1090</b> – Datalink: ADS-B 1090 receiver has failed.	A failure has been detected in the 1090 receiver.
Additional Features	<b>XPDR1 ADS-B NO TX</b> – Transponder: ADS-B out has failed.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
Abnormal Operation	<b>XPDR1 ADS-B NO POS</b> – Transponder: ADS-B is not transmitting position.	The transponder is not able to receive position information.
Annun/Alerts	<b>XPDR1 ADS-B TRFC</b> – Transponder: ADS-B traffic has failed	The Transponder is incapable of processing traffic information.
Appendix	<b>XPDR1 ADS-B UAT</b> – Datalink: ADS-B in UAT receiver has failed.	A failure has been detected in the UAT receiver.
Index	<b>XPDR1 CONFIG</b> – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
	<b>XPDR1 CSA FAIL</b> – Traffic: ADS-B In traffic alerting has failed.	ADS-B Conflict Situational Awareness (CSA) is unavailable.
	<b>XPDR1 FAIL</b> – XPDR1 is inoperative.	There is no communication with the #1 transponder.
	<b>XPDR1 FAULT</b> – Datalink: ADS-B in has failed.	The transponder is unable to receive ADS-B information.
	<b>XPDR1 FIS-B WX</b> – Datalink: FIS-B Weather has failed.	The transponder is unable to receive FIS-B weather information.

System Message	Comments
<b>XPDR1 OVER TEMP</b> – Transponder: Transponder over temp.	The system has detected an over temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
<b>XPDR1 PRES ALT</b> – Transponder: ADS-B no pressure altitude.	Unable to provide pressure altitude information.
<b>XPDR1 SERVICE</b> – XPDR1 needs service. Return unit for repair.	The transponder should be serviced when possible.
<b>XPDR1 UNDER TEMP</b> – Transponder: Transponder under temp.	The system has detected an under temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
<b>XPDR1 CONFIG</b> – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
<b>XPDR1 SRVC</b> – XPDR1 needs service. Return unit for repair.	The transponder should be serviced when possible.
<b>XTALK ERROR</b> – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.

## FLIGHT PLAN IMPORT/EXPORT MESSAGES

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.

Flight Instruments	Flight Plan Import/Export Results	Description
	'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.
EIS	'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.
Nav/Com/XPDR/Audio	'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.
Flight Management		
Hazard Avoidance	'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.
AFCs	'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.

**Flight Plan Import/Export Messages**

**FIS-B STATUS MESSAGES**

Abnormal Operation	ADS-B Status Page Item	Status Message	Description
Annun/Alerts	FIS-B Weather Status: FIS-B Processing	Enabled	The FIS-B weather feature is enabled to process and display FIS-B weather products.
		Disabled	The FIS-B weather feature is disabled.
	-----	No FIS-B weather data received from the transponder.	

ADS-B Status Page Item	Status Message	Description
Weather Products: AIRMET CONUS NEXRAD METAR METAR Graphical NOTAM/TFR PIREP Regional NEXRAD SIGMET TAF Winds/Temp Aloft	Available	FIS-B weather data is available for display for the weather product.
	Not Available	FIS-B weather data is not available for the weather product, and/or the system is not receiving the FIS-B weather service.
	Awaiting Data	The system is receiving the FIS-B weather service, and is waiting to receive the weather product from the FIS-B data broadcast.

'Aux - ADS-B Status' Page Messages for FIS-B Weather

## CONNEXT WEATHER 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 a GIA is off-line.

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	<b>Weather Request Status Message</b>	<b>Description</b>
Flight Instruments	Connex Comm Error [5]	This can occur if the Iridium or Garmin Connex services are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
EIS	Connex Comm Error [6]	A communications error has occurred. If this error persists, the system should be serviced.
Nav/Com/XPDR/Audio	Connex Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the data request.
Flight Management	Connex Comm Error [8]	A server error has occurred or invalid data received.
	Connex Comm Error [9]	An error occurred while reading or writing data. If the error persists, the system should be serviced.
Hazard Avoidance	Connex Login Invalid	There is a problem with the Garmin Connex registration. Please contact Garmin Aviation Product Support through the phone number listed on its website: <a href="http://www.flygarmin.com">www.flygarmin.com</a> .
AFCS	Connex Server Temp Inop	The Garmin Connex Weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
	Connex Server Inop	The Garmin Connex Weather data server will be out of service for at least 30 minutes.
Additional Features	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.
Abnormal Operation	No Connex Subscription	The system is not currently subscribed to Garmin Connex services or the access code is incorrect. Verify the access code. Please contact Garmin Aviation Product Support through the phone number listed on its website: <a href="http://www.flygarmin.com">www.flygarmin.com</a> .
Annun/Alerts	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 Connex Data Request to ensure all available weather data has been received.
Appendix	Request Canceled	The user has cancelled a Connex Data Request.
	Request Failed - Try Again	The weather data request timed-out. Re-send data request.

### Abnormal Garmin Connex Data Request Status Messages

## AIRBORNE WEATHER RADAR ANNUNCIATIONS

Radar Mode	Radar Mode Annunciation Box	Center Banner Annunciation
Standby	<b>Standby</b>	<b>STANDBY</b>
Weather	<b>Weather</b>	None
Ground Mapping	<b>Ground Mapping</b>	None
Radar Failed*	<b>FAIL</b>	<b>RADAR FAIL</b>

\* See following table for additional failure annunciations

### Radar Modes on the 'Map - Weather Radar' Page

Radar Feature Status	Description
<b>STAB INOP</b>	The radar is not receiving pitch and roll information. The antenna stabilization feature is inoperative.
<b>ALTITUDE COMP TILT ON</b>	The altitude-compensated tilt feature is selected on.
<b>ALTITUDE COMP TILT OFF</b>	The altitude-compensated tilt feature is selected off.

### Radar Feature Status Annunciations on the 'Map - Weather Radar' Page

'Map - Weather Radar' Page Center Banner Annunciation	Description
<b>BAD CONFIG</b>	The radar configuration is invalid. The radar should be serviced.
<b>RDR FAULT</b>	The radar unit is reporting a fault. The radar should be serviced.
<b>RADAR FAIL</b>	The system is not receiving valid data from the radar unit. The system should be serviced.

### Abnormal Radar Status Annunciations on the 'Map - Weather Radar' Page

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## TERRAIN ANNUNCIATIONS

### TERRAIN-SVT ANNUNCIATIONS

Alert Type	PFD/MFD* Alert Annunciation	MFD Pop-Up Alert (except Terrain-SVT Page)	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	<b>TERRAIN</b>	<b>WARNING - TERRAIN</b>	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	<b>TERRAIN</b>	<b>WARNING - TERRAIN</b>	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	<b>TERRAIN</b>	<b>WARNING - OBSTACLE</b>	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	<b>TERRAIN</b>	<b>WARNING - OBSTACLE</b>	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	<b>TERRAIN</b>	<b>CAUTION - TERRAIN</b>	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	<b>TERRAIN</b>	<b>CAUTION - TERRAIN</b>	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	<b>TERRAIN</b>	<b>CAUTION - OBSTACLE</b>	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	<b>TERRAIN</b>	<b>CAUTION - OBSTACLE</b>	"Caution; Obstacle, Obstacle"

Terrain-SVT Alerts Summary

Alert Type	PFD/MFD† Alert Annunciation	'Map - Terrain-SVT' Page Center Banner Annunciation	Voice Alert
System Test in Progress	<b>TER TEST</b>	<b>TERRAIN TEST</b>	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting Inhibited	<b>TER INH</b>	None	None
No GPS position	<b>TER N/A</b>	<b>NO GPS POSITION</b>	"Terrain System Not Available"*

Alert Type	PFD/MFD <sup>†</sup> Alert Annunciation	'Map - Terrain-SVT' Page Center Banner Annunciation	Voice Alert
Excessively degraded GPS signal; or Out of database coverage area	<b>TER N/A</b>	None	"Terrain System Not Available"*
Terrain System Test Fail; Terrain or Obstacle database unavailable or invalid; Invalid software configuration; or System audio fault	<b>TER FAIL</b>	<b>TERRAIN FAIL</b>	"Terrain System Failure"
MFD Terrain or Obstacle database unavailable or invalid, and Terrain-SVT operating with PFD Terrain or Obstacle databases	None	<b>TERRAIN DATABASE FAILURE</b>	None

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<sup>†</sup> Annunciation is shown on 'Map - Terrain-SVT' Page and the 'Map - Navigation Map' Page when Terrain is enabled.

\* "Terrain System Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.

### Terrain-SVT System Status Annunciations

## TRAFFIC ANNUNCIATIONS

### TIS ANNUNCIATIONS

Traffic Map Page Center Banner Annunciation	Description
<b>NO DATA</b>	Data is not being received from the transponder.*
<b>DATA FAILED</b>	Data is being received from the transponder, but a failure is detected in the data stream.*
<b>FAILED</b>	The transponder has failed.*
<b>UNAVAILABLE</b>	TIS is unavailable or out of range.

\* Contact a service center or Garmin dealer for corrective action.

### TIS Failure Annunciations

Flight Instruments	Traffic Map Mode Annunciation	'Map -Traffic Map' Page Center Banner Annunciation	Traffic Overlay Status Icon (Navigation Maps)	Description
EIS	<b>DATA FAILED</b>	<b>TRFC FAIL</b>		Data is being received from the transponder, but a failure is detected in the data stream.*
Nav/Com/XPDR/Audio	<b>NO DATA</b>	<b>TRFC FAIL</b>		Data is not being received from the transponder.*
Flight Management	<b>OPERATING</b>	None		TIS is operating and is receiving traffic data from a data link.
Hazard Avoidance	<b>OPERATING</b>	<b>UNAVAILABLE</b>		TIS is operating, but the traffic service is currently unavailable or is out of reception range.
AFCs	<b>STANDBY</b>	<b>STANDBY</b>		TIS is in Standby Mode.
	<b>UNIT FAILED</b>	<b>TRFC FAIL</b>		The transponder has failed.*

\* Contact a service center or Garmin dealer for corrective action

## TIS Modes and Status Annunciations

Abnormal Operation	Traffic Status Banner Annunciation	Description
Annun/Alerts	<b>TA OFF SCALE</b>	A Traffic Advisory is outside the selected display range.* Annunciation is removed when traffic comes within the selected display range.
Appendix	<b>TA X.X ± XX ↓</b>	System cannot determine bearing of Traffic Advisory.** Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
Index	<b>AGE MM:SS</b>	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.

Traffic Status Banner Annunciation	Description
<b>TRFC COAST</b>	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.
<b>TRFC RMVD</b>	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.
<b>TRFC FAIL</b>	Traffic data has failed.
<b>NO TRFC DATA</b>	Traffic has not been detected.
<b>TRFC UNAVAIL</b>	The traffic service is unavailable or out of range.

\*Shown as symbol on 'Map - Traffic Map' Page.

\*\*Shown in center of 'Map - Traffic Map' Page.

**TIS Traffic Status Annunciations**

**TAS ANNUNCIATIONS**

Mode	Traffic Mode Annunciation ('Map - Traffic Map' Page)	Traffic Display Status Icon (Other Maps)
Traffic System Test Initiated	<b>TEST</b> ( <b>'TEST MODE'</b> shown in center of page)	
Operating	<b>OPERATING</b>	
Standby	<b>STANDBY</b> (also shown in white in center of page)	
Traffic System Failed*	<b>FAIL</b>	

\* See following table for additional failure annunciations.

**Traffic Modes Annunciations**

Flight Instruments	Traffic Map Page Center Annunciation	Description
	<b>NO DATA</b>	Data is not being received from the traffic unit.
EIS	<b>DATA FAILED</b>	Data is being received from the traffic unit, but the unit is self-reporting a failure.
Nav/Com/XPDR/Audio	<b>FAILED</b>	Incorrect data format received from the traffic unit.

**Traffic Failure Annunciations**

Flight Management	Traffic Status Banner Annunciation	Description
	<b>TA OFF SCALE</b>	A Traffic Advisory is outside the selected display range.* Annunciation is removed when traffic comes within the selected display range.
Hazard Avoidance	<b>TA X.X ± XX ↓</b>	System cannot determine bearing of Traffic Advisory.** Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
AFCS	<b>TRFC FAIL</b>	TAS unit has failed (unit is self-reporting a failure or sending incorrectly formatted data).
Additional Features	<b>NO TRFC DATA</b>	Data is not being received from the traffic unit.

\*Shown as symbol on 'Map - Traffic Map' Page.

\*\*Shown in center of 'Map - Traffic Map' Page.

**Traffic Status Annunciations**

**ADS-B TRAFFIC ANNUNCIATIONS**

Abnormal Operation	ADS-B Mode	Traffic Mode Annunciation ('Map - Traffic Map' Page)	'Map - Traffic Map' Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
Annun/Alerts	ADS-B System Test Initiated	<b>ADS-B: TEST</b>	<b>TEST MODE</b>	
Appendix	ADS-B Operating in Airborne Mode	<b>ADS-B: AIRB</b>	None	

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ADS-B Mode	Traffic Mode Annunciation ('Map - Traffic Map' Page)	'Map - Traffic Map' Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B Operating in Surface Mode	<b>ADS-B: SURF</b>	None	
ADS-B Traffic Off	<b>ADS-B: OFF</b>	<b>ADS-B TRFC OFF</b>	
ADS-B Traffic Not Available	<b>ADS-B: N/A</b>	<b>NO TRK/HDG</b>	
ADS-B Failed*	<b>ADS-B: FAIL</b>	<b>FAILED</b>	

\* See following table for additional failure annunciations.

**ADS-B Modes Annunciations**

ADS-B Ground Station Reception Status	Traffic Map Pane Icon
Receiving ADS-B traffic services from a ground station.	
Not receiving ADS-B traffic services from a ground station.	

**ADS-B Modes**

Traffic Map Page Center Annunciation	Description
<b>NO DATA</b>	Data is not being received from the traffic unit.
<b>DATA FAILED</b>	Data is being received from the traffic unit, but the unit is self-reporting a failure.
<b>FAILED</b>	Incorrect data format received from the traffic unit.

**Traffic Failure Annunciations**

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Flight Instruments	Traffic Status Banner Annunciation	Description
EIS	<b>TA OFF SCALE</b>	A Traffic Advisory is outside the selected display range.* Annunciation is removed when traffic comes within the selected display range.
Nav/Com/XPDR/Audio	<b>TA X.X ± XX ↕</b>	System cannot determine bearing of Traffic Advisory.** Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
Flight Management	<b>TRFC FAIL</b>	Traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data).
	<b>NO TRFC DATA</b>	Data is not being received from the traffic unit.

\*Shown as symbol on 'Map - Traffic Map' Page.

\*\*Shown in center of 'Map - Traffic Map' Page.

### Traffic Status Annunciations

ADS-B Status Page Item	Status Message	Description
Traffic Application Status: Airborne (AIRB), Surface (SURF), Airborne Alerts (CSA)	On	Traffic application is currently on. Required input data is available, and it meets performance requirements.
	Available to Run	Traffic application is not currently active, but application is ready to run when condition(s) determine the application should be active. Required input data is available, and it meets performance requirements.
	Not Available	Traffic application is not available. Required input data is available, but it does not meet performance requirements.
	Fault	Traffic application is not available. Required input data is not available or the application has failed.
	Not Configured	Traffic application is not available, because it has not been configured. If this annunciation persists, the system should be serviced.
	-----	Traffic application status is invalid or unknown.
TIS-B/ADS-R Coverage	Available	The system is receiving the ADS-R coverage from an FAA ground station.
	Not Available	The system is not receiving the ADS-R coverage from an FAA ground station.
	-----	ADS-R coverage is invalid or unknown.

GPS Status: GPS Source	External #1	The GTX 345R is using the #1 GPS receiver for the GPS position source.
	External #2	The GTX 345R is using the #2 GPS receiver for the GPS position source.
	-----	The GPS source is invalid or unknown.
Ground Uplink Status: Last Uplink	Number of minutes, or '-----'	Displays the number of minutes since the last uplink from a ground station occurred. If no uplink has been received, or the status is invalid, dashes appear instead of a number of minutes.

### 'Aux - ADS-B Status' Page Messages for ADS-B Traffic

## AUDIO ALERTS

**Audio Alerting System:** The system issues audio alert tones when specific system conditions are met. The annunciation tone may be tested from the 'Aux - System Status' Page.

### Testing the system annunciation tone:

- 1) Use the **FMS** Knob to select the 'Aux - System Status' Page.
- 2) Press the **ANN Test** Softkey.

**Or:**

- a) Press the **MENU** Key.
- b) Highlight 'Enable Annunciator Test Mode' and press the **ENT** Key.

### Selecting the audio alert voice:

- 1) Use the **FMS** Knob to select the 'Aux - System Setup' Page.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight the voice in the 'Audio Alert' Box.
- 4) Turn the small **FMS** Knob to select the desired voice, press the **ENT** Key.

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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.

Databases may be loaded through Garmin Pilot and the Wireless Transceiver. When loading databases through Garmin Pilot and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system and the multimedia card inserted in the bottom SD slot of the MFD.



**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 – Databases' Page.



**NOTE:** Loading a database in the system prior to its effective date will result in the expiration date on the power-up screen and the effective date on the 'Aux – Databases' Page being displayed in amber.

## 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.

All databases are updated through a single SD 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. When in standby, databases are not immediately available for use, but stored to be activated at a later time.

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 that 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.

## **UPDATING DATABASES USING AN SUPPLEMENTAL DATA (SD) CARD**

Database updates can be obtained by following the instructions detailed in the 'Aviation Databases' section of the Garmin website ([fly.garmin.com](http://fly.garmin.com)). Once the updated files have been downloaded from the website, a PC equipped with an appropriate SD card reader is used to unpack and program the new databases onto an existing Supplemental Data Card. Equipment required to perform the update is as follows:

- Windows-compatible PC computer
- SD Card Reader: SanDisk SDDR-93, SanDisk SDDR-99, Verbatim #96504, or equivalent
- Updated database obtained from the Garmin website
- Supplemental SD Cards

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:**

- 1) With the system OFF, remove an SD Card from the bottom SD card slot of the MFD.
- 2) Download and install the databases on an SD card.
- 3) Put the SD 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) 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.
- 9) Verify the correct database cycle information is shown in the 'Standby' column.
- 10) Remove and apply power to the system.

- 11) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
  - 12) Turn the large **FMS** Knob and select 'Aux'.
  - 13) Turn the small **FMS** Knob and select 'Databases'.
  - 14) Verify that 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) Turn the small **FMS** Knob as necessary to select the database title.
    - c) Press the **ENT** Key. A cyan double-sided arrow will appear indicating that 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. Press the **ENT** Key or the **FMS** Knob to exit.
  - d) Remove and apply power to the system.
  - e) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
  - f) Turn the large **FMS** Knob and select 'Aux'.
  - g) Turn the small **FMS** Knob and select 'Databases'.
  - h) Verify that 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 '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.

## UPDATE DATABASES USING THE 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

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(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 automatically connect.

### Update Databases from any MFD page (except the 'Aux - Databases' Page):

- 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 startup screen.
- 4) On the mobile device, start Garmin Pilot and touch **Home > Connex > Database Concierge**.
- 5) Turn the large **FMS** Knob and select 'Aux'.
- 6) Turn the small **FMS** Knob and select the 'Aux - Connex 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 that the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.
- 9) In the 'Paired Devices' Window on the 'Aux - Connex 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 database update window appears. (Pressing the **View** Softkey will allow database updates to be viewed from the 'Aux Databases' Page, however, the database update window 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 - Connex Setup' Page.
- 12) The database update window will appear. Database update progress may be monitored on the mobile device.
- 13) When the transfer is complete, the database update window will appear.
- 14) Press the **Close** Softkey.
- 15) Remove and apply 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 that 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) Turn the small **FMS** Knob as necessary to select the database title.
  - c) Verify the correct database cycle information is shown for each database for each display.
 

**Or:**

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.
  - d) Remove and apply power to the system.
  - e) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
  - f) Turn the large **FMS** Knob and select 'Aux'.
  - g) Turn the small **FMS** Knob and select 'Databases'.
  - h) Verify that the standby databases transferred and are now in the 'Active' Column.

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- 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 '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:
- Turn the large **FMS** Knob and select 'Aux'.
  - Turn the small **FMS** Knob and select 'System Status'.
  - 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 WIFI source, the mobile device should connect automatically to the wireless transceiver. If the mobile device is connected to another WIFI source (i.e. hangar WIFI), then the wireless transceiver will not connect automatically.

- Insert the wireless transceiver SD Card in the bottom slot of the MFD if not already inserted.
- Turn the system ON.
- Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
- On the mobile device, start Garmin Pilot and tap **Home > Connex > Database Concierge**.
- Turn the large **FMS** Knob and select 'Aux'.
- Turn the small **FMS** Knob and select the 'Connex Setup'.
- Ensure that WIFI Database Import is enabled in the 'Device' Window (Refer to Additional Features section for instructions to enable WIFI Database Import).
- Verify that the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.
- In the 'Paired Devices' Window on the 'Connex 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 - Connex 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 and appear in the 'Standby' Column, 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 that 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) Turn the small **FMS** Knob as necessary to select the database title.
  - c) Verify the correct database cycle information is shown for each database for each display.  
**Or:**  
 Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.
  - d) Remove and apply power to the system.
  - e) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
  - f) Turn the large **FMS** Knob and select 'Aux'.
  - g) Turn the small **FMS** Knob and select 'Databases'.
  - h) Verify that 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.

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**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 **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.
- d) 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.

## DATABASE DELETION FEATURE

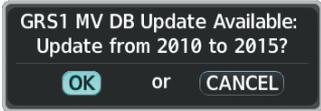
If databases are not properly loading or functioning, and an attempt has been made to load the databases using a new SD card or multimedia card, it may be necessary to delete the databases from the system.

### **Deleting 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. If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page.



**Magnetic Field Variation Database Update Prompt**

**Loading the magnetic field variation database update:**

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.

**MAP SYMBOLS**

**MISCELLANEOUS MAP SYMBOLS**

Item	Symbol
ARTCC Frequency or FSS Frequency	
Map Pointer (when panning)	
Measuring Pointer	
User Waypoint	
Vertical Navigation Along Track Waypoint	
Parallel Track Waypoint	
Unanchored Flight Path Waypoint	
Displayed when aircraft GPS location is valid, but heading is invalid.	
Top of Descent (TOD)	
Bottom of Descent (BOD)	
Navigating using Dead Reckoning	

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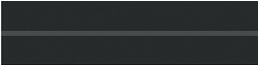
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## LAND SYMBOLS

The following items are configured on the land menu:

Land Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
User Waypoint		25	1000
Highways and Roads			
- 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
Railroads (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 Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Large Airport (Longest Runway $\geq$ 8100 ft)		100	1000
Medium Airport (8100 ft > Longest Runway $\geq$ 5000 ft, or Longest Runway < 5000 ft with control tower)		50	400
Small Airport (Longest Runway < 5000 ft without a control tower)		25	150
Taxiways (SafeTaxi)	See Additional Features	1.5	5
Runway Extension		7.5	150
Missed Approach Preview On/Off (Missed APPR)	N/A	N/A	N/A
Intersection (INT)		25	40
Non-directional Beacon (NDB)		25	50
VOR		50	250
VOR Compass Rose On/Off	N/A	N/A	N/A
Visual Reporting Point (VRP)		25	40
Temporary Flight Restriction (TFR)		250	1000
VNAV Constraints		1000	1000

**Aviation Symbol Information**

## AIRSPACE SYMBOLS

The following items are configured on the airspace menu:

Airspace Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Class B Airspace Altitude Label (ceiling/floor)		*	*
Class C Airspace Altitude Label (ceiling/floor)		*	*
Class D Airspace Altitude Label (ceiling)		*	*
Class B/Terminal Manoeuvring Area** and surrounding Airways** (CL B/TMA/AWY)		100	150
Class C Airspace/Control Area (CL C/CTA)		100	100
Class D Airspace/ Class A Airspace (CL A/D)		100	100
Restricted and Prohibited Areas (Restricted)		100	100
Military Operations Areas (MOA (Military))		100	250
ADIZ, Alert, Danger, and Warning (Other)	(see below)	50	250
- ADIZ			
- Alert			
- Danger/Warning			

\* Label placement and range is determined by the system for best display and minimal clutter

\*\* Applies to European airspace only

### Airspace Symbol Information

**AIRWAYS**

The following items are configured on the airways menu:

Airways Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Low Altitude Airways (V Routes and T Routes)		50	100
High Altitude Airways (J Routes and Q Routes)		50	100

**FLIGHT PLAN LEG SYMBOLS**

Flight Plan Leg Type	Symbol
Active Course Leg*	
Active Heading Leg*	
Active Roll Steering Path*†	
Course Leg in the current flight segment	
Course Leg not in the current flight segment	
Heading Leg	
Roll Steering Path †	
Future Roll Steering Path ‡	
Turn Anticipation Arc	

\* The active leg or path is the one currently being flown, and is shown in magenta.

† A Roll Steering Path is displayed for: transitions between two disconnected legs (i.e. holding), some procedure turn segments, parallel track segments, or transitions after some fly-over waypoints (discussed later in this section).

‡ A Roll Steering Path that is beyond the next leg will appear as a Future Roll Steering Path. When a Future Roll Steering Path becomes the next leg, it appears as a Roll Steering Path.

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## OBSTACLE SYMBOLS

Flight Instruments	Unlighted Obstacle		Lighted Obstacle		Obstacle Location
	< 1000' AGL	> 1000' AGL	< 1000' AGL	> 1000' AGL	
EIS					Red obstacle is above or within 100 ft below the aircraft altitude.
Nav/Com/XPDR/Audio					Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
Flight Management					White obstacle is more than 1000 ft below aircraft altitude.

Relative Obstacle Symbols and Colors

AFCS	Unlighted Wind Turbine Obstacle	Lighted Wind Turbine Obstacle	Wind Turbine Obstacle Location
Additional Features			Red obstacle is above or within 100 ft below the aircraft altitude.
Abnormal Operation			Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
Annun/Alerts			White obstacle is more than 1000 ft below aircraft altitude.

Wind Turbine Obstacles and Colors

Potential Impact Area Examples	Alert Type	Example Annunciation
 or 	Warning	
 or 	Caution	

Terrain-SVT Potential Impact Area with Annunciations

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