G1000H™ Integrated Flight Deck

Cockpit Reference Guide for the Bell 407GX

GARMIN®

This manual reflects the operation of System Software 1237.03 or later for the Bell 407GX. 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: *Navigation and terrain separation must NOT be predicated upon the use of the terrain avoidance feature. The terrain avoidance feature is NOT intended to be used as a primary reference for terrain avoidance and does not relieve the pilot from the responsibility of being aware of surroundings during flight. The terrain avoidance feature is only to be used as an aid for terrain avoidance. Terrain data is obtained from third party sources. Garmin is not able to independently verify the accuracy of the terrain data.*

WARNING: *The displayed minimum safe altitudes (MSAs) are only advisory in nature and should not be relied upon as the sole source of obstacle and terrain avoidance information. Always refer to current aeronautical charts for appropriate minimum clearance altitudes.*

WARNING: *The altitude calculated by G1000H GPS receivers is geometric height above Mean Sea Level and could vary significantly from the altitude displayed by pressure altimeters, such as the GDC 74H Air Data Computer, or other altimeters in the aircraft. GPS altitude should never be used for vertical navigation. Always use pressure altitude displayed by the G1000H PFD or other pressure altimeters in aircraft.*

WARNING: *Do not use outdated database information. Databases used in the G1000H system must be updated regularly in order to ensure that the information remains current. Pilots using any outdated database do so entirely at their own risk.*

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

WARNING: *Traffic information shown on the G1000H Multi Function Display is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.*

WARNING: *NEXRAD weather data is to be used for long-range planning purposes only. Due to inherent delays in data transmission and the relative age of the data, NEXRAD weather data should not be used for short-range weather avoidance.*

WARNING: *Do not use datalink weather products (e.g., XM WX Satellite Weather, GFDS World Wide Weather, or FIS-B) for hazardous weather penetration. Weather information provided by these products is aged by up to several minutes and may not depict actual weather conditions as they currently appear.*

WARNING: *Use of the Stormscope is not intended for hazardous weather penetration (thunderstorm penetration). Stormscope information, as displayed on the G1000H MFD, is to be used only for weather avoidance, not penetration.*

WARNING: *The Garmin G1000H, as installed in the Bell 407GX rotorcraft, has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical. Although unlikely, it may be possible for erroneous operation to occur without a fault indication shown by the G1000H. It is thus the responsibility of the pilot to detect such an occurrence by means of cross-checking with all redundant or correlated information available in the cockpit.*

WARNING: *For safety reasons, G1000H operational procedures must be learned on the ground.*

WARNING: *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 Garmin G1000H utilize GPS as a precision electronic NAVigation AID (NAVAID). Therefore, as with all NAVAIDs, information presented by the G1000H can be misused or misinterpreted and, therefore, become unsafe.*

WARNING: *To reduce the risk of unsafe operation, carefully review and understand all aspects of the G1000H Pilot's Guide documentation and the Bell 407GX Rotorcraft Flight Manual (RFM). Thoroughly practice basic operation prior to actual use. During flight operations, carefully compare indications from the G1000H to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety purposes, always resolve any discrepancies before continuing navigation.*

WARNING: *The illustrations in this guide are only examples. Never use the G1000H to attempt to penetrate a thunderstorm. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Aeronautical Information Manual (AIM) recommend avoiding "by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."*

WARNING: *Lamp(s) inside this product may contain mercury (HG) and must be recycled or disposed of according to local, state, or federal laws. For more information, refer to our website at www.garmin.com/aboutGarmin/environment/disposal.jsp.*

WARNING: *Because of variation in the earth's magnetic field, operating the system within the following areas could result in loss of reliable attitude and heading indications. 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: *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.*

CAUTION: *The PFD and MFD displays use a lens coated with a special anti-reflective coating that is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coatings.*

CAUTION: *The Garmin G1000H does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and the pilot's authority to operate this device under FAA/FCC regulations.*

NOTE: *All visual depictions contained within this document, including screen images of the G1000H panel and displays, are subject to change and may not reflect the most current G1000H system and aviation databases. Depictions of equipment may differ slightly from the actual equipment.*

NOTE: *This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

NOTE: *The data contained in the terrain and obstacle databases comes from government agencies. Garmin accurately processes and cross-validates the data, but cannot guarantee the accuracy and completeness of the data.*

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

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

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

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 G1000H system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the G1000H Pilot's Guide for this aircraft.*

Part Number	Change Summary
190-01254-00 Rev A	Initial release.

Revision	Date of Revision	Affected Pages	Description
B	September, 2011	All	Update SiriusXM product references Updated Iridium registration procedure Added other GDU 12.01 parameters Added Worldwide Weather Added 3D audio Added Voice Recognition Added MV DB update procedure

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FLIGHT INSTRUMENTS

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** Softkey.
2) Press the **STD BARO** Softkey to set standard barometric pressure.

CHANGE ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

1) Press the **PFD** Softkey to display the second-level softkeys.
2) Press the **ALT UNIT** 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.
4) Press the **BACK** Softkey to return to the top-level softkeys.

CHANGE NAVIGATION SOURCES

1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the light blue 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 light blue tuning box over the NAV2 standby frequency.
3) Press the **CDI** Softkey a third time to return to GPS.

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH GPS

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

ENABLE HEADING PRESET MODE

1) Press the **SET HDG** Softkey on the PFD. The system is in Heading Preset Mode (HPM) as indicated by displaying 'SET' to the left of the heading value.
2) Press the **HDG +** and/or **HDG -** Softkeys to slew the heading value to the desired setting.

   Or:

   Set the Selected Heading Bug to the desired heading value, then press the **HDG SYNC** Softkey.

DISABLE HEADING PRESET MODE

Press the **HPM OFF** Softkey on the PFD to manually disable Heading Preset Mode.

Or:

Heading Preset Mode automatically disables after eight minutes.

If there is more than 10° difference between the Heading Preset value and the magnetic heading when Heading Preset Mode is disabled, the heading value is displayed in yellow and 'ALN' will be displayed to the left of the heading. When the magnetic heading has properly aligned, the heading value will be displayed in white and 'ALN' will no longer be displayed.

GENERIC TIMER

1) Press the **TMR/REF** Softkey, then turn the large **FMS** Knob to select the time field (hh/mm/ss). Turn the **FMS** Knobs to set the desired time, then press the **ENT** Key. The UP/DOWN field is now highlighted.
2) Turn the small **FMS** Knob to display the UP/DOWN window. Turn the **FMS** Knob to select 'UP' or 'DOWN', then press the **ENT** Key. 'START?' is now highlighted.
3) Press the **ENT** Key to START, STOP, or RESET the timer (if the timer is counting DOWN, it starts counting UP after reaching zero). Press the **CLR** Key or the **TMR/REF** Softkey to remove the window.

CONFIGURE VSPEED BUGS INDIVIDUALLY

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

SET BAROMETRIC MINIMUM DESCENT ALTITUDE

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the OFF/BARO field to the right of 'MINIMUMS'.
3) Turn the small **FMS** Knob clockwise to BARO.
4) Press the **ENT** Key.
5) Use the small **FMS** Knob to enter the desired altitude.
6) Press the **ENT** Key.
7) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

SET BAROMETRIC/RADAR ALTIMETER (RA OPTIONAL) MINIMUM DESCENT ALTITUDE

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the OFF/BARO/RAD ALT field to the right of 'MINIMUMS'.
3) Turn the small **FMS** Knob clockwise to select BARO or RAD ALT.
4) Press the **ENT** Key.
5) Use the small **FMS** Knob to enter the desired altitude.
6) Press the **ENT** Key.
7) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

DISPLAYING WIND DATA

1) Press the **PFD** Softkey.
2) Press the **WIND** Softkey to display wind data to the left of the HSI.
3) Press one of the **OPTN** softkeys to change how wind data is displayed.
4) To remove the Wind Data Window, press the **OFF** Softkey.

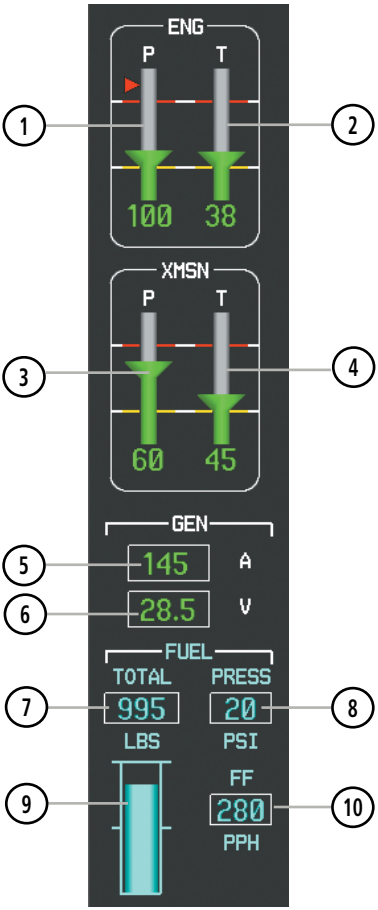
CHANGING HSI FORMAT

1) Press the **PFD** Softkey.
2) Press the **HSI FRMT** Softkey.
3) Press the **360 HSI** Softkey to display the full size HSI.

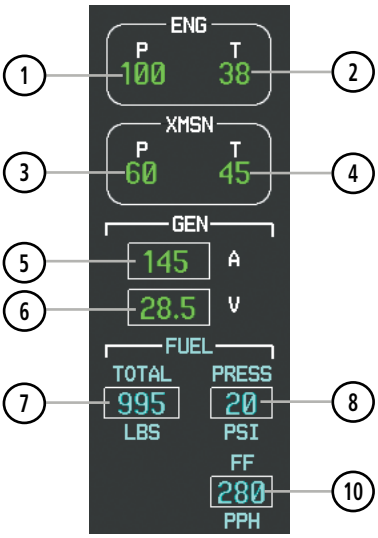
   Or:

   Press the **ARC HSI** Softkey to display the arc style HSI.

ENGINE INDICATION SYSTEM



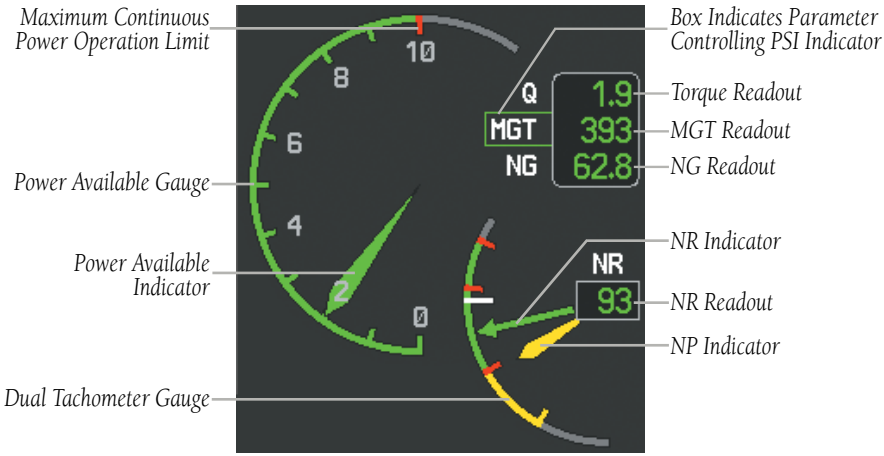
MFD EIS Display (Normal)



EIS Display (Reversionary)

1	**Engine Oil Pressure (P)**	Displays pressure of oil supplied to the engine in pounds per square inch (psi). A red triangle represents the oil pressure limitation during a cold start *(shown in normal mode only)*
2	**Oil Temperature Indicator (T)**	Displays engine oil temperature in degrees Celsius
3	**Transmission Oil Pressure (P)**	Displays pressure of oil supplied to the transmission in pounds per square inch (psi).
4	**Transmission Oil Temperature (T)**	Displays the transmission oil temperature in degrees Celsius
5	**Ammeter (A)**	Displays the DC load in amperes to the nearest 5 amps
6	**Voltmeter (V)**	Displays the electrical bus voltage
7	**Fuel Quantity (TOTAL LBS or FWD LBS)**	Displays the usable fuel quantity in pounds. By default, total usable fuel quantity is shown; when forward fuel tank is selected, 'FWD' is displayed above readout to indicate forward tank usable fuel quantity is shown.
8	**Fuel Pressure Indicator (PRESS PSI)**	Displays fuel pressure in pounds per square inch (psi)
9	**Total Fuel Quantity Gauge**	Displays total usable fuel quantity as a bar graph.
10	**Fuel Flow Indicator (FF PPH)**	Displays fuel flow in pounds per hour (PPH)

ENGINE POWER AND SPEED INDICATIONS



Power Situation Indicator Gauge and Dual Tachometer Gauge

Power Situation Indicator

The PSI provides the pilot with the amount of power available based on engine torque (Q; shown as a percentage), measured gas temperature (MGT, degrees Celsius, °C), and gas producer rotation speeds (NG; shown as a percentage) with respect to operating limitations. In normal conditions, a green box is shown around the label for the readout currently closest to its maximum continuous power (MCP) limits. This value also controls a green pointer along a numeric scale from 0 (no power) to 10 (MCP, shown with a red tick mark).

Operating limits are displayed along the PSI gauge and are calculated dynamically in response to all parameters, to show the range of needle movement available beyond MCP before any parameter reaches the operating limit. Green arcs indicate continuous operation ranges; yellow arcs indicate transient operating limits. A gray arc becomes red if the Power Available Indicator enters this range; it indicates an exceedance is occurring.

During engine start, a red triangle appears on the PSI arc when MGT is shown to correspond with MGT starting limits, and remains displayed until the starter has been disengaged for 5 seconds.

Takeoff Timer

After the engine has been started, if Q or MGT are within the takeoff limitation ranges, the G1000H displays a 5-minute countdown timer inside the PSI gauge. The

timer flashes beginning when 30 seconds remain until an exceedance will occur; the timer is automatically removed when either Q or MGT fall below takeoff limits.

Dual Tachometer

The dual tachometer displays rotor speed (NR) and power turbine speed (NP) as a percentage of maximum rotation. A readout for NR is provided. The long pointer represents NR along the gauge scale; NP is shown with the short pointer. A white tick mark represents the FADEC normal governing point. When Quiet Mode is active, a magenta reference bug is shown on the tachometer to indicate the Quiet Mode governing point.

POWER ASSURANCE CHECK

NOTE: *Follow the procedures in the Rotorcraft Flight Manual (RFM) for configuring the helicopter for the power assurance check prior to activating the feature on the G1000H.*

1) If the Particle Separator or Snow Baffle are installed, proceed to step 2. If neither are installed, proceed to step 7.
2) Turn the large **FMS** Knob to select the AUX Page group.
3) Turn the small **FMS** Knob to select System Setup. If necessary, press the SETUP 1 Softkey to display the System Setup 1 Page
4) Press the **FMS** Knob momentarily to activate the flashing cursor.
5) Turn the large **FMS** Knob to highlight the desired option field in the Inlet Box.
6) Turn the small **FMS** Knob one click to the right to select ON or one click to the left to select OFF.
7) Press the **ENGINE** Softkey to display the Engine Page.
8) Press the **PWR CHK** Softkey.

When the power assurance check is activated a 'PWR CHECK' box is displayed containing a progress meter. If the helicopter configuration for the power assurance check is invalid, the error message 'CHK LIMITS' is displayed. Otherwise, the power assurance check will complete after ten seconds.

Values that equal or exceed performance minimums will be displayed in white; values that do not meet performance minimums will be shown with yellow highlighted black readouts. Dashes are displayed if data used to perform the power assurance check is not available.

CREW ALERTING SYSTEM (CAS)

When Crew Alerting System (CAS) messages are generated, a CAS window containing messages appears to the right of the vertical speed indicator on the PFD. Pressing the **CAS** Softkey displays softkeys for scrolling up and down through the messages in the PFD CAS Window.

CAS Display (PFD)

CAS alerts are additionally displayed on the upper left of the EIS - Engine page. Up to 19 messages can be shown; when more than 19 messages accumulate, the **CAS↑** and **CAS↓** Softkeys will become available as needed to permit scrolling up and down through the messages on this page.

Engine Page CAS Display (MFD)

CAS MESSAGE PRIORITIZATION

NOTE: *Information on CAS messages in this pilot's guide is always superseded by the RFM. Refer to the RFM for recommended pilot actions.*

CAS messages are grouped by criticality (warning, caution, advisory, safe operating advisory) and sorted by order of appearance (most recent messages on top). The color of the message is based on its urgency and on required action. Refer to the Annunciations and Alerts section for a detailed listing of CAS alerts and alerting behavior.

- **Warning** (red) – Immediate crew awareness and immediate crew action required; accompanied by one or more aural tones; and a and a steady "WARN" PBA light is illuminated above the PFD.
- **Caution** (yellow) – Immediate crew awareness and subsequent corrective action required; accompanied by a and a steady "CAUT" PBA light is illuminated above the PFD.
- **Advisory** (white) – Crew awareness required and subsequent action may be required.
- **Safe Operating Advisory** (green) – Crew awareness required.

A CAS message does not appear more than once at a given time. Warning and caution CAS messages flash when they are generated, and continue to flash until acknowledged, or until the triggered condition is inactive for more than 3 seconds. Advisory CAS messages are displayed steady until the triggered condition is inactive for more than 3 seconds.

After the acknowledgment, a message remains displayed at the top of its respective priority group in the CAS Window until either a newer message of the same priority appears or the condition(s) that caused the alert to display no longer exist.

NAV/COM/TRANSPONDER/AUDIO PANEL

ADF TUNING (OPTIONAL)

Tune the ADF using the remote ADF control head.

DME TUNING (OPTIONAL)

1) Press the **DME** Softkey.
2) Turn the large **FMS** to select the DME source field.
3) Turn the small **FMS** Knob to select the desired Nav radio.
4) Press the **ENT** Key to complete the selection.

ENTER A TRANSPONDER CODE

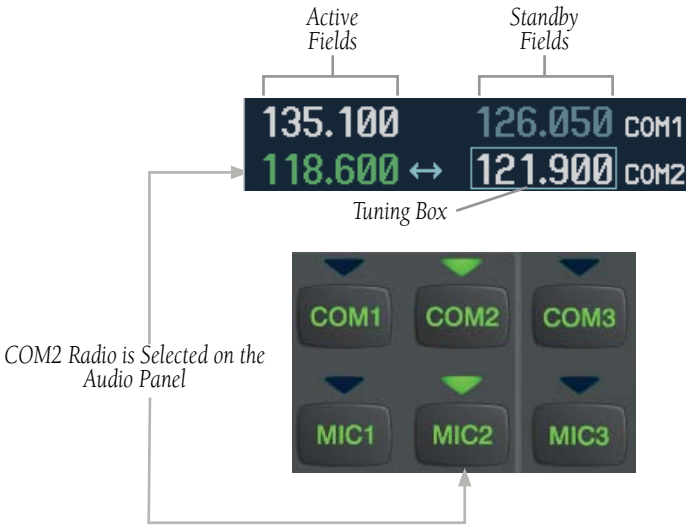
1) Press the **XPDR** Softkey to display the transponder mode selection softkeys.
2) Press the **CODE** Softkey to display the transponder code selection softkeys, for digit entry.
3) Press the digit softkeys to enter the code in the code field. When entering the code, the next key in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Five seconds after the fourth digit has been entered, the transponder code becomes active.

SELECTING A COM RADIO

The COM transceiver is selected for transmitting by pressing the **MIC** Keys on the Audio Panel. During reception of audio from the COM radio selected for transmission, audio from the other COM radio is muted.

An active COM frequency displayed in green indicates that the COM transceiver is selected on the Audio Panel (**MIC1** or **MIC2** Key).

Frequencies in the standby field are displayed in either white or gray. The standby frequency in the tuning box is white. The other standby frequency is gray.



Selecting a COM Radio for Transmit

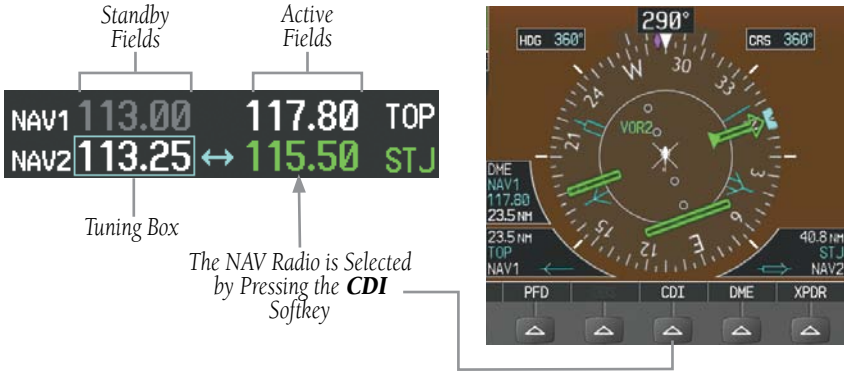
SELECTING A NAV RADIO

A NAV radio is selected for navigation by pressing the **CDI** Softkey located on the PFD. The active NAV frequency selected for navigation is displayed in green. Pressing the **CDI** Softkey once selects NAV1 as the navigation radio. Pressing the **CDI** Softkey a second time selects NAV2 as the navigation radio. Pressing the **CDI** Softkey a third time activates GPS mode. Pressing the **CDI** Softkey again cycles back to NAV1.

While cycling through the **CDI** Softkey selections, the NAV Tuning Box and the Frequency Transfer Arrow are placed in the active NAV Frequency Field and the active NAV frequency color changes to green.

The three navigation modes that can be cycled through are:

- VOR1 (or LOC1) – If NAV1 is selected, a green single line arrow (not shown) labeled either VOR1 or LOC1 is displayed on the HSI and the active NAV1 frequency is displayed in green.
- VOR2 (or LOC2) – If NAV2 is selected, a green double line arrow (shown) labeled either VOR2 or LOC2 is displayed on the HSI and the active NAV2 frequency is displayed in green.
- GPS – If GPS Mode is selected, a magenta single line arrow (not shown) appears on the HSI and neither NAV radio is selected. Both active NAV frequencies are then displayed in white.



Selecting a NAV Radio for Navigation

See the Flight Instruments Section for selecting the DME (optional) and Bearing Information windows and using VOR as the source for the bearing pointer.

NAV radios are selected for listening by pressing the corresponding keys on the Audio Panel. Pressing the **NAV1**,or **NAV2** Key selects and deselects the navigation radio source. Selected audio can be heard over the headset and the speaker (if selected). All radios can be selected individually or simultaneously.

Selecting a NAV Radio Receiver

NAV/COM TUNING

1) Press the small tuning knob to select the desired radio for tuning. A light blue box highlights the radio frequency to be tuned.

2) Turn the respective tuning knobs to enter the desired frequency into the standby frequency field. The large knob enters MHz and the small knob enters kHz.

3) Press the **Frequency Transfer** Key to place the frequency into the active frequency field.

DIGITAL CLEARANCE RECORDER AND PLAYER (OPTIONAL)

The Audio Panel contains a digital clearance recorder that records up to 2.5 minutes of the selected COM radio signal. Recorded COM audio is stored in separate memory blocks. Once 2.5 minutes of recording time have been reached, the recorder begins recording over the stored memory blocks, starting from the oldest block.

An optional external Play button controls the play function. Pressing the Play button once plays the latest recorded memory block.

Pressing the **MKR/MUTE** Key during play of a memory block stops play. If a COM input signal is detected during play of a recorded memory block, play is halted.

Pressing the optional Play button while audio is playing begins playing the previously recorded memory block. Each subsequent press of the Play button selects the previously recorded memory block.

Powering off the unit automatically clears all recorded blocks.

INTERCOM VOLUME AND SQUELCH

The **VOL/CRSR** Knob controls selection and volume or manual intercom 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 green 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** Key. Pressing the small knob cancels the cursor.

Volume/Squelch Control

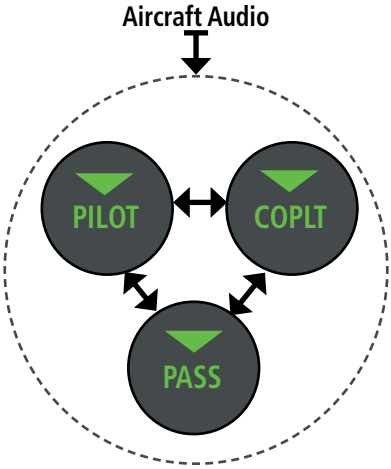
INTERCOM MODES

NOTE: *When in Split-COM mode, the copilot will only hear alerts and the higher numbered of the two selected COMs (COM2 or COM3).*

All Intercom Mode

In 'All Intercom' mode the Pilot, Copilot, and Passengers hear each other and hear the aircraft audio.

ICS Keys

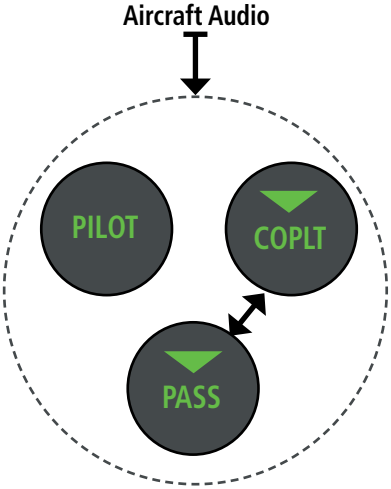


Mode Operation

Pilot Isolate Mode

In 'Pilot Isolate' mode the Pilot, Copilot, and Passengers hear the aircraft audio. The Copilot and Passengers also hear each other.

ICS Keys

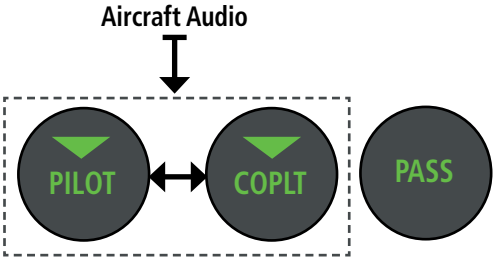


Mode Operation

Passenger/Crew Isolate Mode

In 'Passenger/Crew Isolate' mode the Pilot and Copilot hear the aircraft audio and each other. The Passengers hear each other.

ICS Keys

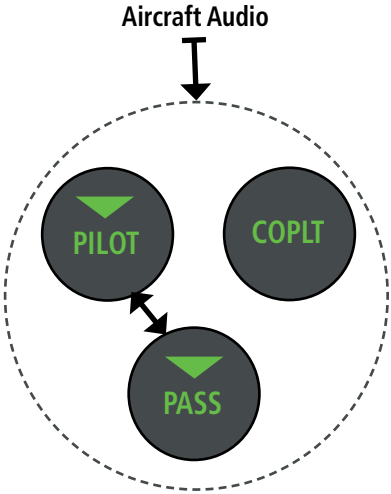


Mode Operation

Copilot Isolate Mode

In 'Copilot Isolate' mode the Pilot, Copilot, and Passengers hear the aircraft audio. The Pilot and Passengers also hear each other. The Copilot has the option to use Split-COM mode.

ICS Keys

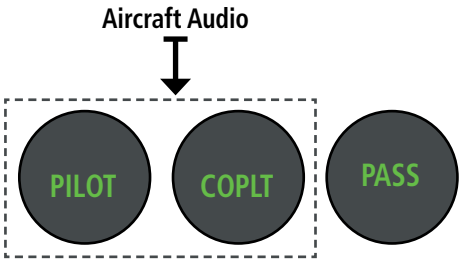


Mode Operation

All Isolate Mode

In 'All Isolate' mode the Pilot and Copilot hear the aircraft audio. The Copilot has the option to use Split-COM mode. The Passengers hear each other.

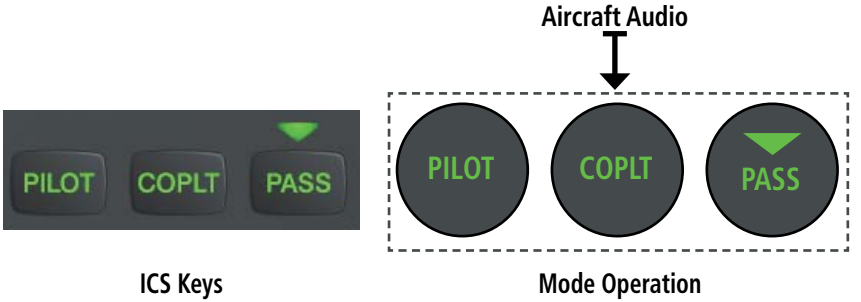
ICS Keys



Mode Operation

Pilot & Copilot Isolate Mode

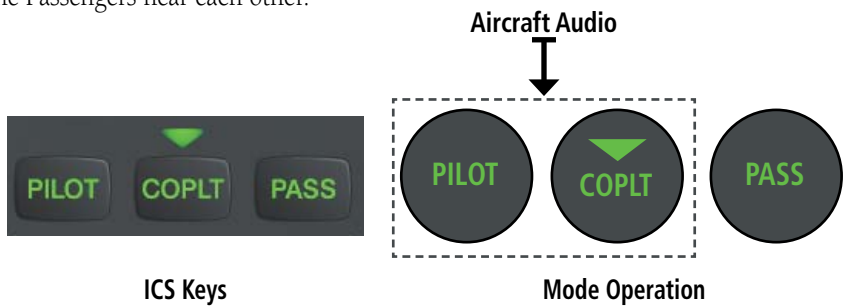
In 'Pilot & Copilot Isolate' mode the Pilot, Copilot, and Passengers hear the aircraft audio. The Passengers hear each other. The Copilot has the option to use Split-COM mode.



ICS Keys Mode Operation

Pilot & Passenger Isolate Mode

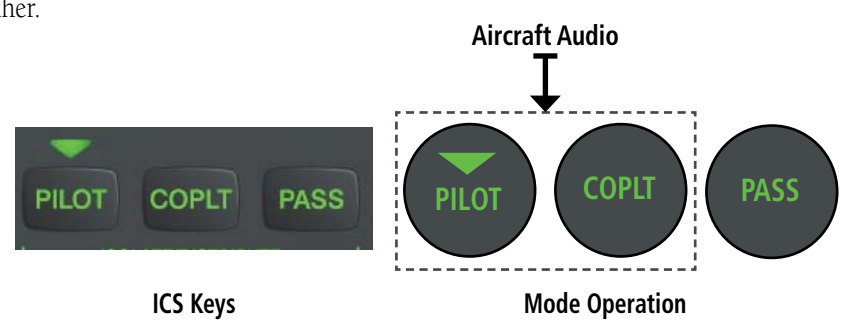
In 'Pilot & Passenger Isolate' mode the Pilot and Copilot hear the aircraft audio. The Passengers hear each other.



ICS Keys Mode Operation

Copilot & Passenger Isolate Mode

In 'Copilot & Passenger Isolate' mode the Pilot and Copilot can hear the aircraft audio. The Copilot has the option to use Split-COM mode. The Passengers hear each other.



ICS Keys Mode Operation

Blue-Select Mode (Telephone/Entertainment Distribution)

The music (MUSIC) and telephone/entertainment ( ) audio are distributed using the Blue-Select Mode. The following example indicates that the pilot, copilot, and passengers will all hear the telephone/entertainment audio.

Blue-Select Mode (Telephone/Entertainment Distribution)

The Blue-Select Mode is entered by pressing the small knob when the the volume control cursor (flashing green annunciator) is not active. If the voume 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 Button will be flashing blue. Any combination of the annunciators over the **PILOT**, **COPLT**, and **PASS** 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 **MUSIC**, and select the crew/passenger positions to receive the music audio.

Selecting any button other than **PILOT**, **COPLT**, **PASS** , **MUSIC** or 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.

PASSENGER ADDRESS MODE (PA MODE)

Press and hold the **SPKR** Key for 2 seconds to initiate Passenger Address Mode. PA Mode is annunciated by a rapid blinking of the SPKR annunciator. When in PA Mode the crew can use the PTT "Push-to-Talk" button to deliver announcements over the speaker, to the passenger headsets, or both depending on configuration.

SPLIT-PA MODE

During Split-PA Mode the pilot can continue to use the radio(s) while the copilot delivers PA announcements. To initiate Split-PA Mode, first enter Split-COM Mode by pressing more that one **MIC** Keys simultaneously, then press and hold the **SPKR** Key for 2 seconds.

3D AUDIO

3D Audio is useful when multiple audio sources are present. By using different responses in each ear, 3D audio processing creates the illusion that each audio source is coming from a unique location or seat position.

Because this feature uses different signals for left and right channels, it requires wiring for stereo intercom and stereo headsets. If 3D audio is activated when mono headsets are in use, the listener will still hear all audio sources; however, there is no benefit from location separation.

With a single COM selected and 3D Audio enabled, the listener hears the audio source at the 12 o'clock position. If all three COMs are selected, the listener hears the audio sources at the 11, 12 and 1 o'clock positions with the COM numbers increasing clockwise. If two COMs are selected, the listener hears COM1 at the 11 o'clock position and COM2 at the 1 o'clock position. All other intercom positions are processed to sound like their relative seat location. By default, the GMA 350H assumes the pilot sits in the right seat. A Garmin authorized service center can make changes to the default configuration.

ENABLING 3D AUDIO

Press and hold the **PILOT** Key to toggle 3D audio processing on and off for all headset positions. When 3D Audio is enabled, the aural message "3D audio left" is heard in the left ear followed by "3D audio right" in the right ear.

3D AUDIO TROUBLESHOOTING

If the aural messages are not heard in only the left and then the right ear respectively the cause may be aircraft wiring or headset settings. Refer to the following table if a headset or aircraft wiring problem is suspected.

3D Audio Troubleshooting		
Symptom(s)	**Cause(s)**	**Solution(s)**
"3D audio left" message heard in both ears. "3D audio right" message not heard	**1)** Mono headset in use	**1)** Use a stereo headset
	2) Stereo headset in use with mono/stereo switch set to 'mono'	**2)** Set mono/stereo switch on headset to 'stereo'
	3) Aircraft wiring has left audio wired to both left and right channels of stereo headset jack	**3)** If after checking solutions #1 and #2 see a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.
"3D audio left" message heard in both ears, followed by "3D audio right" message heard in both ears	**1)** Mono headset in use	**1)** Use a stereo headset
	2) Stereo headset in use with mono/stereo switch set to mono	**2)** Set mono/stereo switch on headset to 'stereo'
	3) Incorrect aircraft wiring (left/right shorted together)	**3)** If after checking solutions #1 and #2 see a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.
"3D audio right" message heard in both ears. "3D audio left" not heard	**1)** Incorrect aircraft wiring (right channel used for mono instead of left or left/right swapped)	**1)** See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.
"3D audio left" message heard in right ear only followed by "3D audio right" message heard in left ear only	**1)** Stereo headset is on backwards	**1)** Verify correct orientation from the left/right indication on each side of the headset or the position of the boom mic (usually attached on left side). If the headset is backwards left/right position information will be swapped.
	2) Incorrect aircraft wiring (left/right channels swapped)	**2)** See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.

3D Audio Troubleshooting		
Symptom(s)	**Cause(s)**	**Solution(s)**
"3D audio left" message heard in left ear only, no audio heard in right ear.	**1)** Aircraft wired for mono intercom	**1)** See a service center to wire the installation for stereo headsets.
"3D audio right" message heard in right ear only, no audio heard in left ear	**1)** Incorrect aircraft wiring (right channel used for mono instead of left, or left/right swapped)	**1)** See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.

3D Audio Troubleshooting

VOICE RECOGNITION

Voice Recognition allows the pilot (and optionally copilot) to control the GMA 350H using spoken commands. To activate Voice Recognition, push and hold the Push-To-Command (PTC) button while speaking a command. When the Push-To-Command button is released, the GMA 350H will respond.

If a command is correctly interpreted by the GMA 350H, a positive acknowlegement chime will be played, and the pilot should verify that the correct button selection is indicated by the triangular annunciator lights. Alternatively, some commands will be indicated by a voice response from the GMA 350H. If the desired modes are not indicated by annunciator lights or a voice response, the pilot should repeat the command by using the Push-To-Command button, or by manually using the front panel controls of the GMA 350H.

If a command is incorrectly interpreted by the GMA 350H, a negative acknowlegement tone will be played. The pilot should repeat the command by using the Push-To-Command button, or by manually using the front panel controls of the GMA 350H. In the event of any abnormal Voice Recognition operation, at any time the front panel controls may be used manually to control the GMA 350H.

The following table lists the available Voice Recognition commands, the associated actions, and the voice response if applicable:

Control	Spoken Command	Action	Confirmation of Action
COM	"COM one"	Toggles COM1	Illuminate/Extinguish COM1 Annunciator
	"MIC one"	Selects MIC1	Illuminate MIC1 Annunciator
	"COM one MIC"		
	"COM two"	Toggles COM2	Illuminate/Extinguish COM2 Annunciator
	"MIC two"	Selects MIC2	Illuminate MIC2 Annunciator
	"COM two MIC"		
	"COM three"	Toggles COM3	Illuminate/Extinguish COM3 Annunciator
	"MIC three"	Selects MIC3	Illuminate MIC3 Annunciator
	"COM three MIC"		
	"Split COM"	Selects split COM 1/2	Illuminate MIC1/MIC2 Annunciators
	"Split COM 1 2"	Selects split COM 1/2	Illuminate MIC1/MIC2 Annunciators
	"Split COM 1 3"	Selects split COM 1/3	Illuminate MIC1/MIC3 Annunciators
	"Split COM 2 3"	Selects split COM 2/3	Illuminate MIC2/MIC3 Annunciators
	"Monitored COM mute" or "Mute monitored COM"	Mutes monitored COM on primary COM reception	Voice Response: "Monitor mute enabled"
	"Disable monitored COM mute" or "Monitored COM mute disable" or "Disable mute monitored COM" or "Mute monitored COM disable"	Disables monitored COM mute on primary COM reception	Voice Response: "Monitor mute disabled"

Control	Spoken Command	Action	Confirmation of Action
NAV	"NAV one"	Toggles NAV1	Illuminate/Extinguish NAV1 Annunciator
	"NAV two"	Toggles NAV2	Illuminate/Extinguish NAV2 Annunciator
AUX	"AUX" or "Auxiliary"	Toggles AUX	Illuminate/Extinguish AUX Annunciator
	"Telephone" or "Phone" or "Jack"	Toggles Telephone/ Jack	Illuminate/Extinguish  Annunciator
	"Telephone mute" or "Phone mute" or "Jack mute"or "Mute telephone" or "Mute phone" or "Mute jack"	Mutes Telephone/ Jack on radio reception	Voice Response: "Tel and jack mute enabled"
	"Disable telephone mute" or "Disable phone mute" or "Disable jack mute"or "Telephone mute disable"or "Phone mute disable" or "Jack mute disable"	Disables Telephone/ Jack mute on radio reception	Voice Response: "Tel and jack mute disabled"
MUSIC	"MUSIC"	Toggles MUSIC	Illuminate/Extinguish MUSIC Annunciator
	"MUSIC mute" or "Mute MUSIC"	Mutes MUSIC on radio reception	Voice Response: "Music mute enabled"
	"Disable MUSIC mute" or "MUSIC mute disable"	Disables MUSIC mute on radio reception	Voice Response: "Music mute disabled"
Speaker (SPKR)	"Speaker"	Toggles SPKR on/off	Illuminate/Extinguish SPKR Annunciator
PA	"P - A"	Toggles PA on/off	SPKR Annunciator blinks in PA mode

Control	Spoken Command	Action	Confirmation of Action
ICS Isolation	"Pilot"	Toggles PILOT button	Illuminate/Extinguish PILOT Annunciator
	"Copilot"	Toggles COPLT button	Illuminate/Extinguish COPLT Annunciator
	"Passenger" or "Pass"	Toggles PASS button	Illuminate/Extinguish PASS Annunciator
	"Passenger mute" or "Pass mute" or "Mute passenger" or "Mute pass"	Mutes passengers during radio reception	Voice Response: "Passenger mute enabled"
	"Disable passenger mute" or "Disable pass mute" or "Disable mute passenger" or "Disable mute pass" or "Passenger mute disable" or "Pass mute disable" or "Mute passenger disable" or "Mute pass disable"	Disables muting of passengers during radio reception	Voice Response: "Passenger mute disabled"
Copilot Configuration	"Copilot is passenger" or "Copilot is pass"	Configures Copilot as a passenger	Voice Response: "Copilot is passenger"
	"Copilot is crew"	Configures Copilot as flight crew	Voice Response: "Copilot is crew"
Marker Beacon (MKR/MUTE)	"Marker" or "Mute marker" or "Marker mute"	Marker Beacon audio on/off (refer to Marker Beacon section for details)	Illuminate/Extinguish MKR/MUTE Annunciator
Cursor	"Cursor off" or "Cursor cancel" or "Cancel cursor"	Cancels cursor when cursor is flashing	Cursor is removed

Control	Spoken Command	Action	Confirmation of Action
Manual Squelch	"Manual squelch" or "Man squelch"	Toggles manual squelch	Illuminate/Extinguish MAN SQ Annunciator
	"Manual squelch threshold up" or "Manual squelch volume up" or "Man squelch threshold up" or "Man squelch volume up"	Increases manual squelch threshold	Manual squelch threshold increased
	"Manual squelch threshold down" or "Manual squelch volume down" or "Man squelch threshold down" or "Man squelch volume down"	Decreases manual squelch threshold	Manual squelch threshold decreased
	NOTE: Finer manual squelch adjustment may be made using the dual concentric knobs on the GMA 350H. The voice command "Up" or "Down" is equivalent to three clicks of the inner knob..		
COM Clearance Recorder	"Play" or "Read back" or "Say again"	Plays recorded clearance audio (refer to Clearance Recorder section for details)	Recorded audio playing
Distribution (Blue Mode)	"Distribute telephone to (**desired position(s))" or "Distribute phone to (**desired position(s))" or "Distribute jack to (**desired position(s))"	Distributes TEL/JACK to desired positions	TEL/JACK audio heard at desired position(s)
	"Distribute music to (**desired position(s))"	Distributes MUSIC to desired position(s)	MUSIC heard at desired position(s)
	** Desired position(s) = "All", "none", "pilot", "copilot", "passenger", "pass", or any combination of pilot, copilot, passenger, or pass.		

Control	Spoken Command	Action	Confirmation of Action
Volume Adjustments	"(*Desired selection) volume up"	Increases volume of desired selection	Volume of desired selection increased
	"(*Desired selection) volume down"	Decreases volume of desired selection	Volume of desired selection decreased
	NOTE: Finer volume adjustment may be made using the dual concentric knobs on the GMA 350H. The voice command "Up" or "Down" is equivalent to three click of the inner knob.		
	* Desired selection = "speaker", "pilot", "copilot", "passenger", "pass", "marker", "aux", "auxiliary", "telephone", "phone", "jack", or "music".		
3D Audio	"Three-D audio"	Enables 3D audio	Voice Response: "Three-D audio left, three-D audio right"
	"Standard audio"	Enables standard audio (disables 3D audio)	Voice Response: "Standard Audio"

Voice Recognition Commands

Blank Page

AUTOMATIC FLIGHT CONTROL SYSTEM

Not available.

Blank Page

GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation from the MFD

1) Press the **Direct-to** () Key.
2) Enter the waypoint identifier.
3) Press the **ENT** Key to confirm the identifier. The 'Activate?' field is highlighted.
4) If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 5.
5) Turn the large **FMS** Knob to place the cursor over the 'VNV' altitude field.
6) Enter the desired altitude.
7) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 9.
8) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.
9) Press the **ENT** Key. The cursor is now flashing in the VNV offset distance field.
10) Enter the desired offset distance before (-) the waypoint.
11) Press the **ENT** Key. The 'Activate?' field is highlighted.
12) Press the **ENT** Key to activate.

Direct-to Navigation from the PFD

1) Press the **Direct-to** Key ().
2) Turn the large **FMS** Knob to place the cursor in the desired selection field.
3) Turn the small **FMS** Knob to begin selecting the desired identifier, location, etc.
4) Press the **ENT** Key.
5) The cursor is now flashing on 'ACTIVATE?'. If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 6.
6) Turn the large **FMS** Knob to place the cursor over the 'ALT' altitude field.

7) Turn the small **FMS** Knob to enter the desired altitude.
8) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 10.
9) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.
10) Press the **ENT** Key. The cursor is placed in the OFFSET distance field.
11) Turn the small **FMS** Knob to enter the desired target altitude offset from the selected Direct-to.
12) Press the **ENT** Key to highlight 'Activate?' or turn the large **FMS** Knob to highlight the 'CRS' field.
13) Turn the small **FMS** Knob to enter the desired course to the waypoint.
14) Press the **ENT** Key to highlight 'ACTIVATE?'.
15) Press the **ENT** again to activate the Direct-to.

ACTIVATE A STORED FLIGHT PLAN

1) Press the **FPL** Key on the MFD and turn the small **FMS** Knob to display the Flight Plan Catalog Page.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan
4) Press the **ACTIVE** Softkey. The confirmation window is now displayed.
5) With 'OK' highlighted, press the **ENT** Key to activate the flight plan. To cancel the flight plan activation, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

ACTIVATE A FLIGHT PLAN LEG

1) From the Active Flight Plan Page, press the **FMS** Knob to activate the cursor and turn the large **FMS** Knob to highlight the desired waypoint.
2) Press the **ACT LEG** Softkey on the MFD.

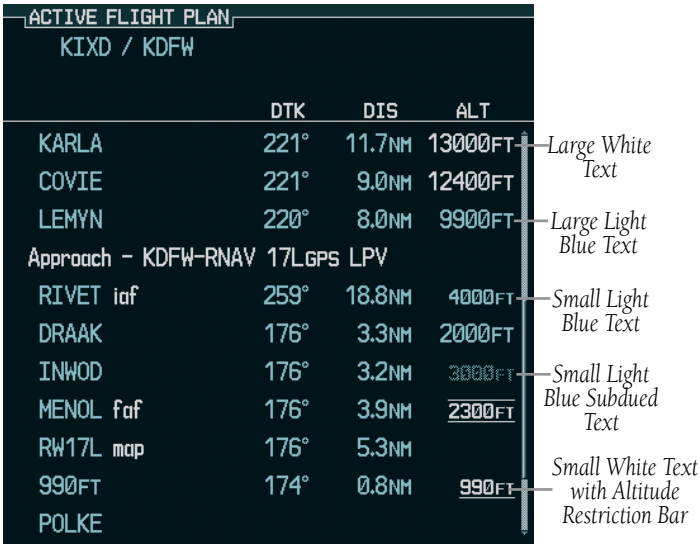
   OR
3) Press the **MENU** Key, select the 'Activate Leg' option from the page menu and press the **ENT** Key. This step must be used when activating a leg from the PFD.
4) With 'Activate' highlighted, press the **ENT** Key.

STOP NAVIGATING A FLIGHT PLAN

1) Press the **FPL** Key to display the Active Flight Plan Page.
2) Press the **MENU** Key to display the Page Menu Window.
3) Turn the large **FMS** Knob to highlight 'Delete Flight Plan' and press the **ENT** Key. With 'OK' highlighted, press the **ENT** Key to deactivate the flight plan. This does not delete the stored flight plan, only the active flight plan.

VERTICAL NAVIGATION (VNAV)

The navigation database only contains altitudes for procedures that call for "Cross at" altitudes. If the procedure states "Expect to cross at," the altitude is not in the database. In this case the altitude may be entered manually.



Cross AT or ABOVE 5,000 ft

Cross AT 2,300 ft

Cross AT or BELOW 3,000 ft

Altitudes associated with approach procedures are "auto-designated". This means the system automatically uses the altitudes loaded with the approach for giving vertical flight path guidance outside the FAF. Note these altitudes are displayed as small light blue text.

Altitudes associated with arrival procedures are "manually-designated". This means the system does not use the altitudes loaded with the arrival for giving vertical flight path guidance until designated to do so by the pilot. Note that these altitudes are initially displayed as white text. These altitudes may be "designated" by placing the cursor over the desired altitude and pressing the **ENT** Key. After designation, the text changes to light blue.

Altitudes that have been designated for use in vertical navigation may also be made "non-designated" by placing the cursor over the desired altitude and pressing the **CLR** Key. The altitude is now displayed only as a reference. It will not be used to give vertical flight path guidance. Other displayed altitudes may change due to re-calculations or rendered invalid as a result of manually changing an altitude to a non-designated altitude.

	White Text	Light Blue Text	Light Blue Subdued Text
Large Text	Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. This altitude is provided as a reference and is not designated to be used in determining vertical flight path guidance.	Altitude has been entered by the pilot. Altitude is designated for use in giving vertical flight path guidance. Altitude does not match the published altitude in navigation database or no published altitude exists.	The system cannot use this altitude in determining vertical flight path guidance.
Small Text	Altitude is not designated to be used in determining vertical flight path guidance. Altitude has been retrieved from the navigation database and is provided as a reference.	Altitude is designated for use in giving vertical flight path guidance. Altitude has been retrieved from the navigation database or has been entered by the pilot and matches a published altitude in the navigation database.	The system cannot use this altitude in determining vertical flight path guidance.

FLIGHT PLANNING

WEIGHT PLANNING

All procedures apply to the MFD unless otherwise stated.

Entering Payload Parameters

Turn the large **FMS** Knob to select the 'AUX' page group. Turn the small **FMS** Knob to select the Weight Planning Page.

1) Press the **EMPTY WT** Softkey to place the cursor in the Basic Empty Weight field.
2) Enter the desired aircraft empty weight.
3) Press the **ENT** Key. The cursor is now over the 'PILOT & STORES' field.
4) Enter the desired weight of Pilot & Stores.
5) Press the **ENT** Key.
6) Continue repeating these steps until all desired weights have been entered.

Entering Fuel Parameters

1) If necessary, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'FUEL ON BOARD' field.
3) Press the **FOB SYNC** Softkey to enter the fuel on board quantity as read from the fuel quantity sensors.

   Or:

   Manually enter the desired fuel quantity.
4) Press the **ENT** Key. The cursor is now in the 'FUEL RESERVES' field.
5) Enter the desired reserve fuel quantity.
6) Press the **FMS** Knob to remove the cursor.

TRIP PLANNING

1) Turn the large **FMS** Knob to select the 'AUX' page group.
2) Turn the small **FMS** Knob to select the Trip Planning Page.
3) The current 'PAGE MODE' is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, press the **AUTO** or **MANUAL** Softkey.

4) For Direct-to planning:

a) Press the **WPTS** Softkey and verify that the starting waypoint field indicates 'P.POS' (present position).

b) If necessary, press the **MENU** Key and select 'Set WPT to Present Position' to display 'P.POS'.

c) Press the **ENT** Key and the flashing cursor moves to the ending waypoint field.

d) Enter the identifier of the ending waypoint and press the **ENT** Key to accept the waypoint.

Or:

For point-to-point planning:

a) Enter the identifier of the starting waypoint.

b) Once the waypoint's identifier is entered, press the **ENT** Key to accept the waypoint. The flashing cursor moves to the ending waypoint.

c) Again, enter the identifier of the ending waypoint.

d) Press the **ENT** Key to accept the waypoint.

Or:

For flight plan leg planning:

a) Press the **FPL** Softkey (at the bottom of the display).

b) Turn the small **FMS** Knob to select the desired flight plan (already stored in memory), by number.

c) Turn the large **FMS** Knob to highlight the 'LEG' field.

d) Turn the small **FMS** Knob to select the desired leg of the flight plan, or select 'CUM' to apply trip planning calculations to the entire flight plan. Selecting 'FPL 00' displays the active flight plan. If an active flight plan is selected, 'REM' is an available option to display planning data for the remainder of the flight plan.

NOTE: *The page mode must be set to 'MANUAL' to perform the following steps.*

5) Turn the large **FMS** Knob to highlight the departure time (DEP TIME) field.

NOTE: *The departure time on the Trip Planning Page is used for preflight planning. Refer to the Utility Page for the actual flight departure time.*

6) Enter the departure time. Press the **ENT** Key when finished. Departure time may be entered in local or UTC time, depending upon system settings.

7) The flashing cursor moves to the ground speed (GS) field. Enter the ground speed. Press the **ENT** Key when finished. Note that in 'automatic' page mode, ground speed is provided by the system.

8) The flashing cursor moves to the fuel flow field. Enter the fuel flow. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel flow is provided by the system.

9) The flashing cursor moves to the fuel onboard field. Enter the fuel onboard. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel onboard is provided by the fuel totalizer.

10) The flashing cursor moves to the calibrated airspeed (CALIBRATED AS) field. Enter the calibrated airspeed. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, calibrated airspeed is provided by the system.

11) The flashing cursor moves to the altitude (IND ALTITUDE) field. Enter the altitude. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, altitude is provided by the system.

12) The flashing cursor moves to the barometric setting (PRESSURE) field. Enter the desired baro setting. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, the baro setting is provided by the setting entered on the PFD.

13) The flashing cursor moves to the air temperature (TOTAL AIR TEMP) field. Enter the desired air temperature. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, air temperature is provided by the system outside air temperature.

CREATE A USER WAYPOINT DEFINED BY LATITUDE & LONGITUDE

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.
   a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
   b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.
7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.
8) Turn the small **FMS** Knob to select LAT/LON (latitude and longitude).
9) Press the **ENT** Key.

CREATE A USER WAYPOINT DEFINED BY RADIALS FROM OTHER WAYPOINTS

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.
2) Turn the small **FMS** Knob to select the User WPT Information Page.
3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.
4) Enter the desired waypoint name.
5) Press the **ENT** Key.
6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.
   a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
   b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.
7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.
8) Turn the small **FMS** Knob to select RAD/RAD (radial/radial).
9) Press the **ENT** Key.
10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

a) When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.

b) Turn the large **FMS** Knob to select the desired waypoint.

c) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) Repeat step 10 to enter the next waypoint name.

14) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field for the second waypoint. Enter the desired radial from the reference waypoint.

15) Press the **ENT** Key.

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

CREATE A USER WAYPOINT DEFINED BY A RADIAL & DISTANCE FROM ANOTHER WAYPOINT

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.

- **a)** Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
- **b)** Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.

7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.

8) Turn the small **FMS** Knob to select RAD/DIS (radial/distance).

9) Press the **ENT** Key.

10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

- **a)** When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.
- **b)** Turn the large **FMS** Knob to select the desired waypoint.
- **c)** Press the **ENT** Key.

Or:

- **a)** Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.
- **b)** Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.
- **c)** Turn the large **FMS** Knob to select the desired waypoint.
- **d)** Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) The cursor is now displayed in the 'DIS' (distance) field. Enter the desired distance from the reference waypoint.

14) Press the **ENT** Key.

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

DELETE A USER WAYPOINT

1) Turn the large **FMS** Knob to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **FMS** Knob to activate the cursor.

4) Turn the large **FMS** Knob to the place the cursor in the 'USER WAYPOINT LIST' field.

5) Turn the small **FMS** Knob to highlight the desired waypoint.

6) Press the **DELETE** Softkey.

7) The message 'Would you like to delete the user waypoint?' is displayed. With 'YES' highlighted, press the **ENT** Key.

CREATE A FLIGHT PLAN

NOTE: When creating a flight plan in the Active Flight Plan Window, the first leg is activated automatically after it is created.

Creating an active flight plan:

1) Press the **FPL** Key.
2) Press the **FMS** Knob to activate the cursor (only on MFD).
3) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).
4) Enter the identifier, facility, or city name of the departure 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.
5) Repeat step numbers 3 and 4 to enter each additional flight plan waypoint.
6) When all waypoints have been entered, press the **FMS** Knob to remove the cursor.

Creating a stored flight plan:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob clockwise to display the 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) 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).
5) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key.
6) Repeat step numbers 4 and 5 to enter each additional flight plan waypoint.
7) When all waypoints have been entered, press the **FMS** Knob to return to the Flight Plan Catalog Page. The new flight plan is now in the list.

IMPORT A FLIGHT PLAN FROM AN SD CARD

NOTE: *See the Annunciations & Alerts section for flight plan import message descriptions.*

1) Insert the SD card containing the flight plan in the top card slot on the MFD.
2) Press the **FPL** Key on the MFD to display the Active Flight Plan Page.
3) Turn the small **FMS** Knob to select the 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.

   If an empty flight plan 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 a list of the 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 existing or empty flight plan, and again press the **IMPORT** Softkey.
7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.
8) Press the **ENT** Key.

INSERT A WAYPOINT IN THE ACTIVE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan.
2) If required, press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan waypoint. The new waypoint is inserted before the highlighted waypoint.
4) Turn the small **FMS** Knob. The Waypoint Information Window is now displayed.
5) Enter the new flight plan waypoint by one of the following:

a) Enter the user waypoint identifier, facility, or city.

b) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airport waypoints to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

e) Press the **ENT** Key again to accept the waypoint.

ENTER AN AIRWAY IN A 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, or press the **MENU** Key and select "Load Airway". The Select Airway Page is displayed. The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when an acceptable 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.

INVERT AN ACTIVE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan.

2) Press the **MENU** Key to display the Page Menu.

3) Turn the large **FMS** Knob to highlight 'Invert Flight Plan'.

4) Press the **ENT** Key. The original flight plan remains intact in its flight plan catalog storage location.

5) With 'OK' highlighted, press the **ENT** Key to invert the flight plan.

REMOVE A DEPARTURE, ARRIVAL, APPROACH, OR AIRWAY FROM A FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

   Or, for a stored flight plan:

   a) Press the **FPL** Key on the MFD.

   b) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

   c) Press the **FMS** Knob to activate the cursor.

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

   e) Press the **EDIT** Softkey.

2) Turn the large **FMS** Knob to highlight the title for the approach, departure, arrival, or airway to be deleted. Titles appear in white directly above the procedure's waypoints.

3) Press the **CLR** Key to display a confirmation window.

4) With 'OK' highlighted, press the **ENT** Key to remove the selected procedure or airway.

STORE A FLIGHT PLAN

1) After creating a flight plan on either the PFD or MFD, it may be saved by pressing the **MENU** Key.

2) Turn the large **FMS** Knob to highlight 'Store Flight Plan' and press the **ENT** Key.

3) With 'OK' highlighted, press the **ENT** Key to store the flight plan.

EDIT A STORED FLIGHT PLAN

1) Press the **FPL** Key on the MFD, then turn the small **FMS** Knob to display the Flight Plan Catalog Page.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan.
4) Press the **EDIT** Softkey.
5) Turn the large **FMS** Knob to place the cursor in the desired location.
6) Enter the changes, then press the **ENT** Key.
7) Press the **FMS** Knob to return to the Flight Plan Catalog Page.

DELETE A WAYPOINT FROM THE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

   Or, for a stored flight plan:

   a) Press the **FPL** Key on the MFD.
   b) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
   c) Press the **FMS** Knob to activate the cursor.
   d) Turn the large **FMS** Knob to highlight the desired flight plan.
   e) Press the **EDIT** Softkey.
2) Turn the large **FMS** Knob to highlight the waypoint to be deleted.
3) Press the **CLR** Key to display a 'REMOVE (Wpt Name)?' confirmation window.
4) With 'OK' highlighted, press the **ENT** Key to remove the waypoint. To cancel the delete request, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.
5) Once all changes have been made, press the **FMS** Knob to remove the cursor.

INVERT AND ACTIVATE A STORED FLIGHT PLAN

1) Press the **FPL** Key on the MFD.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.

4) Turn the large **FMS** Knob to highlight the desired flight plan.
5) Press the **INVERT** Softkey. 'Invert and activate stored flight plan?' is displayed.
6) With 'OK' highlighted, press the **ENT** Key. The selected flight plan is now inverted and activated. The original flight plan remains intact in its flight plan catalog storage location.

COPY A FLIGHT PLAN

1) Press the **FPL** Key on the MFD.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the flight plan to be copied.
5) Press the **COPY** Softkey. A 'Copy to flight plan #?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to copy the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

DELETE A FLIGHT PLAN

1) Press the **FPL** Key on the MFD.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the flight plan to be deleted.
5) Press the **DELETE** Softkey. A 'Delete flight plan #?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

GRAPHICAL FLIGHT PLAN CREATION

1) Press the **FPL** Key on the MFD to display the Active Flight Plan Page.
2) Press the **Joystick** to activate the map pointer. Use the **Joystick** to move the pointer to the desired point on the map to be inserted as a waypoint in the flight plan.

3) The default insertion point is at the end of the flight plan. If the selected waypoint is to be placed anywhere other than the end of the flight plan, press the **FMS** Knob to activate the cursor. Waypoints are inserted *ABOVE* the cursor. Turn the large **FMS** Knob to select the desired insertion point.

4) Press the **LD WPT** Softkey. The selected waypoint is inserted at the selected point. The default user waypoint naming is USR000, USR001, USR002, and so on.

5) To change the user waypoint name, follow the procedure for modifying a user waypoint.

EXPORT A FLIGHT PLAN TO AN SD CARD

NOTE: *See the Annunciations & Alerts section for flight plan export message descriptions.*

1) Insert the SD card into the top card slot on the MFD.
2) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
3) Turn the small **FMS** Knob to select the 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.
7) Press the **ENT** Key to confirm the export.

PROCEDURES

LOAD AND ACTIVATE A DEPARTURE PROCEDURE

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT DEPARTURE'.
3) Press the **ENT** Key. The cursor is displayed in the 'DEPARTURE' field with a list of available departures.
4) Turn the large **FMS** Knob to highlight the desired departure.
5) Press the **ENT** Key. A list of runways may be displayed for the departure. If so, turn either **FMS** Knob to select the desired runway.
6) Press the **ENT** Key. The cursor is displayed in the 'TRANSITION' field with a list of available transitions.
7) Turn the large **FMS** Knob to highlight the desired transition.
8) Press the **ENT** Key.
9) With 'LOAD?' highlighted, press the **ENT** Key. The departure is active when the flight plan is active.

ACTIVATE A DEPARTURE LEG

1) Press the **FPL** Key on the MFD to display the active flight plan.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired waypoint within the departure.
4) Press the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.
5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AN ARRIVAL PROCEDURE

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT ARRIVAL'.
3) Press the **ENT** Key. The cursor is displayed in the 'ARRIVAL' field with a list of available arrivals.

4) Turn the large **FMS** Knob to highlight the desired arrival.
5) Press the **ENT** Key. A list of transitions is displayed for the selected arrival.
6) Turn either **FMS** Knob to select the desired transition.
7) Press the **ENT** Key. A list of runways may be displayed for the selected arrival.
8) Turn the large **FMS** Knob to highlight the desired runway.
9) Press the **ENT** Key.
10) With 'LOAD?' highlighted, press the **ENT** Key.
11) The arrival becomes part of the active flight plan.
12) If an altitude associated with a waypoint in an arrival procedure is to be used to calculate vertical guidance perform the following steps:
    a) Press the **FMS** Knob to activate the cursor.
    b) Turn the large **FMS** Knob to highlight the desired waypoint altitude.
    c) Press the **ENT** Key to designate the altitude for use in giving vertical guidance.

ACTIVATE AN ARRIVAL LEG

1) Press the **FPL** Key to display the active flight plan.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired waypoint within the arrival.
4) Press the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.
5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AND/OR ACTIVATE AN APPROACH PROCEDURE

NOTE: *If certain GPS parameters (SBAS, RAIM, etc.) are not available, some published approach procedures for the desired airport may not be displayed in the list of available approaches.*

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT APPROACH'.

3) Press the **ENT** Key. A list of available approaches for the destination airport is displayed.
4) Turn either **FMS** Knob to highlight the desired approach.
5) Press the **ENT** Key. A list of available transitions for the selected approach procedure is now displayed.
6) Turn either **FMS** Knob to select the desired transition. The "Vectors" option assumes vectors will be received to the final course segment of the approach and will provide navigation guidance relative to the final approach course.
7) Press the **ENT** Key. The cursor moves to the MINIMUMS field.
8) If desired, the DA/MDA for the selected approach procedure may be entered and displayed on the PFD. Turn the small **FMS** Knob in the direction of the green arrow to change the display from OFF to BARO.
9) Press the **ENT** Key. The cursor moves to the altitude field. Turn the small **FMS** Knob to enter the published DA/MDA for the selected approach procedure.
10) Press the **ENT** Key. 'LOAD? or ACTIVATE?' is now displayed with 'LOAD?' highlighted.
11) Turn the large **FMS** Knob to select either 'LOAD?' or 'ACTIVATE?'.

    Selecting 'LOAD?' enters the selected approach procedure into the active flight plan, but is not currently active. Selecting 'ACTIVATE?' enters the selected approach procedure into the active flight plan and activates the first leg of the approach.
12) Press the **ENT** Key.

ACTIVATE AN APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE APPROACH'.
3) Press the **ENT** Key.

ACTIVATE A VECTOR TO FINAL APPROACH FIX

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE VECTOR-TO-FINAL'.
3) Press the **ENT** Key.
4) The final approach course becomes the active leg.

ACTIVATE A MISSED APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE MISSED APPROACH'.
3) Press the **ENT** Key. A confirmation window is displayed.
4) With 'ACTIVATE' highlighted, press the **ENT** Key.

HAZARD AVOIDANCE

CUSTOMIZING THE HAZARD DISPLAYS ON THE NAVIGATION MAP

1) With the Navigation Map Page displayed, press the **MENU** Key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2) Press the **ENT** Key. The Map Setup Menu is displayed. Turn the small **FMS** Knob to select 'Weather' to customize the display of weather features. Select 'Traffic' to customize the display of traffic.
3) Press the small **FMS** Knob to return to the Navigation Map Page.

XM WX SATELLITE WEATHER (OPTIONAL)

WARNING: *Use of XM WX Satellite Weather for hazardous weather penetration is not recommended. Weather information provided by SiriusXM Radio Service is approved only for weather avoidance, not penetration.*

Displaying XM WX on the Navigation Map Page

1) Press the **MAP** Softkey.
2) Press the **NEXRAD** or **XM LTNG** Softkey to display the desired weather. Press the applicable softkey again to remove weather data from the Navigation Map Page.

Display METAR and TAF information on the Airport Information Page

1) Turn the large **FMS** Knob to select the WPT Page Group.
2) Turn the small **FMS** Knob to select the Airport Information Page.
3) Press the **WX** Softkey to display METAR and TAF text (METAR and TAF information is updated every 12 minutes).

Displaying Weather on the Weather Data Link Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Weather Data Link Page.
3) Press the available softkeys to select the desired XM weather product.
4) Press the **LEGEND** Softkey to view the legends for the selected products. If necessary, turn either **FMS** Knob to scroll through the list. Press the small **FMS** Knob or the **ENT** Key to return to the map.

Map Panning Information – Weather Data Link Page

1) Push in the **Joystick** to display the panning arrow.
2) Move the **Joystick** to place the panning arrow on AIRMETs, TFRs, METARs, or SIGMETs.
3) Press the **ENT** Key to display pertinent information for the selected product.

   Note that pressing the **ENT** Key when panning over an AIRMET or a SIGMET displays an information box that shows the text of the report. Panning over an airport with METAR information does not display more information but allows the user to press the **ENT** Key and select that Airport's Information Page to display the text of the report. Pressing the **ENT** Key when panning over a TFR displays TFR specific information.

XM WX Satellite Weather Products and Symbols

Wx Product Status Icons	Description
	**NEXRAD** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**ECHO TOP** - The age of the displayed data is shown at the right. Not displayed when CLOUD TOP is displayed.
	**CLOUD TOP** - The age of the displayed data is shown at the right. Not displayed when ECHO TOP is displayed.
	**XM LIGHTNING** - The age of the displayed data is shown at the right.
	**CELL MOVEMENT** - The age of the displayed data is shown at the right.
	**SIGMET & AIRMET** - The age of the displayed data for each is shown at the right.
	**METAR** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**SURFACE ANALYSIS with CITY FORECAST** - The upper symbol depicts Surface Analysis. The lower symbol depicts City Forecast. The age of the displayed data for each is shown at the right. The selected forecast period is shown at the bottom.

Wx Product Status Icons	Description
	**FREEZING LEVEL** - The age of the displayed data is shown at the right.
	**WINDS ALOFT** - Available for the US and Canada. The age of the displayed data for each is shown at the right. The altitude selection is shown at the bottom.
	**COUNTY WARNING** - The age of the displayed data is shown at the right.
	**CYCLONE WARNING** - The age of the displayed data is shown at the right.
	**AIREP** - The age of the displayed data is shown at the right.
	**PIREP** - The age of the displayed data is shown at the right. Urgent Pireps are displayed in yellow.
	**TURBULENCE** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
	**ICING POTENTIAL** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.

WORLDWIDE WEATHER

NOTE: Garmin Flight Data Services Worldwide Weather provides information for avoiding hazardous weather. Do not utilize Worldwide Weather information to penetrate hazardous weather.

Weather data are provided when the pilot initiates either a manual or automatic GFDS data request on the GFDS Weather Data Link Page on the MFD. No weather data is displayed until the first GFDS Weather Data Request is made.

Accessing GFDS Worldwide Weather Products

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the GFDS Weather Data Link Page.

When a weather product is selected for display on the GFDS Weather Data Link Page, a box containing a symbol for the product and its age (in minutes) are shown in the upper right. If weather data has not been requested, 'N/A' is shown next to the product symbol instead of age. The age of the weather product is based on the time difference between when the data was assembled on the ground and the current GPS time. Weather products are updated continuously or refreshed at specific intervals (defined in the **Refresh Rate** column in the following table).

If for any reason, a weather product is not refreshed within the defined **Expiration Time** intervals, the data is considered expired and is removed from the display. The age of the expired product is replaced by dashes. If more than half of the expiration time has elapsed, the color of the product age readout changes to yellow.

The refresh rate represents the interval at which the GFDS servers make available the most current known weather data. It does not necessarily represent the rate at which new content is received from weather sources.

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Radar Precipitation (PRECIP)		30	U.S./Canada: 3* Europe: 15
Infrared Satellite (IR SAT)		60	30
Datalink Lightning (DL LTNG)		30	Continuous
SIGMETs/AIRMETs (SIG/AIR)		60	Continuous
Meteorological Aerodrome Report (METARs)		90	Continuous
Winds Aloft (WIND)		60	Continuous
Pilot Weather Report (PIREPs)		90	Continuous
Temporary Flight Restrictions (TFRs)	no product image	60	Continuous

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Terminal Aerodrome Reports (TAFs)	no product image	60	Continuous

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

Setting Up and Customizing the GFDS Weather Data Link Page

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'Weather Setup' highlighted, 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 GFDS Weather Data Link Page with the changed settings.

On aircraft equipped with both GFDS and XM WX Satellite Weather services, customizing the display settings for the corresponding weather products shown in following table will result in identical settings for both services.

XM Weather Product	GFDS Worldwide Weather Product
Next-generation Radar (NEXRAD)	Precipitation (PRECIP)
Cloud Top (CLD TOP)	Infrared Satellite (IR SAT)

XM Weather Product	GFDS Worldwide Weather Product
XM Lightning (XM LTNG)	GFDS Lightning (DL LTNG)
SIGMETs/AIRMETs (SIG/AIR)	SIGMETs/AIRMETs (SIG/AIR)
Meteorological Aerodrome Report (METARs)	Meteorological Aerodrome Report (METARs)
Winds Aloft (WIND)	Winds Aloft (WIND)
Pilot Weather Report (PIREPs)	Pilot Weather Report (PIREPs)

Restoring Default GFDS Weather Data Link Page Settings

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'Weather Setup' highlighted, 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.

Switching Between GFDS and XM Weather Sources

1) Turn the large **FMS** Knob on the MFD to select the MAP page group.
2) Turn the small **FMS** Knob to select the GFDS (or XM) Weather Data Link Page.
3) Press the **MENU** Key.
4) Turn the large **FMS** Knob to select 'Display GFDS Weather' or 'Display XM' Weather' (choice dependent on current weather source) and press the **ENT** Key.

Viewing Legends for Displayed GFDS Weather Products

1) Select the GFDS Weather Data Link Page.
2) Select 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 Legend Window, select the **LEGEND** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Setting Up and Customizing Weather Data for the Navigation Map Page

1) Select the 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 '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 Navigation Map Page with the changed settings.

GFDS Weather Data Requests

The GFDS Data Request window provides the flight crew with the options to define the requested weather coverage area(s), choose automatic weather update intervals (if desired), and the ability to send or cancel weather data requests. The window also displays the status of the GFDS data request process.

Requesting GFDS Weather Data Manually

1) Select the GFDS Weather Data Link Page.

2) Press the **MENU** Key.

3) With 'GFDS Weather 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 check or uncheck one of more of the following coverage selections:

- PRESENT POSITION – Requests data based on current location.
- DESTINATION – Requests data based on active flight plan destination (if the flight plan contains no destination, dashes '------" are displayed.)
- FPL – Requests data based on active flight plan. Turn the small **FMS** Knob to select the desired flight plan look-ahead distance option (or choose 'REMAINING FPL' to request the remainder of the flight plan).
- WAYPOINT – Requests data based on any valid waypoint.

5) Turn the large **FMS** Knob highlight to the 'DIAMETER / RTE 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 REQ' button is highlighted. Press the **ENT** Key to initiate the request immediately or press the **FMS** Knob to return to the GFDS Data Link Page without requesting data.

During a GFDS Data Request, the Request Status box initially displays "Contacting GFDS...". Once a connection is established, the Request Status Box displays "Receiving Wx Data... Time Remaining:" with an estimated data transfer time (either minutes or seconds). If desired, the GFDS Data Request window may be closed while the data request is processing by pressing the **FMS** Knob; the data request will continue to process in the background. GFDS Data Requests typically take between 1 to 4 minutes to complete depending on the size of the selected weather coverage area and Iridium signal strength.

The system retrieves all available Worldwide Weather products within the selected coverage area during an initial GFDS Data Request, regardless of which products (if any) are currently enabled for display. On subsequent requests, previously retrieved textual data (such as METARs and TAFS) is retained if it has not expired, while new textual weather data matching the current coverage area and all graphical weather data is downloaded during every data request.

If the system cannot complete a GFDS weather data request, one or more messages will appear in the request status window as shown in the following table.

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.
GFDS Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.
GFDS Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GDL 59 or a GIA is off-line.
GFDS Comm Error [5]	The Iridium or GFDS networks are not accessible. Check Iridium signal strength. If this error persists, the G1000H should be serviced.
GFDS Comm Error [6]	A communications error has occurred. It this error persists, the system should be serviced.
GFDS Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the data request.
GFDS Comm Error [8]	A server error has occurred or invalid data received.
GFDS Login Invalid	There is a problem with the GFDS registration. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or 913-397-8200, ext. 1135 for assistance.
GFDS Server Temporarily Inop	The GFDS weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
GFDS Server Inop	The GFDS weather data server will be out of service for at least 30 minutes.
Invalid Coverage Area	The weather data request coverage area does not contain at least one of the following: a waypoint, a flight plan, or a flight plan destination. Verify at least one of the coverage options is enabled (checked) and contains required criteria, then re-send the data request.

Weather Request Status Message	Description
No GFDS Subscription	The system is not be currently subscribed to GFDS, or the access code is incorrect. Verify the access code. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or 913-397-8200, ext. 1135 for assistance.
Reduce Request Area	The GFDS weather data request area exceeds size limits. Reduce weather coverage area and re-send data request.
Request Cancelled	The user has cancelled a GFDS weather data request.
Requested area too large. Reduce coverage area.	The size of the GFDS weather data request has exceeded limits. Reduce the size of the coverage area and try the weather data request again.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.
Transfer Preempted	The datalink is busy. Retry request later.

Cancelling a GFDS Weather Data Request in Progress

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Data Request' highlighted, press the **ENT** Key.
4) Turn the large **FMS** Knob to select 'CANCEL REQ' and press the **ENT** Key. The request status box indicates 'Request Cancelled'.
5) Press the **FMS** Knob to return to the GFDS Weather Datalink Page.

Enabling Automatic GFDS Data Requests

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Weather Request' highlighted, press the **ENT** Key.
4) Choose the desired weather coverage options.
5) Turn the large **FMS** Knob to select the 'UPDATE RATE' setting. Then turn the small **FMS** Knob to highlight the desired automatic update frequency (OFF, 5 Min, 10 Min, 15 Min, 20 Min, 25 Min, 30 Min, 45 Min, or 60 Min), then press the **ENT** Key.

6) The 'SEND REQ" button is highlighted and a countdown timer is displayed in the 'REQUEST STATUS' based on the currently selected update rate. Press the **ENT** Key to immediately send an immediate GFDS Data Request.

Or:

Press the **FMS** Knob to return to the GFDS Weather Data Link Page.

Worldwide Weather Products

Precipitation

NOTE: Precipitation data cannot be displayed at the same time as terrain.

Precipitation data is not real-time. The lapsed time between collection, processing, and dissemination of radar images can be significant and may not reflect the current radar synopsis. Due to the inherent delays and the relative age of the data, it should be used for long-range planning purposes only.

Displaying Precipitation Weather Information

1) Select the **MAP** Softkey (for the PFD Inset Map, select the **INSET** Softkey). This step is not necessary on the GFDS Weather Data Link Page.
2) Select the **PRECIP** Softkey.

Radar data shown represents lowest level, base reflectivity, of radar returns. The display of the information is color-coded to indicate the weather severity level. All weather product legends can be viewed on the GFDS Weather Data Link Page. For the Precipitation legend, select the **LEGEND** Softkey when Precipitation is selected for display.

Precipitation Limitations

Radar images may have certain limitations:

- Radar base reflectivity does not provide sufficient information to determine cloud layers or precipitation characteristics (wet hail vs. rain). For example, it is not possible to distinguish between wet snow, wet hail, and rain.
- Radar base reflectivity is sampled at the minimum antenna elevation angle. An individual radar site cannot depict high altitude storms at close ranges. It has no information about storms directly over the site.
- When zoomed in to a range of 30 nm, each square block on the display represents an area of four square kilometers.

The following may cause abnormalities in displayed radar images:

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

Infrared Satellite

Infrared Satellite (IR SAT) data depicts cloud top temperatures from satellite imagery. Brighter cloud top colors indicate cooler temperatures occurring at higher altitudes.

Displaying Cloud Tops information

1) Select the GFDS Weather Data Link Page.
2) Select the **IR SAT** Softkey.

To display the Infrared Satellite legend, select the **LEGEND** Softkey when Infrared Satellite data is selected for display.

Datalink Lightning

Lightning data shows the approximate location of cloud-to-ground lightning strikes. A strike icon represents a strike that has occurred within a two-kilometer region. Neither cloud-to-cloud nor the exact location of the lightning strike is displayed.

If the aircraft is also equipped with the L-3 WX-500 Stormscope®, only one lightning product may be enabled for display at a time.

Displaying Datalink Lightning information

1) Select the **MAP** Softkey (for the PFD Inset Map, select the **INSET** Softkey). This step is not necessary on the GFDS Weather Data Link Page.
2) Select the **DL LTNG** Softkey.

To display the Datalink Lightning legend on the Weather Data Link Page, select the **LEGEND** Softkey when Datalink Lightning is selected for display.

SIGMETs and AIRMETs

The entire SIGMET or AIRMET is displayed as long as any portion of it is occurring within the coverage area of the GFDS data request.

Displaying SIGMETs and AIRMETs

1) Select the GFDS Weather Data Link Page.
2) Select the **SIG/AIR** Softkey.
3) To view the text of the SIGMET or AIRMET, press the **RANGE** Knob and move the Map Pointer over the icon.
4) Press the **ENT** key.

To display the SIGMET and AIRMET legend, select the **LEGEND** Softkey when SIGMETs and AIRMETs are selected for display.

METARs and TAFs

NOTE: *METAR information is only displayed within the installed navigation database service area.*

METAR and TAF text are displayed on the Weather Information Page. TAF information is displayed in its raw form when it is available.

Displaying METAR and TAF text

1) On the GFDS Weather Data Link Page, select the **METAR** Softkey.
2) Press the **RANGE** Knob 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 GFDS Weather Data Link Page.

Or:

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

To display the METAR legend on the GFDS Weather Data Link Page, select the **LEGEND** Softkey when METARs are selected for display.

PIREPs

Pilot Weather Reports (PIREPs) describe in-flight weather encountered by pilots. A PIREP may contain adverse weather conditions not forecasted, such as low in-flight visibility, icing conditions, wind shear, turbulence, and type of aircraft flown. PIREPs are issued as either Routine (UA) or Urgent (UUA).

Displaying PIREP text

1) Select the GFDS Weather Data Link Page.
2) Select the **MORE WX** Softkey.
3) Select the **PIREPS** Softkey.
4) Press the **RANGE** Knob 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 PIREP text is first displayed in a decoded fashion, then as raw text.
6) Use the **FMS** Knob or the **ENT** Key to scroll through the PIREP text.
7) Press the **FMS** Knob or the **CLR** Key to close the PIREP text window and return to the GFDS Weather Data Link Page.

To display the PIREP or AIREP legend, select the **LEGEND** Softkey when PIREPs or AIREPs are selected for display.

The PIREP color is determined by the type (routine or urgent).

Winds Aloft

Winds Aloft data shows the forecasted wind speed and direction at the surface and at selected altitudes. Altitude can be displayed in 3,000-foot increments up to 42,000 feet MSL.

Displaying Winds Aloft data

1) Select the GFDS Weather Data Link Page.
2) Select the **MORE WX** Softkey.

3) Select the **WIND** Softkey.

4) Select the desired altitude level: SFC (surface) up to 42,000 feet. Select the **NEXT** or **PREV** Softkey to cycle through the altitude softkeys. The **WIND** Softkey label changes to reflect the altitude selected.

To display the Winds Aloft legend, select the **LEGEND** Softkey when Winds Aloft is selected for display.

TRAFFIC SYSTEMS

- If Traffic information Service (TIS) is configured, **STANDBY**, **OPERATE**, and **TNA MUTE** softkeys are displayed.
- If a Traffic Advisory System (TAS) is configured, **STANDBY**, **NORMAL**, **TEST**, and **ALT MODE** softkeys are displayed.

Traffic Symbol	Description
	Non-Threat Traffic (intruder is beyond 5 nm and greater than 1200' vertical separation)
	Proximity Advisory (PA) (Not available with TIS system) (intruder is within 5 nm and less than 1200' vertical separation)
	Traffic Advisory (TA) (closing rate, distance, and vertical separation meet TA criteria)
	Traffic Advisory Off Scale
	Traffic Advisory (TA) arrow with ADS-B directional information. Points in the direction of the intruder aircraft track (GTS 800 only).
	Proximity Advisory (PA) arrow with ADS-B directional information. Points in the direction of the aircraft track (GTS 800 only).
	Non-threat traffic arrow with ADS-B directional information. Points in the direction of the intruder aircraft track (GTS 800 only).
	PA or Non-threat traffic arrow with ADS-B directional information, but positional accuracy is degraded. Points in the direction of the aircraft track (GTS 800 only).

Traffic Symbol Description

Traffic Information Service (TIS)

NOTE: *If the G1000H is configured to use a Traffic Advisory System (TAS), TIS is not available for use.*

NOTE: *Traffic Information Service (TIS) is only available when the aircraft is within the service volume of a TIS capable terminal radar site.*

Displaying Traffic on the Traffic Map Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Traffic Map Page.
3) Press the **OPERATE** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.
4) Press the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.
5) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.
6) Press the **TNA MUTE** Softkey to mute the "Traffic Not Available" aural alert.

Displaying Traffic on the Navigation Map

1) Ensure TIS is operating. With the Navigation Map displayed, press the **MAP** Softkey.
2) Press the **TRAFFIC** Softkey. Traffic is now displayed on the map.

Traffic Advisory System (TAS)(Optional)

NOTE: *Radar altimeter data is optional for the Traffic Advisory System (TAS). If radar altimeter data is detected by the TAS at the beginning of a power cycle and that data is subsequently lost, the TAS will declare a fault and will not provide traffic information.*

Displaying Traffic on the Traffic Map Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Traffic Map Page.

3) Press the **OPERATE** or **NORMAL** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.

4) Press the **ALT MODE** Softkey to change the altitude volume. Select the desired altitude volume by pressing the **BELOW**, **NORMAL**, **ABOVE**, or **UNREST** (unrestricted) Softkey. The selection is displayed in the Altitude Mode field.

5) Press the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.

6) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

7) Press the **FLT ID** Softkey to enable or disable Flight ID displayed with the intruder information.

System Self Test

1) With the Traffic Map Page displayed, set the range to 2/6 nm.

2) Press the **STANDBY** Softkey.

3) Press the **TEST** Softkey.

4) Self test takes approximately eight seconds to complete. When completed successfully, traffic symbols are displayed and a voice alert is heard (see Alerts and Annunciations section). If the self test fails, the system reverts to Standby Mode and a voice alert is heard.

Displaying Traffic on the Navigation Map

1) Ensure TAS is operating.

2) With the Navigation Map displayed, press the **MAP** Softkey.

3) Press the **TRAFFIC** Softkey. Traffic is now displayed on the map.

TERRAIN AWARENESS & WARNING SYSTEM (HTAWS) DISPLAY

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

NOTE: *The data contained in the HTAWS databases comes from government agencies. Garmin accurately processes and cross-validates the data but cannot guarantee the accuracy and completeness of the data.*

NOTE: *Terrain data is not displayed when the aircraft is outside the installed terrain database coverage area.*

Displaying the HTAWS Page:

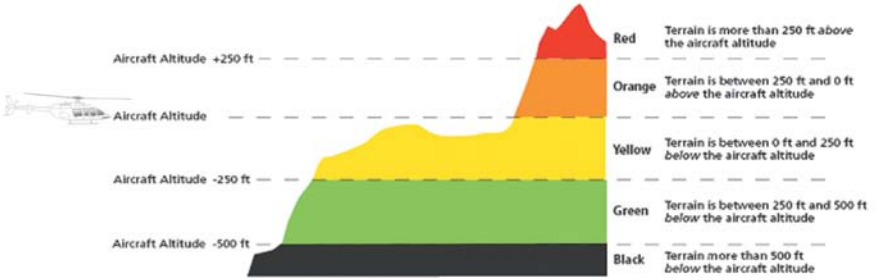
1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select HTAWS Page.

Changing the HTAWS Page view:

1) Press the **VIEW** Softkey.
2) Press the **360** or **ARC** Softkey to select the desired view.

Or:

1) Press the **MENU** Key.
2) Select 'View Arc' or 'View 360º' and press the **ENT** Key to change the view.



Terrain Altitude/Color Correlation for HTAWS

Unlighted Obstacle		Lighted Obstacle		Obstacle Location
< 1000' AGL	> 1000' AGL	< 1000' AGL	> 1000' AGL	
				Red obstacle is at or above current aircraft altitude
				Yellow obstacle is between 0' and 250' below current aircraft altitude
				Gray obstacle is 250' or more below current aircraft altitude

HTAWS Obstacle Colors and Symbology

Potential Impact Point Symbol	Alert Type	Example Annunciation
	Warning	TERRAIN
	Caution	TERRAIN

HTAWS Potential Impact Point Symbols with Alert Types

Showing/hiding aviation information on the HTAWS 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.

Manually testing the HTAWS System:

1) Select the HTAWS Page.

2) Press the **MENU** Key.

3) Select 'Test HTAWS System' and press the **ENT** Key to confirm the selection.

Muting/Unmuting Caution Alerts:

1) Turn the large FMS Knob to select the HTAWS Page on the MFD.
2) Press the **MUTE CTN** Softkey.

Or:

1) Press the **MENU** Key.
2) Select 'Mute Active Caution' or 'Unmute Active Caution' (choice dependent on current state) and press the **ENT** Key.

Inhibiting/enabling PDA and FLTA alerting:

1) Select the HTAWS Page.
2) Press the **INHIBIT** Softkey to inhibit or enable HTAWS (choice dependent on current state).

Or:

1) Press the **MENU** Key.
2) Select 'Inhibit HTAWS' or 'Enable HTAWS' (choice dependent on current state) and press the **ENT** Key.

Configuring VCO alerting altitudes:

1) Turn the large **FMS** knob to select the AUX - System Setup Page.
2) If the Aux - System Setup 2 Page is not already displayed, press the **SETUP 2** Softkey.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the altitude shown in the MAX SELECTED field.
5) Turn the small **FMS** Knob to select the maximum altitude at which VCO alerts will be enabled from (from 50 to 500 feet), or select NONE to disable all VCO alerts.
6) When finished, press the FMS Knob.

ADDITIONAL FEATURES

SYNTHETIC VISION

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

WARNING: *Do not use SVS 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.*

Synthetic Vision System (SVS) functionality is offered as an enhancement to the G1000H Integrated Flight Deck System.

SVS is primarily comprised of a computer-generated forward-looking, attitude aligned view of the topography immediately in front of the aircraft from the pilot's perspective. SVS information is shown on the primary flight display (PFD).

SVS offers a three-dimensional view of terrain and obstacles. Terrain and obstacles that pose a threat to the aircraft in flight are shaded yellow or red.

In addition to SVS enhancement to the PFD, the following feature enhancements have been added to the PFD:

- Pathways
- Flight Path Marker
- Horizon Heading Marks
- Terrain and Obstacle Alerting
- Three-dimensional Traffic
- Airport Signs
- Runway Display

Displaying SVS Terrain

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) Press the **SYN TERR** Softkey.
4) Press the **BACK** Softkey to return to the previous page.

Displaying Pathways

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) If not already enabled, press the **SYN TERR** Softkey.
4) Press the **PATHWAY** Softkey.
5) Press the **BACK** Softkey to return to the previous page.

Displaying Heading on the Horizon

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) If not already enabled, press the **SYN TERR** Softkey.
4) Press the **HRZN HDG** Softkey.
5) Press the **BACK** Softkey to return to the previous page.

Displaying Airport Signs

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) If not already enabled, press the **SYN TERR** Softkey.
4) Press the **APTSIGNS** Softkey.
5) Press the **BACK** Softkey to return to the previous page.

TERMINAL PROCEDURE CHARTS

NOTE: With the availability of SafeTaxi®, ChartView, or FliteCharts®, it may be necessary to carry another source of charts on-board the aircraft.

SafeTaxi® (Optional)

SafeTaxi® gives greater map detail as the map range is adjusted in on the airport. The airport display on the map reveals runways with numbers, taxiways identifiers, and airport landmarks including ramps, buildings, control towers, and other prominent features. Resolution is greater at lower map ranges. The aircraft symbol provides situational awareness while taxiing.

Pressing the **DCLTR** Softkey (declutter) once removes the taxiway markings and airport identification labels. Pressing the **DCLTR** Softkey twice removes VOR station ID, the VOR symbol, and intersection names if within the airport plan view. Pressing

the **DCLTR** Softkey a third time removes the airport runway layout, unless the airport in view is part of an active route structure. Pressing the **DCLTR** Softkey again cycles back to the original map detail.

The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams provide the pilot with situational awareness by displaying the aircraft position in relation to taxiways, ramps, runways, terminals, and services. This information should not be used by the pilot as the basis for maneuvering the aircraft on the ground. This database is updated on a 56-day cycle.

ChartView (Optional)

ChartView resembles the paper version of Jeppesen terminal procedures charts. The charts are displayed in full color with high-resolution. The MFD depiction shows the aircraft position on the moving map in the plan view of most approach charts and on airport diagrams.

The ChartView database is updated on a 14-day cycle. If the ChartView database is not updated within 70 days of the expiration date, ChartView will no longer function.

FliteCharts® (Optional)

FliteCharts® resemble the paper version of AeroNav Services terminal procedures charts. The charts are displayed with high-resolution and in color for applicable charts. Current aircraft position is not displayed on FliteCharts.

The FliteCharts database contains procedure charts for the United States only. This database is updated on a 28-day cycle. If not updated within 180 days of the expiration date, FliteCharts will no longer function.

View Charts from the Navigation Map Page

1) Press the **SHW CHRT** Softkey when displayed.

   Or:

   Move the map pointer to point to a desired point on the map and press the **SHW CHRT** Softkey.

2) Press the **DP, STAR, APR, WX,** and **NOTAM** softkeys to access charts for departures, arrivals, approaches, weather and NOTAMs Note that NOTAMS are only available with ChartView.

3) Press the **GO BACK** Softkey to return to the previous page.

View Charts from the Active Flight Plan Page

1) While viewing the Active Flight Plan Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to select the departure airport, destination airport, departure, arrival, or approach.
3) Press the **SHW CHRT** Softkey. The appropriate chart is displayed, if available for the item selected.
4) Press the **GO BACK** Softkey to return to the previous page.

Change Day/Night View

1) While viewing a 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 between the 'FULL SCREEN' and 'COLOR SCHEME' Options.
4) Turn the small **FMS** Knob to choose between the 'On' and 'Off' Full Screen Options.
5) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
6) In Auto Mode, turn the large **FMS** Knob to select the percentage field and change percentage with the small **FMS** Knob. The percentage of change is the day/night crossover point based on backlighting intensity.
7) Press the **FMS** Knob when finished to remove the Chart Setup Menu.

AOPA AIRPORT DIRECTORY

AOPA Airport Directory adds enhanced airport information when viewing airports on the WPT-Airport Information Page.

This database is updated four times per year. Check fly.garmin.com for the current database.

View Airport Directory Information

While viewing the WPT-Airport Information Page, if necessary, press the **INFO-1** Softkey to change the softkey label to display **INFO-2**. AOPA airport information is displayed on the right half of the display.

SATELLITE TELEPHONE AND DATA LINK SERVICES (OPTIONAL)

NOTE: *Separate accounts must be established to access the Iridium satellite network for voice and Garmin Flight Data Services for data transmission of maintenance reports.*

Operation of these features in the cockpit is accomplished through the AUX-TELEPHONE, AUX-TEXT MESSAGING, AUX-REPORT STATUS, and AUX-WI-FI SETUP Pages.

Registering the Iridium Satellite System

A subscriber account must be established for each Iridium transceiver prior to using the Iridium Satellite System for telephone services. Before setting up an Iridium account, obtain the serial number of the Iridium Transceiver (GSR1) and the System ID by selecting the AUX- SYSTEM STATUS Page. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or 913-397-8200, ext. 1135.

After a subscriber account has been established, the system must be registered for datalink features such as reporting services or GFDS World Wide Weather. Registration is accomplished by entering the required access code. This process is only performed when initially setting up the system for GFDS services.

Registering the system for datalink services

1) With the aircraft outside and having a clear view of the sky, turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select the AUX-SYSTEM STATUS. Note the System ID number in the AIRFRAME field.
3) Turn the small **FMS** Knob to select the AUX-REPORTS STATUS or AUX-WI-FI SETUP Page.
4) If necessary, select the **REPORTS** Softkey. The AUX-REPORT STATUS Page is now displayed.
5) Press the **MENU** Key. The Page Menu window is now displayed.
6) Select 'Register With GFDS' in the menu list.
7) Press the **ENT** Key. The Garmin Flight Data Service Registration window is now displayed.
8) Enter the last four digits of the System ID number in the Access Code field.
9) Press the **ENT** Key. REGISTER will now be highlighted.

10) Press the **ENT** Key. System registration is complete when 'REGISTERED' is displayed in the STATUS field.

11) Enter the last four digits of the System ID number in the Access Code field.

12) Press the **ENT** Key. REGISTER will now be highlighted.

13) Press the **ENT** Key. System registration is complete when 'REGISTERED' is displayed in the STATUS field.

Disable/Enable Iridium Transceiver

Iridium telephone and data communications may be turned on or off by performing these simple steps.

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 REPORTS/DATA LINK.

3) If necessary, select the **REPORTS** Softkey. The AUX-REPORT STATUS Page is now displayed.

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'.

Telephone Communication

The pilot or copilot can place and answer calls on the Iridium satellite network. Control and monitoring of telephone functions are accomplished through the AUX-TELEPHONE Page.

To view the 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-TELEPHONE Page.

Internal Phone	External Phone	Description
		Phone is Idle
		Phone is ringing
		Phone has a dial tone (off hook) or connected to another phone
		Phone dialed is busy
		Phone is dialing another phone
		Phone has failed
		Phone status not known
		Phone is disabled
		Phone is reserved for data transmission
		Calling other phone or incoming call from other phone
		Other phone is on hold
		Phones are connected

Incoming Calls

When viewing MFD pages other than the AUX-TELEPHONE Page, a pop-up alert will be displayed. The pop-up alert may be inhibited at times, such as during takeoff. In addition to the pop-up alert, a ringing phone symbol will be displayed to the right of the MFD page title. Also, the voice alert "Incoming Call" will be heard on the selected cockpit audio.

Answering an incoming call:

1) Press the **TEL** Key on the appropriate audio panel.
2) Select the **ANSWER** Softkey on the MFD.

   Or:

   While viewing the AUX-TELEPHONE Page:

NOTE: *The Push-to-Talk switch is not utilized for telephone communication. The microphone is active after selecting the* ***ANSWER*** *Softkey, and stays active until the call is terminated.*

1) Press the **TEL** Key on the appropriate audio panel.
2) Press the **MENU** Key to display the Page Menu.
3) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call'.
4) Press the **ENT** Key.

Selecting the **IGNORE** Softkey will extinguish the pop-up window and leave the current call unanswered. Selecting the **IGNRE ALL** Softkey will extinguish the pop-up window for the current and all future incoming calls and leave the current call unanswered. Selecting the **TEL** Softkey will display the AUX-TELEPHONE Page allowing additional call information to be viewed before answering.

Disabling 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.

Outgoing Calls

Voice calls can be made from the cockpit through the Iridium Satellite Network.

To make a call from the cockpit using the Iridium satellite network:

1) Press the **TEL** Key on the audio panel.
2) Select the **DIAL** Softkey on the MFD.
3) Enter the desired telephone number (country code first) by selecting the number softkeys on the MFD.
4) Press the **ENT** Key. 'OK' is highlighted.
5) Press the **ENT** Key. The system will begin calling the number.

When the phone is answered, the connection is established. To exit the call, select the **HANGUP** Softkey.

Placing The Call on Hold

Select 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.

The phone is now isolated from the call. Select the **HOLD** Softkey again to resume the call.

Text Messaging (SMS)

Messages may be sent to an email address or text message capable cellular telephone. Message length is limited to 160 characters, including the email address.

The text messaging user interface is mainly through the AUX-TEXT MESSAGING Page.

Viewing the 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 SATELLITE PHONE.
3) If necessary, press the **SMS** Softkey to display the AUX-TEXT MESSAGING Page.

Message Symbol	Description
	Received text message that has not been opened
	Received text message that has been opened
	Saved text message, draft not sent
	System is sending text message
	Text message has been sent
	System failed to send text message
	Predefined text message

Viewing a Text Message When Received

When viewing MFD pages other than the AUX-TEXT MESSAGING Page, a pop-up alert will be displayed when a new text message is received.

Press the **VIEW** Softkey to view the message. Pressing the **IGNORE** Softkey will extinguish the pop-up window and leave the text message unopened. Pressing the **IGNR ALL** Softkey will extinguish the pop-window and ignore all future incoming text messages. Pressing the **SMS** Softkey will display the AUX-TEXT MESSAGING Page.

The pop-up alerts may be enabled or disabled through the Page Menu.

Enable/Disable 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.

Reply to a Text Message

While viewing the text message, press the **REPLY** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Reply To Message'.

c) Press the **ENT** Key.

Sending a Text Message

1) While viewing the AUX-TEXT MESSAGING Page, 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 Message'.

c) Press the **ENT** Key.

2) The 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 **FMS** Knob 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 **CAP LOCK** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **SYMBOLS** Softkey.

3) Press the **ENT** Key. The cursor is now displayed in the 'MESSAGE' field.

4) Enter the desired message using any combination of entry methods as described in step 2.

5) Press the **ENT** Key.

6) Press the **SEND** Softkey to send the message immediately, 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.

Predefined Text Messages

Time and effort can be saved in typing text messages that are used repeatedly by saving these messages as a predefined message.

Create 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 MESSSAGES 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 **FMS** Knob 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 **CAP LOCK** 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.

10) Press the **MENU** Key to display the Page Menu.

11) Turn either **FMS** Knob to place the cursor on 'Stop Editing Predefined Message'.

12) Press the **ENT** Key.

Send a Predefined Text Message

1) While viewing the AUX-TEXT MESSAGING Page, press the **NEW** Softkey.

2) The 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 **FMS** Knob 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 **CAP LOCK** 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.

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.

Text Message Boxes

Received text messages reside in the Inbox as 'Read' or 'Unread' messages. The Outbox contains 'Sent" and 'Unsent' text messages. Saved messages that are meant to be sent later are stored as Drafts. Each text message box may be viewed separately, or together in any combination.

Show Inbox Messages

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **INBOX** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Inbox Messages'.

c) 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 **OUTBOX** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Outbox Messages'.

c) 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 **DRAFTS** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Draft Messages'.

c) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Arranging Text Messages

The viewed messages may be listed according to the date/time the message was sent or received, the type of message (read, unread, sent, unsent, etc.), or by message address.

View Messages Sorted by Message Date/Time:

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **TIME** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Date/Time'.

c) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

View Messages Sorted by Message Type

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **TYPE** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Type'.

c) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

View Messages Sorted by Address:

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **ADDRESS** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Address'.

c) 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.

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.

Mark 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.

Mark 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.

WI-FI CONNECTIONS (OPTIONAL)

Control and monitoring of Wi-Fi functions are accomplished through the AUX-WI-FI SETUP Page.

Viewing the Wi-Fi 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 REPORTS/DATA LINK.
3) If necessary, press the **WI-FI** Softkey to display the AUX-WI-FI SETUP Page.

Setting Up a New Wi-Fi Connection

1) Press the **AVAIL** Softkey on the MFD. A list of available networks will be displayed in the AVAILABLE NETWORKS window. Signal strength is shown for each network, as well as security methods and whether the network has been saved in the system's memory.
2) If necessary, press the **RESCAN** Softkey to have the system scan again for available networks.
3) Press the **FMS** Knob to place the cursor in the list of networks.
4) Turn either **FMS** Knob to select the desired network.
5) Press the **CONNECT** Softkey.
6) If the network is secured, enter the necessary passcode. Use the **FMS** Knobs to enter the desired alpha numeric characters. Press the **CAP LOCK** Softkey to enter upper case letters. If there is no security associated with the network, proceed to step 9.
7) Press the **ENT** Key. 'OK' will be highlighted.
8) Press the **ENT** Key again.
9) The SAVE SETTINGS window is now displayed with the cursor highlighting 'SAVE CONNECTION'.
10) The selected network can be saved to system memory to make reconnection easier at a later time.

    To connect the selected network without saving:

    a) Turn the large FMS Knob to move the cursor to highlight 'CONNECT'.
    b) Press the **ENT** Key.

To save and connect the selected network:

a) Press the **ENT** Key. A checkmark is placed in the checkbox and the cursor moves to the airport field.

b) Using the **FMS** Knobs, enter an airport identifier to be associated with the saved network. This aids in identifying the network later in the event of duplicate network names.

c) Press the **ENT** Key. The cursor moves to 'CONNECT'.

d) Press the **ENT** Key again to connect to the selected network.

Editing a Saved Network

1) While viewing list of saved networks, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to highlight the network to be edited.
3) Pressing the **ENT** Key at this point will check or uncheck the AUTO CONNECT checkbox. When a checkmark is present, the system will automatically connect to the network when within range.
4) Press the **EDIT** Softkey. The cursor now appears in the CONNECTION SETTINGS window.
5) Turn the large **FMS** Knob to select the network attribute to be edited.
6) Turn the small **FMS** Knob to begin editing the field.
7) When the entry is complete, press the **ENT** Key.
8) Turn the large **FMS** Knob or press the **ENT** Key until 'SAVE' is highlighted.
9) Press the **ENT** Key.

Disconnecting a Wi-Fi Network

Press the **DISCNCT** Softkey.

Deleting a Saved Wi-Fi Network

1) While viewing the list of saved networks, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to highlight the network to be deleted.
3) Press the **DELETE** Softkey. The selected network is removed from the list.

SYSTEM DATA LOGGING (OPTIONAL)

NOTE: *An account must be established with Garmin Flight Data Services to make full use of the System Data Logging feature.*

Control and monitoring of report transmissions is accomplished through the AUX-REPORT STATUS Page.

Viewing the Report Status Page

1) Turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select REPORTS/DATA LINK.
3) If necessary, press the **REPORT** Softkey to display the AUX-REPORT STATUS Page.

Changing the Transmission Method

1) While viewing the Report Status Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to move the cursor to the 1st or 2nd transmit method for the desired data report.
3) Turn the small **FMS** Knob to select the desired option (SAT SHORT BURST, SAT RUDICS, WI-FI, or NONE). Sat Short Burst is generally used for transmission of data packets less than 300 bytes. Wi-Fi is used only when the aircraft on the ground and the system is connected to a Wi-Fi network.
4) Press the **ENT** Key.

Enabling/disabling Automatic Send for Automatic Test Reports

1) While viewing the Report Status Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to move the cursor to the AUTOMATIC SEND field.
3) Turn the small **FMS** Knob to select ENABLED or DISABLED.
4) Press the **ENT** Key.

Enabling/disabling Periodic Send for Periodic Test Reports

1) While viewing the Report Status Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to move the cursor to the PERIODIC SEND field.

3) Turn the small **FMS** Knob to select ENABLED or DISABLED.
4) Press the **ENT** Key.

Sending a Transmission Manually

NOTE: Manual transmission of data can only be performed while the aircraft is on the ground.

1) While viewing the Report Status Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to move the cursor to the send button on the desired data report.
3) Press the **ENT** Key.

Restore Reports Page Options to Default Settings

1) While viewing the Report Status Page, press the **MENU** Key.
2) Turn the **FMS** Knob to select 'Restore Defaults' in the menu list.
3) Press the **ENT** Key.
4) A confirmation window is now displayed.
5) Turn the large **FMS** Knob to select 'YES' or 'NO'.
6) With 'YES' highlighted, press the **ENT** Key.

SIRIUSXM® RADIO ENTERTAINMENT (OPTIONAL)

The XM® Radio Page provides information and control of the audio entertainment features of the SiriusXM Satellite Radio.

Selecting the XM Radio Page

1) Turn the large **FMS** Knob to select the Auxiliary Page Group.
2) Turn the small **FMS** Knob to select the displayed AUX - XM Information Page.
3) Press the **RADIO** Softkey to show the XM Radio Page where audio entertainment is controlled.

Active Channel and Channel List

The Active Channel Box on the XM Radio Page displays the currently selected channel. The Channels List Box of the XM Radio Page shows a list of the available channels for the selected category.

Selecting a Category

The Category Box of the XM Radio Page displays the currently selected category of audio.

1) Press the **CATGRY** Softkey on the 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.
3) Press the **ENT** Key.

Select an Available Channel within the Selected Category

1) While on the XM Radio Page, press the **CHNL** Softkey.
2) Press the **CH +** Softkey to go up through the list in the Channel Box, or move down the list with the **CH –** Softkey.

   Or:

   Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.
3) With the desired channel highlighted, press the **ENT** Key.

Entering a Channel Directly

1) While on the XM Radio Page, press the **CHNL** Softkey.
2) Press the **DIR 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.

Assigning Channel Presets

Up to 15 channels from any category can be assigned a preset number.

1) On the XM Radio Page, while listening to an Active Channel that is wanted for a preset, press the **PRESETS** Softkey to access the first five preset channels (**PS1 - PS5**).
2) Press the **MORE** Softkey to access the next five channels (**PS6 – PS10**), and again to access the last five channels (**PS11 – PS15**). Pressing the **MORE** Softkey repeatedly cycles through the preset channels.
3) Press the **SET** Softkey.
4) Press any one of the (**PS1 - PS15**) softkeys to assign a number to the active channel.

Adjusting Volume

1) On the XM Radio Page, press the **RADIO** Softkey.
2) Press the **VOL** Softkey to access the volume control softkeys.
3) Press **VOL +** or **VOL -** softkeys to adjust the volume level.
4) Press the **MUTE** Softkey to mute the radio audio.

AUXILIARY VIDEO (OPTIONAL)

Display 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.

Adjusting Video Settings

1) With the AUX-VIDEO Page displayed, press the **SETUP** Softkey.
2) Press the **BRIGHT -** or **BRIGHT +**, to adjust display brightness in five percent increments from 0 to 100%.
3) Press the **CNTRST-** or **CNTRST +**, to adjust display contrast in five percent increments from 0 to 100%.
4) Press the **SAT -** or **SAT +**, to adjust display saturationin five percent increments from 0 to 100%.
5) Press the **BACK** Softkey to return to the previous softkey level.

Press the **RESET** Softkey to return the display to the default settings.

Input Selection

With the AUX-VIDEO Page displayed, press the **INPUT** Softkey to switch between Input 1 and Input 2.

Display Selection

With the AUX-VIDEO Page displayed, press the **HIDE MAP** Softkey to switch between Split-Screen and Full Display.

Zoom/Range

1) Press the **VID ZM +** or **VID ZM -** Softkeys to increase or decrease the video display magnification between 1x and 10x.
2) Use the Joystick to adjust the current displayed portion of the full display.

The **RANGE** Knob can be used to increase or decrease the range setting on the map display or zoom in and out on the video display. While in the Split-Screen mode, pressing the **MAP ACTV** or **VID ACTV** Softkey determines which display the **RANGE** Knob adjusts. Pressing the softkey to display MAP ACTV allows the **RANGE** Knob to control the range setting of the map display. Pressing the softkey to display VID ACTV allows the **RANGE** Knob to control the zoom setting of the video display.

Blank Page

ABNORMAL OPERATION

REVERSIONARY MODE

Should a system detected failure occur in either display, the G1000H automatically enters reversionary mode. In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

Reversionary display mode can be manually activated by pressing the DU BACKUP Button on the instrument panel.

NOTE: *The Bell 407GX Rotorcraft Flight Manual (RFM) always takes precedence over the information found in this section.*

ABNORMAL COM OPERATION

When a COM tuning failure is detected by the system, the emergency frequency (121.500 MHz) is automatically loaded into the active frequency field of the COM radio for which the tuning failure was detected. In the event of a failure of both PFDs, the emergency frequency (121.500 MHz) automatically becomes the active frequency on both COM radios.

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

If GPS position is lost, or becomes invalid, selected hazards being displayed on the Navigation Map Page are removed until GPS position is again established.

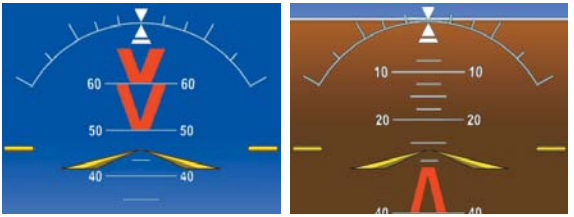
Loss of Hazard Functions with Loss of GPS Position

UNUSUAL ATTITUDES

The PFD 'declutters' when the aircraft enters an unusual attitude. Only the primary functions are displayed in these situations.

The following information is removed from the PFD (and corresponding softkeys are disabled) when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Flight director Command Bars
- Inset Map
- Temperatures
- DME Information Window
- Wind Data
- Selected Heading Box
- Selected Course Box
- Transponder Status Box
- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
  - Timer/References
  - Nearest Airports
  - Flight Plan
  - Messages
  - Procedures
  - DME Tuning
- Barometric Minimum Descent Altitude Box
- Glideslope, Glidepath, and Vertical Deviation Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude



Extreme Pitch Indication

DEAD RECKONING

While in Enroute or Oceanic phase of flight, if the G1000H 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 G1000H 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.

NOTE: *Dead Reckoning Mode only functions in Enroute (ENR) or Oceanic (OCN) phase of flight. In all other phases, an invalid GPS solution produces a "NO GPS POSITION" annunciation on the map and the G1000H stops navigating in GPS Mode.*

DR Mode is indicated on the G1000H by the appearance of the letters 'DR' superimposed in yellow over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is prominently displayed, also in yellow, on the HSI slightly above and to the right of the aircraft symbol on the CDI as shown in the following figure. Also, the CDI deviation bar is removed from the display. 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.

It is important to note that estimated navigation data supplied by the G1000H 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 estimating your 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 G1000H 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 compounds the relative inaccuracy of DR Mode. Because of this degraded accuracy, the crew must maintain position awareness using other navigation equipment until GPS-derived position data is restored.

CDI 'DR' Indication on PFD

Symbolic Aircraft (Map pages and Inset Map)

Dead Reckoning Indications

As a result of operating in DR Mode, all GPS-derived data is computed based upon an estimated position and is displayed as yellow text on the display to denote degraded navigation source information. This data includes the following:

- Navigation Status Box fields except Active Leg, TAS, and DTK
- GPS Bearing Pointer
- Wind data and pointers in the Wind Data Box on the PFD
- Current Track Indicator
- All Bearing Pointer Distances
- Active Flight Plan distances, bearings, and ETE values

Also, while the G1000H is in DR Mode, HTAWS is disabled. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

ANNUNCIATIONS & ALERTS

WARNING MESSAGES

See the Rotorcraft Flight Manual (RFM) for recommended pilot actions.

Annunciation Text	Description	Audio Alert
BATTERY HOT	Battery overheat detected.	Single Chime
ENGINE FIRE	Fire/Overheat detector senses a temperature greater than or equal to 338°F.	Continuous Chime
ENGINE OUT	Ng less than 55% or FADEC senses engine out.	Continuous Fast-Pulsing Chime
ENGINE OVSPD	Ng greater than 110% or NP vs torque is above maximum continuous limit.	Single Chime
FADEC FAIL	Both the primary and reversionary channels have failed.	Repeating Ding-Dong Chime
XMSN OIL PRESS	Transmission oil pressure is low.	Single Chime
XMSN OIL TEMP	Transmission oil overheat is detected.	Single Chime

CAUTION MESSAGES

See the Rotorcraft Flight Manual (RFM) for recommended pilot actions.

Annunciation Text	Description	Audio Alert
BAGGAGE DOOR	Baggage door is not securely latched.	Single Ping
BATTERY RLY	Battery relay energized when battery switch is off. Battery still connected to DC bus.	
ENGINE CHIP	Chip detector has detected debris in engine oil.	
FADEC DEGRADED	FADEC fault detected that may result in degraded engine performance.	
FADEC FAULT	A fault is recorded in the FADEC.	
FADEC MANUAL	FADEC is in manual operating mode.	
FLOAT ARM	Floats Arm switch is in the armed position.	
FUEL FILTER	External fuel filter is partially blocked before impending bypass.	

Annunciation Text	Description	Audio Alert
FUEL LOW	Fuel feed tank sensor indicates low fuel. 100 ± 10 pounds of fuel remain in aft tank.	Single Ping
FUEL VALVE	Fuel valve is in transition or is not in the commanded position.	
GEN FAIL	Generator not connected to DC bus.	
HEATER OVERTMP	An over temperature condition has been detected either under the pilot's seat, copilot's seat, or in the vertical tunnel.	
HYDRAULIC SYS	Low pressure in hydraulic system.	
L/FUEL BOOST	Left fuel boost pump has failed.	
L/FUEL XFR	Left fuel transfer pump has failed.	
LITTER DOOR	Litter door is not securely latched.	
MGT EXCEED	MGT is in exceedance.	
MGT MISCOMP	MGT miscompare event.	
NG EXCEED	Engine Ng is in exceedance.	
NG MISCOMP	Ng miscompare event.	
NP EXCEED	Engine NP is in exceedance.	
NP MISCOMP	NP miscompare event.	
NR MISCOMP	NR miscompare event.	
PEDAL STOP	Pedal stop check or failed to engage or disengage upon command. Or, loss of ADC inputs.	
Q EXCEED	Engine torque is in exceedance.	
Q MISCOMP	Q miscompare event.	
R/FUEL BOOST	Right fuel boost pump has failed.	
R/FUEL XFR	Right fuel transfer pump has failed.	
T/R CHIP	T/R Chip Detector has detected debris.	
XMSN CHIP	Transmission Chip Detector has detected debris in transmission oil.	

ADVISORY MESSAGES

See the Rotorcraft Flight Manual (RFM) for recommended pilot actions.

Annunciation Text	Description
ALTN DATA FAIL	Alternate engine data source is not available.
AUTO RELIGHT	Engine igniter is operating.
ENG ANTI-ICE	Engine Anti-Ice valve is open, pressure is high.
FADEC MAINT	FADEC lamp test failure during power-up self test and in flight.
INSTR FAN	Instrument panel area fan has failed.
NG OAT LIMIT	Engine Ng limited due to OAT.
QUIET MODE SEL	Quiet Mode switch is in quiet position.
RESTART FAULT	ECU fault will not allow start in AUTO (ECU) Mode.
START	Engine starter is engaged.

SAFE OPERATING ANNUNCIATION

Annunciation Text	Description
FLOAT TEST	Float system is in test mode.
QUIET MODE ON	Engine Quiet Mode is on.
WOG	Aircraft is on the ground.

HTAWS ALERTS

Alert Type	PFD/HTAWS Page Alert Annunciation	MFD Pop-Up Alert (except HTAWS Page)	Aural Message
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	OBSTACLE	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	OBSTACLE	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	OBSTACLE	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	OBSTACLE	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Voice Callout (VCO)	None	None	"Five Hundred" "Four Fifty" "Four Hundred" "Three Fifty" "Three Hundred" "Two Fifty", "Two Hundred" "One Fifty" "One Hundred" "Fifty"

HTAWS Alerts Summary

HTAWS SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/HTAWS Page Status Annunciation	HTAWS Page Center Banner Annunciation	Aural Message
System Test in Progress	HTAWS TEST	HTAWS TEST	None
System Test Pass	None	None	"HTAWS Test OK"
HTAWS System Failure	HTAWS FAIL	HTAWS FAIL	"HTAWS Failure"
HTAWS Not Available	HTAWS N/A	None	"HTAWS Not Available"
HTAWS FLTA Alerting Inhibited	HTAWS INH	None	None
HTAWS Availability Restored	None	None	"HTAWS Available"*
Reduced Protection Mode Enabled	RP MODE	None	None
MFD Terrain or Obstacle database unavailable or invalid. HTAWS operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None
Terrain or Obstacle database unavailable or invalid on all displays, invalid software configuration, HTAWS audio fault	HTAWS FAIL	HTAWS FAIL	"HTAWS Failure"
No GPS position	HTAWS N/A	NO GPS POSITION	"HTAWS Not Available" "HTAWS Available" when GPS position returns. and HTAWS is not inhibited.

Alert Type	PFD/HTAWS Page Status Annunciation	HTAWS Page Center Banner Annunciation	Aural Message
Excessively degraded GPS signal	HTAWS N/A	None	"HTAWS Not Available" "HTAWS Available" when sufficient GPS signal is received. and HTAWS is not inhibited.
Out of database coverage area	HTAWS N/A	None	"HTAWS Not Available" "HTAWS Available" when aircraft enters database coverage area and HTAWS is not inhibted.

** Aural message not issued if HTAWS is inhibited.*

VOICE ALERTS

Voice Alert	Description
"Minimums, minimums"	The aircraft has descended below the preset barometric minimum descent altitude.
"Vertical track"	The aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"Traffic"	Played when a Traffic Advisory (TA) is issued (TIS and GTS 800).
"TIS Not Available"	The aircraft is outside the Traffic Information Service (TIS) coverage area.
"Traffic, Traffic"	Played when a Traffic Advisory (TA) is issued (Skywatch TAS system).
"TAS System Test Passed"	Played when the GTS 800 TAS system passes a pilot-initiated self test.
"TAS System Test Failed"	Played when the GTS 800 TAS system fails a pilot-initiated self test.
"One o'clock" through "Twelve o'clock" or "No Bearing"	Intruder bearing (GTS 800 only)

Voice Alert	Description
"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	Intruder relative altitude (GTS 800 only)
"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"	Intruder distance (GTS 800 only)

MFD & PFD MESSAGE ADVISORIES

Message	Comments
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFDs with preferred settings, if desired.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD and/or MFD self-test has detected a problem. The system should be serviced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	
MANIFEST – PFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – MFD1 software mismatch, communication halted.	
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFD have different software versions installed. The system should be serviced.

MFD & PFD MESSAGE ADVISORIES (CONT.)

Message	Comments
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD and/or MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD and/or MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 KEYSTK – MFD [key name] Key is stuck.	
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.

DATABASE MESSAGE ADVISORIES

Message	Comments
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD and/or PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 navigation database error exists.	
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD and/or PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 basemap database error exists.	
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD and/or PFD detected a failure in the terrain database. Ensure that the terrain card is properly inserted in display. Replace terrain card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 terrain database missing.	
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD and/or PFD detected a failure in the obstacle database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database error exists.	
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 obstacle database missing.	
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD and/or PFD detected a failure in the Safe Taxi database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD detected a failure in the ChartView database (optional feature). Ensure the data card is properly inserted. Replace data card. If problem persists, system should be serviced.
MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD detected a failure in the FliteCharts database (optional feature). Ensure the data card is properly inserted. Replace data card. If problem persists, system should be serviced.
MFD1 DB ERR – MFD1 Airport Directory database error exists.	The MFD detected a failure in the Airport Directory database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFD and MFD have different navigation database versions or regions installed. Crossfill is off. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFD and MFD have different terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFD and MFD have different obstacle database versions or regions 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.
NAV DB UPDATED – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.
TERRAIN DSP – [PFD1 or MFD1] Terrain awareness display unavailable.	One of the terrain or obstacle databases required for HTAWS in the specified PFD or MFD is missing or invalid.

GMA 350H MESSAGE ADVISORIES

Message	Comments
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.

GMA 350H MESSAGE ADVISORIES (CONT.)

Message	Comments
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.

GIA 63H MESSAGE ADVISORIES

Message	Comments
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 and/or GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 and/or GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	
GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 COOLING – GIA2 temperature too low.	
GIA1 COOLING – GIA1 over temperature.	The GIA1 and/or GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 over temperature.	
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 and/or GIA2 self-test has detected a problem in the unit. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	

GIA 63H MESSAGE ADVISORIES (CONT.)

Message	Comments
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 and/or GIA 2 has incorrect software installed. The system should be serviced.
MANIFEST – GIA2 software mismatch, communication halted.	
MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
MANIFEST– COM1 software mismatch, communication halted.	COM1 and/or COM2 software mismatch. The G1000 system should be serviced.
MANIFEST– COM2 software mismatch, communication halted.	
MANIFEST– NAV1 software mismatch, communication halted.	NAV1 and/or NAV2 software mismatch. The G1000 system should be serviced.
MANIFEST– NAV2 software mismatch, communication halted.	
COM1 CONFIG – COM1 config error. Config service req'd.	COM1 and/or COM2 configuration settings do not match backup configuration memory. The G1000 system should be serviced.
COM2 CONFIG– COM2 config error. Config service req'd.	
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1 and/or COM2. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1 and/or COM2. COM1 and/or COM2 may still be usable. The system should be serviced when possible.
COM2 SERVICE – COM2 needs service. Return unit for repair.	

GIA 63H MESSAGE ADVISORIES (CONT.)

Message	Comments
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 and/or COM2 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	
COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 and/or COM2 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV only minimums.
TRUE APR – True north approach. Change HDG reference to TRUE.	Displayed after passing the first waypoint of a true north approach when the nav angle is set to 'AUTO'.
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 and/or NAV2 receiver. The receiver may still be available. The system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	

GIA 63H MESSAGE ADVISORIES (CONT.)

Message	Comments
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 and/or NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The system should be serviced.
G/S2 FAIL – G/S2 is inoperative.	
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The receiver may still be available. The system should be serviced when possible.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	

GEA 71H MESSAGE ADVISORIES

Message	Comments
GEA1 CONFIG – GEA1 config error. Config service req'd.	The GEA1 configuration settings do not match those of backup configuration memory. The G1000H system should be serviced.
MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA 71 has incorrect software installed. The G1000H system should be serviced.

GTX 33H MESSAGE ADVISORIES

Message	Comments
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.

GRS 77H MESSAGE ADVISORIES

Message	Comments
AHRS1 TAS – 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.
AHRS1 GPS – AHRS1 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.

GMU 44 MESSAGE ADVISORIES

Message	Comments
HDG FAULT – 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 G1000H system should be serviced.
MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The G1000H system should be serviced.

GSR 56H MESSAGE ADVISORIES

Message	Comments
GSR1 FAIL – GSR1 has failed.	A failure has been detected in the #1 GSR 56H. The system should be serviced.

GDL 59H MESSAGE ADVISORIES

Message	Comments
GDL59 CONFIG – GDL 59 config error. Config service req'd.	GDL 59H configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL59 FAIL – GDL 59 has failed.	A failure has been detected in the GDL 59H. The receiver is unavailable. The system should be serviced.
GDL59 SERVICE – GDL 59 needs service. Return unit for repair.	A failure has been detected in the GDL 59H. The system should be serviced.
GDL59 RTR FAIL – The GDL 59 router has failed.	A failure has been detected in the GDL 59H router. The system should be serviced.
REGISTER GFDS – Data services are inoperative, register w/GFDS.	The GDL 59H is not registered with Garmin Flight Data Services, or it's current registration data has failed authentication.
MANIFEST – GDL software mismatch, communication halted.	The GDL 59H has incorrect software installed. The system should be serviced.

GDL 69AH MESSAGE ADVISORIES

Message	Comments
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69AH configuration settings do not match those of backup configuration memory. The G1000H system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69AH. The receiver is unavailable. The G1000H system should be serviced
MANIFEST – GDL software mismatch, communication halted.	The GDL 69AH has incorrect software installed. The G1000H system should be serviced.

GDC 74H MESSAGE ADVISORIES

Message	Comments
MANIFEST – GDC1 software mismatch, communication halted.	The GDC 74H has incorrect software installed. The G1000H system should be serviced.

GTS 800 MESSAGE ADVISORIES

Message	Comments
GTS CONFIG – GTS config error. Config service req'd.	The GTS and GDU have incompatible configurations. This alert is also set when the GTS has an invalid mode S address configured or the mode S address does not match both XPDR mode S addresses.
MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The G1000H system should be serviced.

MISCELLANEOUS MESSAGE ADVISORIES

Message	Comments
FPL WPT LOCK – 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.
FPL WPT MOVE – Flight plan waypoint moved.	The system has detected that a waypoint coordinate has changed due to a new navigation database update. Verify that stored flight plans contain correct waypoint locations.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
DB CHANGE – Database changed. Verify user modified procedures.	This occurs when a stored flight plan contains procedures that have been manually edited. This alert is issued only after an navigation database update. Verify that the user-modified procedures in stored flight plans are correct and up to date.
DB CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify use of airways in stored flight plans and reload airways as needed.
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
LOCKED FPL – 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.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
APR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV – Unavailable. Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
VNV – Unavailable. Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
VNV – Unavailable. Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
NO WGS84 WPT – Non WGS 84 waypoint for navigation -[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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
FAILED PATH – A data path has failed.	A data path connected to the GDU, or the GIA 63H has failed.
MAG VAR WARN – Large magnetic variance. 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°.
SVS – SVS DISABLED: Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVS – SVS DISABLED: Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
CHECK CRS – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
[PFD1 or MFD1] CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the PFD or MFD. The SD card needs to be reinserted.
[PFD1 or MFD1] CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the PFD or MFD. The SD card needs to be reinserted.
[PFD1 or MFD1] CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the PFD or MFD contains invalid data.
[PFD1 or MFD1] CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the PFD or MFD contains invalid data.
HDG PRESET MODE – Magnetic anomoly detected. HPM is available.	The magnetometer has detected a magnetic anomoly that could affect heading indications. Heading Preset Mode may be used.
USER MAG VAR – User magnetic variation is active.	User magnetic variation mode was selected during previous operation and is still active (checked at power-up.)

FLIGHT PLAN IMPORT/EXPORT MESSAGES

In some circumstances, some messages may appear in conjunction with others.

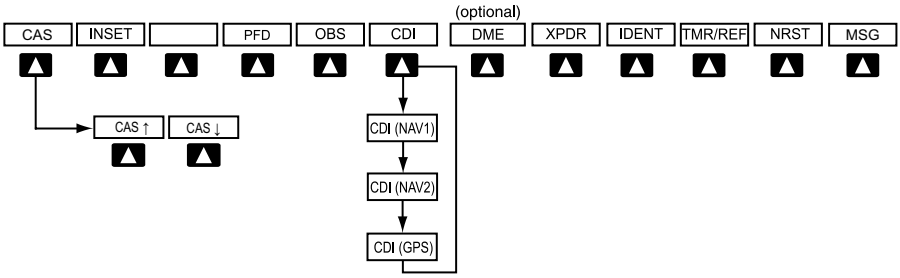
Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. One or more of these waypoints did not import successfully.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints that 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.

FLIGHT PLAN IMPORT/EXPORT MESSAGES (CONT.)

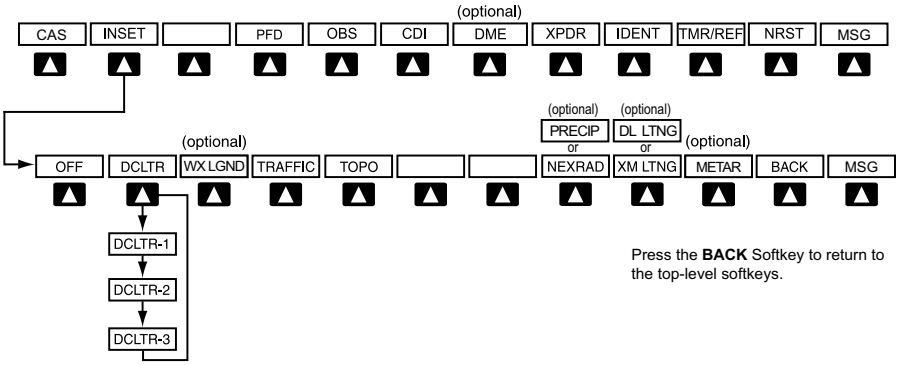
Flight Plan Import/Export Results	Description
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.
'Flight plan 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.

APPENDIX

PFD SOFTKEY MAP



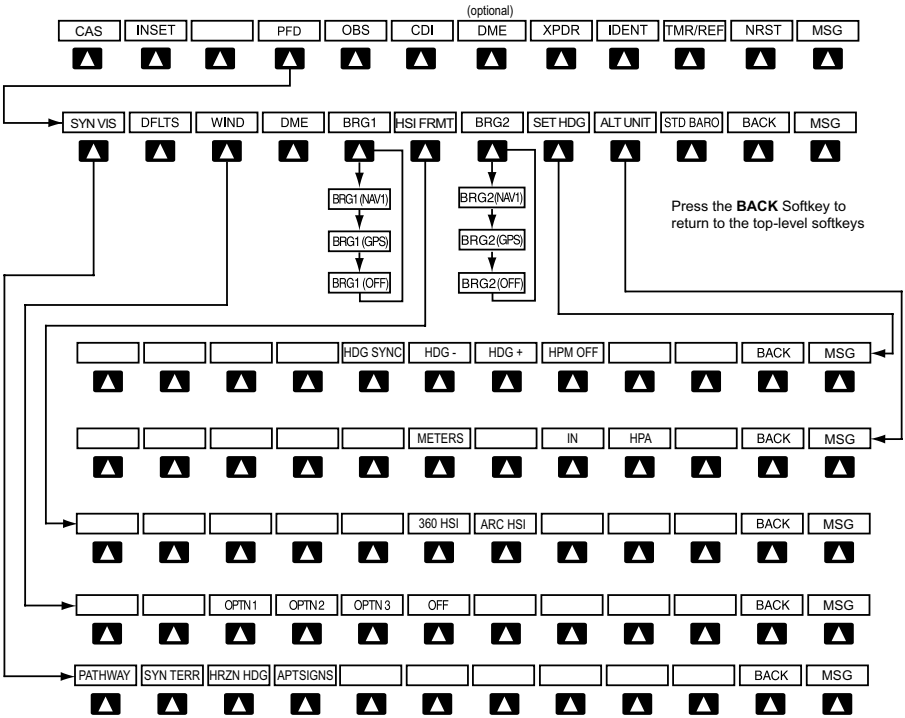
Top Level PFD Softkeys



Inset Map Softkeys

Level 1	Level 2	Level 3	Description
CAS			Displays the scroll-up and scroll-down softkeys when the number of CAS messages exceeds the maximum capable of being displayed in the window
	CAS ↑		Moves the cursor up through the displayed messages
	CAS ↓		Moves the cursor down through the displayed messages

Level 1	Level 2	Level 3	Description
INSET			Displays Inset Map in PFD lower left corner
	OFF		Removes Inset Map
	DCLTR (3)		Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan
	WX LGND		Displays icon and age on the Inset Map for the selected weather products (optional)
	TRAFFIC		Displays traffic information on Inset Map
	TOPO		Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map
	NEXRAD **or** **PRECIP**		Displays NEXRAD weather and coverage information on Inset Map (optional) Displays Worldwide Weather precipitation on Inset Map (optional)
	XM LTNG **or** **DL LTNG**		Displays XM lightning information on Inset Map (optional) Displays Worldwide Weather lightning information on Inset Map (optional)
	METAR		Displays METAR flags on airport symbols shown on the Inset Map (optional)

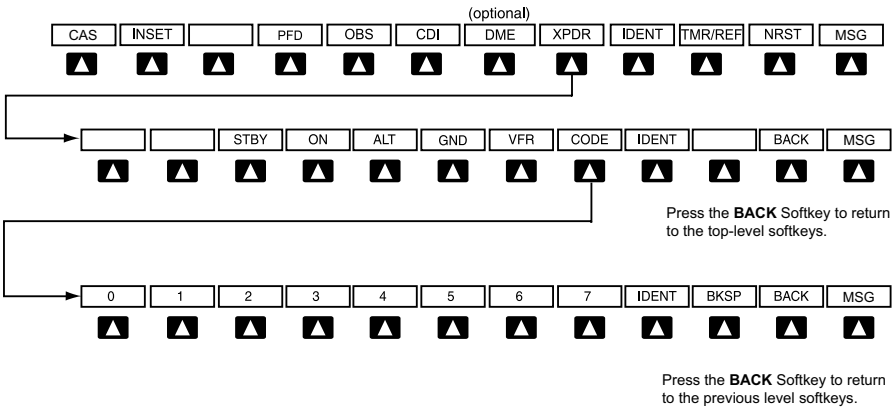


PFD Configuration Softkeys

Level 1	Level 2	Level 3	Description
PFD			Displays second-level softkeys for additional PFD configurations
	SYN VIS		Displays the softkeys for enabling or disabling Synthetic Vision features
		PATHWAY	Displays rectangular boxes representing the horizontal and vertical flight path of the active flight plan
		SYN TERR	Enables synthetic terrain depiction
		HRZN HDG	Displays compass heading along the Zero-Pitch line

Level 1	Level 2	Level 3	Description
		APTSIGNS	Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are displayed when the airport is within approximately 9 nm.
	DFLTS		Resets PFD to default settings, including changing units to standard
	WIND		Displays softkeys to select wind data parameters
		OPTN 1	Headwind/tailwind and crosswind arrows with numeric speed components
		OPTN 2	Wind direction arrow and numeric speed
		OPTN 3	Wind direction arrow with numeric direction and speed
		OFF	Information not displayed
	DME		Displays the DME Information Window
	BRG1		Cycles the Bearing 1 Information Window through NAV1 or GPS/ waypoint identifier and GPS-derived distance information.
	HSI FRMT		Displays the HSI formatting softkeys
		360 HSI	Displays the HSI in a 360 degree format
		ARC HSI	Displays the HSI in an arc format
	BRG2		Cycles the Bearing 2 Information Window through NAV2 or GPS/ waypoint identifier and GPS-derived distance information.
	SET HDG		Enables Heading Preset Mode
		HDG SYNC	Synchronizes heading to the selected heading
		HDG -	Slews heading counterclockwise
		HDG +	Slews heading clockwise

Level 1	Level 2	Level 3	Description
		HPM OFF	Manually disables Heading Preset Mode
	ALT UNIT		Displays softkeys for setting the altimeter and BARO settings to metric units
		METERS	When enabled, displays altimeter in meters
		IN	Press to display the BARO setting as inches of mercury
		HPA	Press to display the BARO setting as hectopacals
	STD BARO		Sets barometric pressure to 29.92 in Hg (1013 hPa)

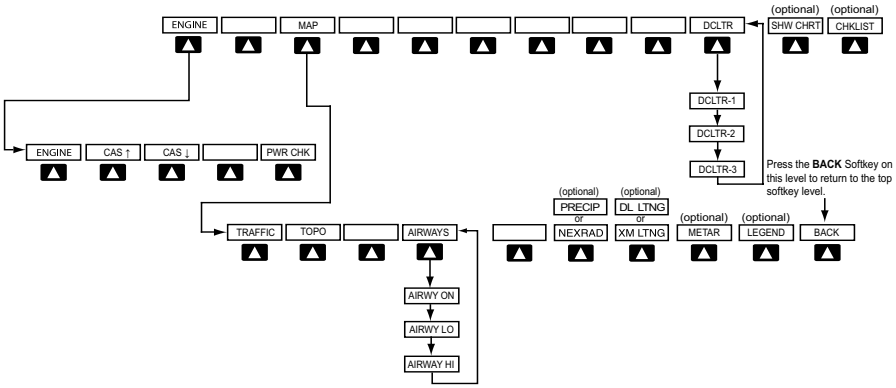


Transponder Softkeys

Level 1	Level 2	Level 3	Description
XPDR			Displays transponder mode selection softkeys
	STBY		Selects Standby Mode (transponder does not reply to any interrogations)
	ON		Selects Mode A (transponder replies to interrogations)

Level 1	Level 2	Level 3	Description
	ALT		Selects Mode C – Altitude Reporting Mode (transponder replies to identification and altitude interrogations)
	GND		Manually selects Ground Mode, the transponder does not allow Mode A and Mode C replies, but it does permit acquisition squitter and replies to discretely addressed Mode S interrogations.
	VFR		Automatically enters the VFR code (1200 in the U.S.A. only)
	CODE		Displays transponder code selection softkeys 0-7
	IDENT		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
		0 — 7	Use numbers to enter code
		BKSP	Removes numbers entered, one at a time
IDENT			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
TMR/REF			Displays Timer/References Window
NRST			Displays Nearest Airports Window
MSG			Displays Messages Window

MFD SOFTKEY MAP



MFD Softkeys

Level 1	Level 2	Level 3	Description
ENGINE			Displays the EIS-Engine Page
	CAS ↑		Scroll up (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)
	CAS ↓		Scroll down (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)
	PWR CHK		Displays fuel system softkeys
MAP			Enables second-level Navigation Map softkeys
	TRAFFIC		Displays traffic information on Navigation Map
	TOPO		Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Navigation Map

Level 1	Level 2	Level 3	Description
	AIRWAYS		Displays airways on the map; cycles through the following: AIRWAYS: No airways are displayed AIRWY ON: All airways are displayed AIRWY LO: Only low altitude airways are displayed AIRWY HI: Only high altitude airways are displayed
	NEXRAD **or** **PRECIP**		Displays NEXRAD weather and coverage information on Inset Map (optional) Displays Worldwide Weather precipitation on Inset Map (optional)
	XM LTNG **or** **DL LTNG**		Displays XM lightning information on Inset Map (optional) Displays Worldwide Weather lightning information on Inset Map (optional)
	METAR		Displays METAR flags on airport symbols shown on the Navigation Map
	LEGEND		Displays the legend for the selected weather products. Available only when NEXRAD, XM LTNG, and/or METAR softkeys are selected.
	BACK		Returns to top-level softkeys
DCLTR			Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan

Level 1	Level 2	Level 3	Description
SHW CHRT			When available, displays optional airport and terminal procedure charts
CHKLIST			When available, displays optional checklists

LOADING UPDATED DATABASES

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

NOTE: *When loading database updates, the 'DB Mismatch' message will be displayed until database synchronization is complete, followed by turning system power off, then on. Synchronization can be monitored on the AUX-SYSTEM STATUS Page.*

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.

If an error occurs during synchronization, an error message will be displayed, followed by the affected display in the Sync Status section of the Database Window. If synchronization completes on one display, but an error occurs on another, the error message will be displayed with the affected diaplays listed after it. When an error message is displayed, the problem must be corrected before synchronization can be completed. A power cycle is required to restart synchronization when 'Card Full' or 'Err' is shown.

Error Message	Description
Canceled	Database synchronization has been canceled by removing the bottom SD card in display being updated
Card Full	SD card does not contain sufficient memory
Err	Displayed for all other errors that may cause the synchronization process to be halted
Timeout	System timed-out prior to the database transfer completing

Loading Garmin Database Updates

1) With system power OFF, remove the MFD database card from the bottom card slot of the MFD.
2) Update the Garmin databases on the MFD card.
3) Insert the MFD database card into the bottom card slot of the MFD.
4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. When updating the terrain and FliteCharts databases, a 'Verifying' message may be seen. If this message is present, wait for the system to finish loading before proceeding to step 5.
5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.
6) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
7) Turn the small **FMS** Knob to select the System Status Page.
8) Monitor the Sync Status in the Database Window. Wait for all databases to complete synching, indicated by 'Complete' being displayed.
9) Remove and reapply power to the system.
10) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
11) Turn the small **FMS** Knob to select the System Status Page.
12) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB**, **PFD1 DB**). Verify the correct database cycle information is shown for each database for each display.

Loading the Jeppesen Navigation Database as the Active Navigation Database

NOTE: *Loading the Jeppesen navigation database as the active database prior to its effective date will result in the expiration date on the power-up screen and the effective date on the AUX-System Status Page being displayed in yellow.*

NOTE: *After the navigation database is loaded or copied, the top SD card may be removed.*

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display (PFD or MFD) to be updated (label of SD card facing left).
2) Turn the system ON. A prompt is displayed in the upper left corner of the display:
3) Press the **NO** Softkey to proceed to loading the active database.
4) A prompt similar to the following is displayed. Press the **YES** Softkey to update the active navigation database.
5) After the update completes, the display starts in normal mode.
6) Turn the system OFF and remove the SD card from the top card slot.
7) Repeat steps 1 through 6 for the other displays (PFD or MFD).
8) Apply power to the system and press the **ENT** Key to acknowledge the startup screen.
9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
10) Turn the small **FMS** Knob to select the System Status Page.
11) Press the Display Database Selection Softkey to show active navigation database information for each display (**MFD1 DB**, **PFD1 DB**). Verify the correct active navigation database cycle information is shown for each display.

Loading the Jeppesen Navigation Database as the Standby Navigation Database

NOTE: *After the navigation database is loaded or copied, the top SD card may be removed.*

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the MFD.
2) Verify that an SD card is inserted in the bottom slot of each PFD and the MFD.
3) Turn the system ON. A prompt is displayed.
4) Press the **YES** Softkey. The navigation database is copied to the SD card in the bottom card slot of the MFD.
5) After the navigation database files are copied to the bottom SD card, press any key to continue, as instructed.

6) Again, press any key to continue as instructed on the display.

7) Press the **NO** Softkey. The display now starts in normal mode. Since the database effective date is not yet valid, it should not be loaded as the active database. The display now starts in normal mode. Do not remove power while the display is starting.

8) Press the **ENT** Key to acknowledge the startup screen.

9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

10) Turn the small **FMS** Knob to select the System Status Page.

11) The new database is copied to the SD card in the bottom card slot of each PFD. Progress can be monitored in the SYNC STATUS field. When copying is finished, 'Complete' is displayed.

NOTE: *During the synchronization process, version differences between standby navigation databases will exist. This will result in the system displaying a 'DB Mismatch' alert for the standby navigation databases. This alert will remain until the next power cycle.*

12) Turn system power OFF.

13) Remove the SD card from the top card slot of the MFD.

14) Turn system power ON.

15) Press the **ENT** Key to acknowledge the startup screen.

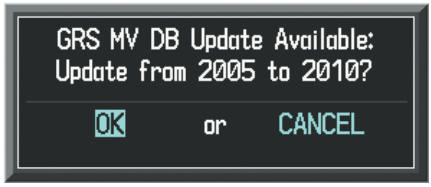
16) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

17) Turn the small **FMS** Knob to select the System Status Page.

18) Press the Display Database Selection Softkey to show standby navigation database information for each display (**MFD1 DB**, **PFD1 DB**). Verify the correct standby navigation database cycle information is shown for each display.

Magnetic Field Variation Database Update

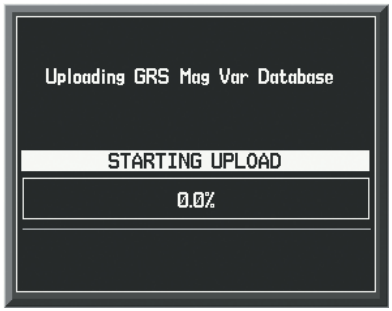
At startup, the system compares this version of the MV DB with that presently being used by the AHRS (GRS). If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page, as shown in the following figure.



GRS Magnetic Field Variation Database Update Prompt

Loading the magnetic field variation database update:

With 'OK' highlighted, as shown in the previous figure, press the ENT Key on the MFD. A progress monitor is displayed as shown in the following figure.



Uploading Database to GRS

When the upload is complete, the system is ready for use.

Blank Page

Symbols

A

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P

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S

T

V

W

X

Blank Page

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