G1000H® Integrated Flight Deck

Cockpit Reference Guide for the Bell 505 Jet Ranger X

JRX

Bell 505 JET RANGER X

GARMIN®

This manual reflects the operation of System Software 2472.00 or later for the Bell 505 Jet Ranger X. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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

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

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

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

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

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

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

WARNING: *The displayed minimum safe altitude (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: *Always obtain qualified instruction prior to operational use of this equipment.*

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

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

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

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

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

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

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

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

CAUTION: *Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and affect the airworthiness of the aircraft.*

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

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

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

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

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

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

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

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

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

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

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

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

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

NOTE: *Lamp(s) inside this product 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*

NOTE: *When operating the system with the magnetic sensor uncoupled from the AHRS, the displayed heading and heading information used by some system components (e.g. traffic system, AFCS, and weather radar) will be different from the heading calculated by the AHRS. The difference is an amount equal to the difference between the current Magnetic Field Variation Database (MV DB) value, and the MV DB value when the magnetic sensor was uncoupled. Due to the convergence of isogonic lines, this condition is most noticeable at or near the north and south magnetic poles.*

NOTE: *Operate G1000H system power through at least one cycle in a period of four days of continuous operation to avoid an autonomous system reboot.*

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
190-02065-00	Production Release

Revision	Date of Revision	Affected Pages	Description
A	October, 2016	All	Initial release at GDU 15.11

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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 cyan tuning box over the NAV1 standby frequency in the upper left corner of the PFD.
2) Press the **CDI** Softkey a second 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/DISABLE OBS MODE WHILE NAVIGATING WITH GPS (IF AVAILABLE)

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 (IF AVAILABLE)

1) Press the **SENSOR** Softkey on the PFD.
2) Press the **SET HDG** Softkey. The system is in Heading Preset Mode (HPM) as indicated by displaying 'SET' to the left of the heading value.
3) 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 (IF AVAILABLE)

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 amber 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.

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

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the Minimums field.
3) Turn the small **FMS** Knob to select BARO, TEMP COMP, or RAD ALT. OFF is selected by default. Press the **ENT** Key or turn the large **FMS** Knob to highlight the next field.
4) Use the small **FMS** Knob to enter the desired altitude (from zero to 16,000 feet for BARO, or from zero to 2,500 for RAD ALT).
5) If TEMP COMP was selected, press the **ENT** Key or turn the large **FMS** Knob to highlight the next field and then enter the destination airport temperature (-59˚C to 59˚C). The temperature compensated altitude minimum is displayed below the previously enter minimum altitude value.
6) 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.

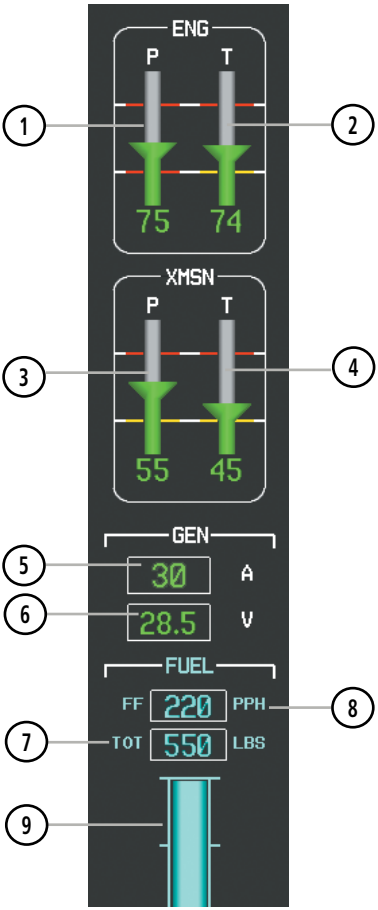
CHANGING HSI FORMAT

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

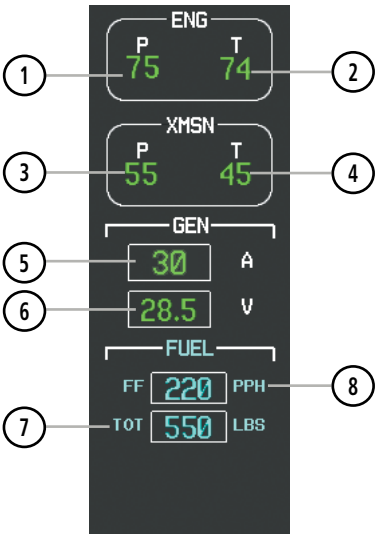
   Or:

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

ENGINE INDICATION SYSTEM



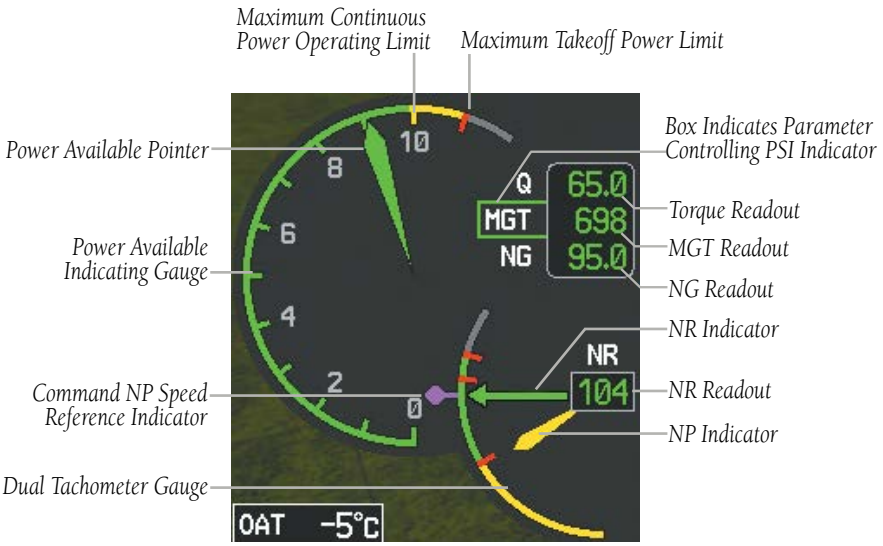
MFD EIS Display (Normal)



EIS Display (Reversionary)

(1) **Engine Oil Pressure (P)**	Displays pressure of oil supplied to the engine in pounds per square inch (psi).
(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 5 amperes increments
(6) **Voltmeter (V)**	Displays the electrical bus voltage
(7) **Total Fuel Quantity**	Displays the usable fuel quantity in 5 pound increments.
(8) **Fuel Flow Indicator (FF PPH)**	Displays fuel flow in 10 pound increments.
(9) **Total Fuel Quantity**	Displays total usable fuel quantity as a bar graph in 5 pound increments

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. A box is shown around the label for the display currently closest to its maximum continuous power (MCP) limits. This value also controls a Power Available Pointer along a numeric scale from 0 (no power) to Takeoff Power (TOP, shown with a red tick mark).

Power available information is displayed along the PSI scale and is adjusted dynamically in response to all parameters, to show the rate and range of pointer movement available, before any parameter reaches the Maximum Continuous Takeoff Power limit. Green arcs indicate continuous operation ranges; amber arcs indicate transient operating limits. A gray arc becomes red if the Power Available pointer enters this range; it indicates an exceedance is pending or may be occurring.

In normal operations, the Power Available pointer will be the same color as the arc it is presently within. A gray pointer is displayed when an engine failure is detected while in-flight.

The Commanded Np Speed reference indicator is displayed in magenta circle with a thin tick mark that extends to the arc scale in normal operations. When Np Speed information is invalid or in autorotation mode, the Np Speed reference indicator is white.

Takeoff Timer

After the engine has been started, if Q, MGT, and NG are within the takeoff limitation ranges, the G1000H displays a 5-minute countdown timer inside the PSI gauge. The timer flashes amber when 30 seconds remain, until an exceedance occurs. The timer displays red, when an exceedance occurs and the timer reaches zero. The timer is automatically removed when either Q, MGT and NG fall below takeoff limits.

Dual Tachometer

The dual tachometer displays rotor speed (NR) and power turbine speed (NP) as percentages. A digital display and pointer for NR and a pointer for NP are provided. The long pointer represents NR along the gauge scale; NP is shown with the short pointer. Limitations are shown as colored arcs. The NR and NP pointers will be the same color as the arc(s) they are presently within.

During autorotation with an engine failure, the NP pointer will be displayed in gray and the dual tachometer gauge scale will display power-off limitations.

POWER ASSURANCE CHECK

NOTE: *Follow the procedures in the 505 Flight Manual (FM) for configuring the AUX-System Setup page and for information on the required conditions to conduct a power check prior to activating the feature on the G1000H.*

Performing a power assurance check:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **PWR CHK** Softkey.

When the Power Assurance Check is activated, a 'PWR CHK' box is displayed containing a progress meter. When the helicopter configuration for the Power Assurance Check is successfully completed, "COMPLETE" will be displayed. When the helicopter configuration for the Power Assurance Check is invalid, an error message is displayed. Otherwise, the Power Assurance Check will complete after 15 seconds. Dashes are displayed if data used to perform the Power Assurance Check is not available.

ENGINE TESTS

NOTE: Refer to the 505 Flight Manual (FM) for engine operating limitations and corrective actions.

Audio Alert Test (AUD)

Performing the audio alert test:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **TEST** Softkey.
3) Press the **AUD TST** Softkey.

Chip Detector Test

Performing the chip detector test:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **TEST** Softkey.
3) Press the **CHIP TST** Softkey.

Fire Detection System Test

Performing the fire detection system test:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **TEST** Softkey.
3) Press the **FIRE TST** Softkey.

Auxiliary Control Unit Test (ACU)

Performing the auxiliary control unit test:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **TEST** Softkey.
3) Press the **ACU TST** Softkey.

Flame Out Protection System Test (FOPS)

Performing the flame out protection system test:

1) Press the **ENGINE** Softkey to display the Engine Page.
2) Press the **TEST** Softkey.
3) Press the **FOPS TST** Softkey.

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. Up to 12 messages can be displayed; when more than 12 messages accumulate, the **CAS** Softkey becomes available. Pressing the **CAS** Softkey displays softkeys for scrolling up and down through the messages in the PFD CAS Window. In Reversionary Mode, the **CAS** Softkey takes the place of the **INSET** Softkey.

CAS Message Display (PFD)

CAS alerts are additionally displayed on the upper left of the EIS - Engine page. Up to 19 messages can be displayed; when more than 19 messages accumulate, the **CAS↑** and **CAS↓** Softkeys will become available 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 505 Flight Manual (FM). Refer to the 505 FM for recommended pilot actions.*

CAS messages are grouped by criticality (warning, caution, advisory, and status) 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.

- **Warning** (red) – Immediate crew awareness and immediate crew action required.
- **Caution** (amber) – Immediate crew awareness and subsequent corrective action required.
- **Advisory** (white) – Crew awareness required and subsequent action may be required.
- **Status** (green) – Crew awareness required.

When a warning or caution CAS message is generated, the MSG Softkey label in the lower right corner of the PFD changes to display the WARNING or CAUTION annunciation. The softkey annunciation flashes and the corresponding aural alert sounds until acknowledged by depressing the softkey..

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NAV/COM/TRANSPONDER/AUDIO PANEL

ADF TUNING (OPTIONAL)

Tune the ADF using the remote ADF control head.

ENTER A TRANSPONDER CODE

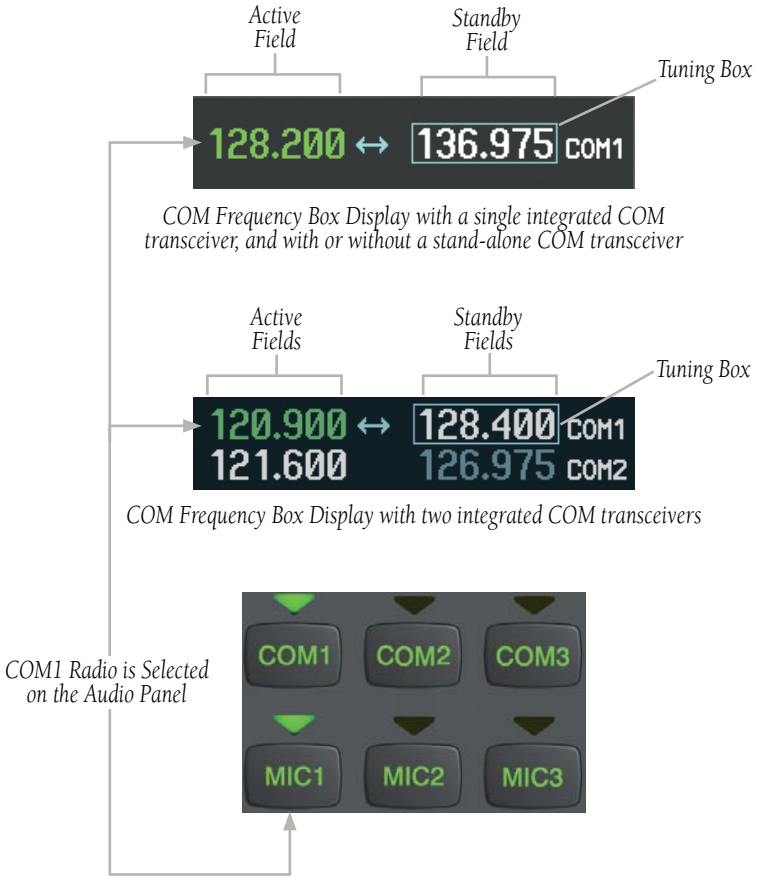
1) Press the **XPDR** Softkey to display the transponder mode selection softkeys.
2) Press the **CODE** Softkey to display the transponder code selection softkeys, for digit entry.
3) Press the digit softkeys to enter the code in the code field. When entering the code, the next key in sequence must be 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 (if installed) 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 for the other COM radio (if installed) is gray.



Selecting a COM Radio for Transmit

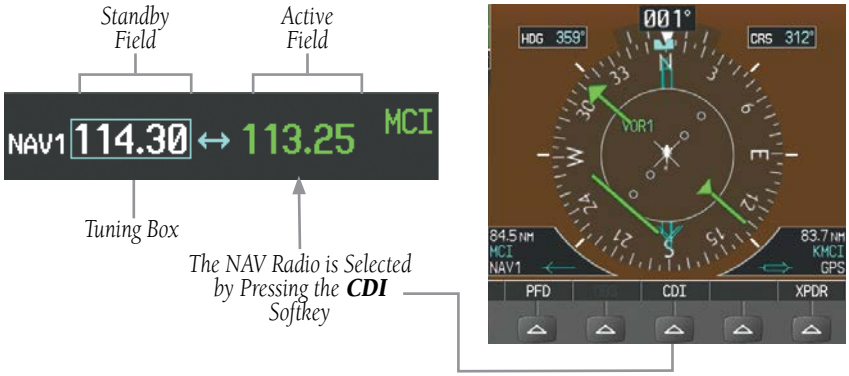
SELECTING A NAV RADIO

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 (if equipped) 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 (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 (if equipped) is selected, a green double line arrow (not 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 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 cyan 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.

The Play function is accessed through Voice Recognition commands. Refer to the Voice Recognition section for more information.

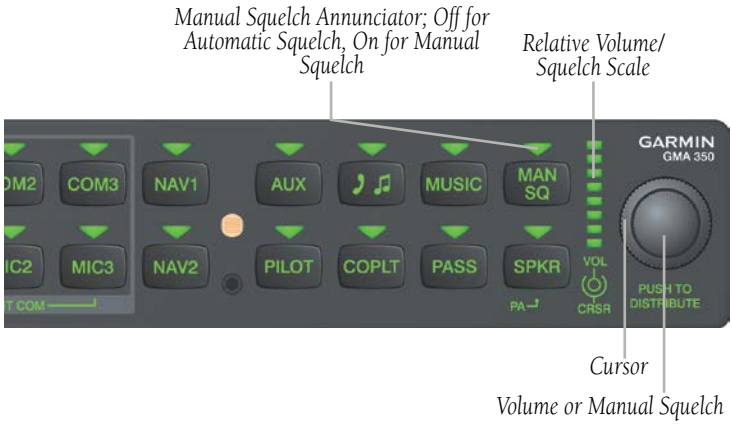
Pressing the **MKR/MUTE** Key during play of a memory block stops play. If a COM input signal is detected during play of a recorded memory block, play is halted.

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

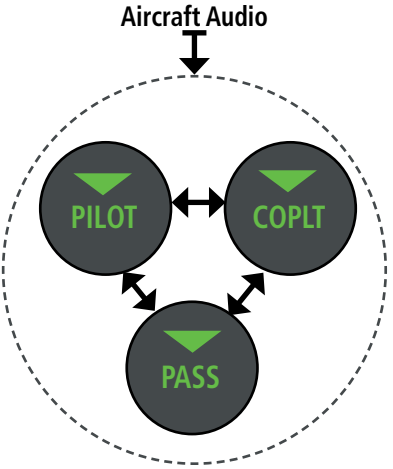
INTERCOM MODES

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

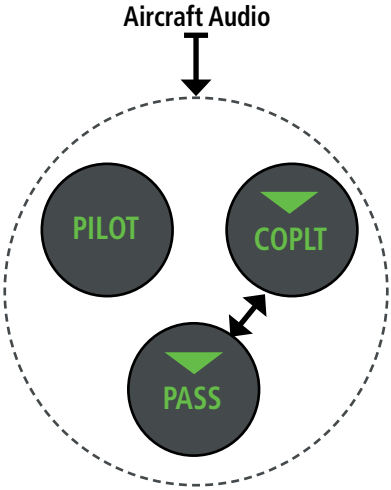


Mode Operation

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

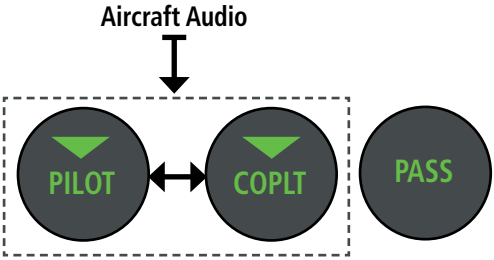


Mode Operation

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

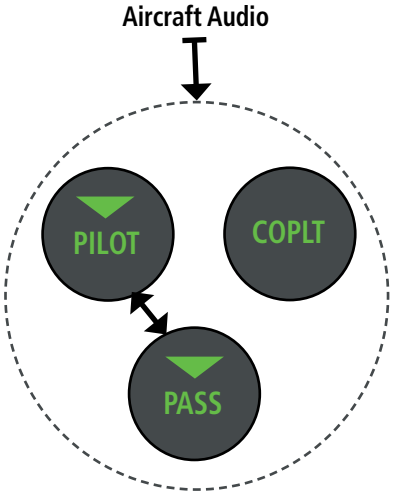


Mode Operation

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

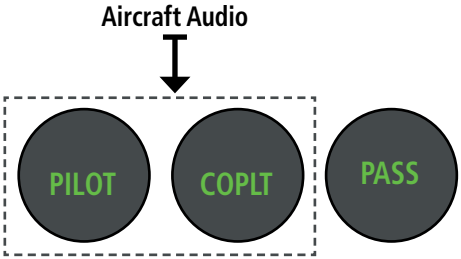


Mode Operation

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.

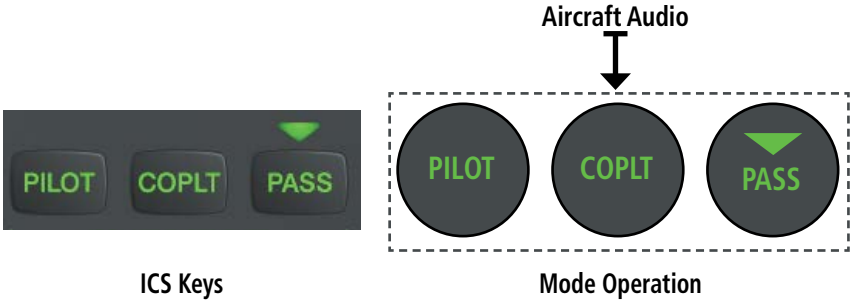
ICS Keys



Mode Operation

Pilot & Copilot Isolate Mode

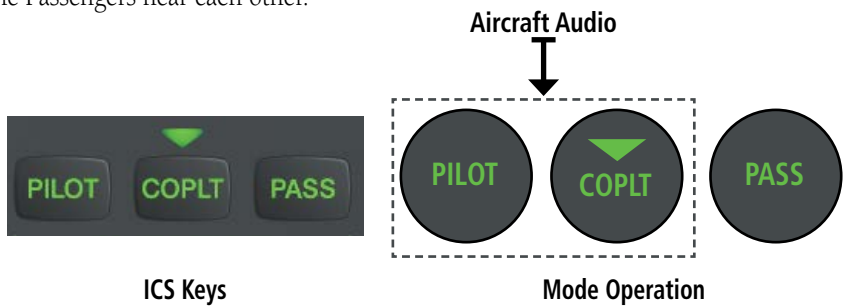
In 'Pilot & Copilot Isolate' mode the Pilot, Copilot, and Passengers hear the aircraft audio. The Passengers hear each other. The Copilot has the option to use Split-COM mode.



ICS Keys Mode Operation

Pilot & Passenger Isolate Mode

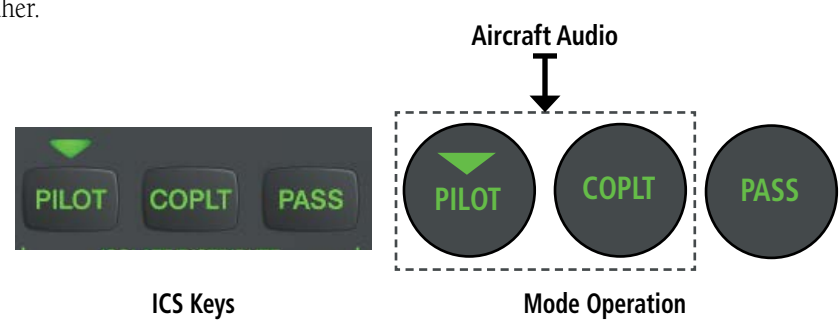
In 'Pilot & Passenger Isolate' mode the Pilot and Copilot hear the aircraft audio. The Passengers hear each other.



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

The annunciator over the 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. The baseline Bell 505 Jet Ranger X is wired for mono headsets.

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, hold the push to command switch in the upward position while speaking a command. When the Push-To-Command switch 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 switch, 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 switch, 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 one, two" or "Split one, two"	Selects split COM 1/2	Illuminate MIC1/MIC2 Annunciators
	"Split COM one, three" or "Split one, three"	Selects split COM 1/3	Illuminate MIC1/MIC3 Annunciators
	"Split COM two, three" or "Split two, three"	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
	"NAV"	Toggles NAV	Illuminate/Extinguish 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" "Mute telephone disable" "Disable phone mute" "Mute phone disable" "Disable jack mute" "Mute jack disable" "Telephone mute disable" "Disable mute telephone" "Phone mute disable" "Disable mute phone" "Jack mute disable" OR "Disable mute jack"	Disables Telephone/ Jack mute on radio reception	Voice Response: "Tel and jack 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
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" "MUSIC mute disable" "Disable mute MUSIC" OR "Mute MUSIC disable"	Disables MUSIC mute on radio reception	Voice Response: "Music mute disabled"
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"

Control	Spoken Command	Action	Confirmation of Action
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
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..		

Control	Spoken Command	Action	Confirmation of Action
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.		
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
	"(Desired selection*) volume	Displays the current volume but does not change it	Current volume displayed
	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".		

Control	Spoken Command	Action	Confirmation of Action
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

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AUTOMATIC FLIGHT CONTROL SYSTEM

This feature is not currently available on the Bell 505 Jet Ranger X.

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GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation from the MFD

1) Press the **Direct-to** (D▸) 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 (D▸).
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.

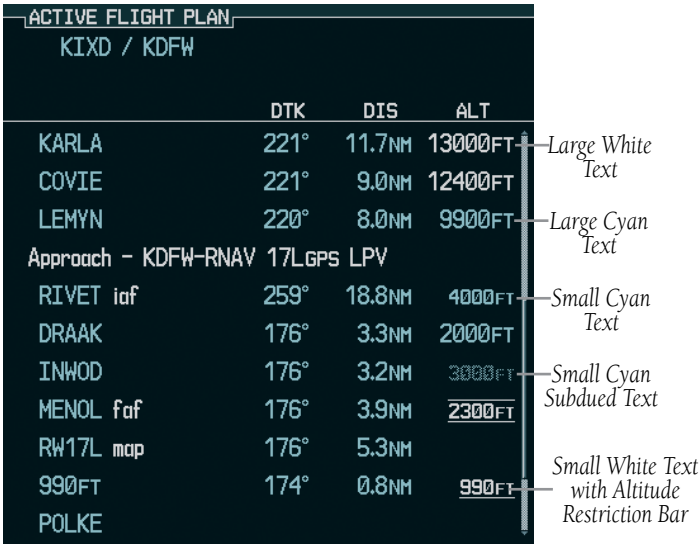
   OR
3) Press the **MENU** Key, select the 'Activate Leg' option from the page menu and press the **ENT** Key. This step must be used when activating a leg from the PFD.
4) With 'Activate' highlighted, press the **ENT** Key.

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 cyan 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 cyan.

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	Cyan Text	Cyan 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.

NOTE: *Making course changes greater than 90° during a descent with vertical guidance may cause excessive and rapid movement of the vertical deviation indicator, and SVS Pathways.*

The system updates vertical path guidance continuously using ground speed and the calculated distance to the Bottom of Descent (BOD). Due to turn anticipation guidance (turn-smoothing), distance to the BOD can be affected by course changes greater than approximately 5 degrees. Ground speed can be affected by factors such as shifts in wind direction, aircraft power management, pitch angle, and course changes. Abrupt and/or substantial changes to either the distance to the BOD, ground speed, or both can cause similarly abrupt/substantial changes in vertical path guidance.

Because of turn-smoothing, changes to both distance to the BOD and ground speed tend to be more extreme when the BOD is also a waypoint that marks a large course change. These speed and distance changes will be accounted for in the computed required vertical path and reflected in the vertical guidance indications.

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FLIGHT PLANNING

WEIGHT AND BALANCE PLANNING

NOTE: *All weight & balance page data fields display data rounded to the nearest 5 pounds or 5 kilograms*

All procedures apply to the AUX - WEIGHT & BALANCE Page on the MFD unless otherwise stated.

Modifying basic empty weight:

1) Select the **W&B CFG** Softkey; or press the **MENU** Key, highlight 'Weight & Balance Configuration', and press the **ENT** Key to display the Weight & Balance Configuration Page.
2) Press the **FMS** Knob to activate the cursor, and turn the large **FMS** Knob to select the 'AIRCRFT' weight.
3) Turn the small **FMS** Knob to enter the weight. The new weight will be reflected in the Basic Empty Weight shown at the top of the page.
4) Press the **GO BACK** Softkey to return to the AUX - WEIGHT & BALANCE Page.

The 'BASIC EMPTY WEIGHT" is calculated by summing the weights of all items marked as present.

Entering the aircraft load weights:

1) Press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the 'PILOT' field.
3) Turn the small **FMS** Knob to enter the weight.
4) Press the **ENT** Key to confirm the entry and move the cursor to the next field.
5) Repeat steps 3 and 4 as necessary.
6) Press the **FMS** Knob to remove the flashing cursor.

The 'ZERO FUEL WEIGHT' is calculated by adding the basic empty weight and the aircraft load weights.

Entering the fuel on board weight:

1) Press the **FMS** Knob to activate the cursor and highlight the 'FUEL ON BOARD' field.
2) Turn the small **FMS** Knob to enter the fuel on board weight.
3) Press the **ENT** Key to confirm the entry.
4) Press the **FMS** Knob to remove the flashing cursor.

   Or:

   Press the **FOB SYNC** Softkey. The fuel on board weight is set to the current measured fuel weight.

The 'TAKEOFF WEIGHT' is calculated by adding the zero fuel weight and the fuel on board weight.

Entering the hook weight:

1) Select the **HOOK WT** Softkey to activate the cursor on the 'HOOK WEIGHT' field.
2) Turn the small **FMS** Knob to enter the hook weight.
3) Press the **ENT** Key to confirm the entry.
4) Press the **FMS** Knob to remove the flashing cursor.

The 'GROSS WEIGHT' is calculated by adding the takeoff weight and the hook weight.

Entering the fuel reserve weight:

1) Press the **FMS** Knob to activate the cursor and highlight the 'FUEL RESERVES' field.
2) Turn the small **FMS** Knob to enter the fuel reserves weight.
3) Press the **ENT** Key to confirm the entry.
4) Press the **FMS** Knob to remove the flashing 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.

USER-DEFINED HOLDING PATTERNS

A holding pattern can be defined at any active flight plan waypoint, or at the aircraft present position.

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

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).

2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the waypoint for the hold.

3) Press the **MENU** Key, highlight 'Hold At Wpt', and press the **ENT** Key. The HOLD AT window appears with the course field highlighted.

4) Use the **FMS** Knobs to edit the entry course, and press the **ENT** Key.

5) Use the small **FMS** Knob to select 'INBOUND' or 'OUTBOUND' course direction, and press the **ENT** Key.

6) Use the small **FMS** Knob to select 'TIME' or 'DIST' length mode, and press the **ENT** Key.

7) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.

8) Use the small **FMS** Knob to select 'RIGHT' or 'LEFT' turn direction, and press the **ENT** Key.

9) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC TIME), and press the **ENT** Key.

10) Press the **ENT** Key while 'LOAD?' is highlighted to add the hold into the flight plan.

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

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
2) Press the **MENU** Key, highlight 'Hold At Present Position', and press the **ENT** Key. The HOLD AT window appears with the Length mode highlighted.
3) Use the small **FMS** Knob to select 'TIME' or 'DIST' length mode, and press the **ENT** Key.
4) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
5) Use the small **FMS** Knob to select 'RIGHT' or 'LEFT' turn direction, and press the **ENT** Key.
6) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC TIME), and press the **ENT** Key.
7) Press the **ENT** Key while 'ACTIVATE?' is highlighted to immediately activate the hold.

Creating a User-Defined Hold at a Direct-To Waypoint:

1) Press a **Direct-to** Key and set up the Direct To waypoint as desired, but select 'HOLD?' instead of 'ACTIVATE?' when finished.
2) Use the **FMS** Knobs to edit the entry course, and press the **ENT** Key.
5) Use the small **FMS** Knob to select 'INBOUND' or 'OUTBOUND' course direction, and press the **ENT** Key.
6) Use the small **FMS** Knob to select 'TIME' or 'DIST' length mode, and press the **ENT** Key.
7) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
8) Use the small **FMS** Knob to select 'RIGHT' or 'LEFT' turn direction, and press the **ENT** Key.
9) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC TIME), and press the **ENT** Key.
10) Press the **ENT** Key while 'ACTIVATE?' is highlighted to activate the Direct To with the user-defined hold defined at the Direct To waypoint.

Removing a user-defined hold (created at the aircraft present position or at a Direct-To waypoint):

1) Press the **Direct To** Key to display the DIRECT TO Window (PFD or MFD).
2) Press the **MENU** Key to display the PAGE MENU with the cursor on the 'Cancel Direct To NAV' selection.
3) Press the **ENT** Key. The holding pattern is removed.

Removing a user-defined hold (created at an active flight plan waypoint):

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the HOLD waypoint.
3) Press the **CLR** Key. A 'Remove Holding Pattern?' confirmation window is displayed.
4) Select 'OK' and press the **ENT** Key. The holding pattern is removed from the active flight plan. Select 'CANCEL' and press the **ENT** Key to cancel the removal of the holding pattern.

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, TEMP COMP or optional RAD ALT.

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. If BARO, or OFF was selected step 8, proceed to step 11. If TEMP COMP was selected in step 8, the cursor moves to the 'TEMP AT...." field. Turn the small **FMS** Knob to enter the temperature at the destination airport. The temperature compensated altitude minimum is displayed below the previously enter minimum altitude value.

11) Press the **ENT** Key. 'LOAD? or ACTIVATE?' is now displayed with 'LOAD?' highlighted.

12) 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.

13) 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.

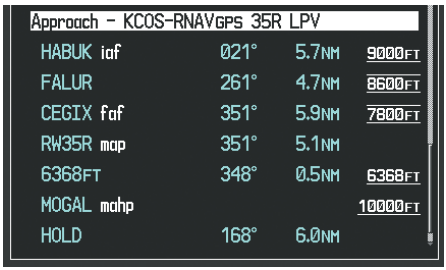
2) Turn the large **FMS** Knob to highlight 'ACTIVATE MISSED APPROACH'.

3) Press the **ENT** Key. A confirmation window is displayed.

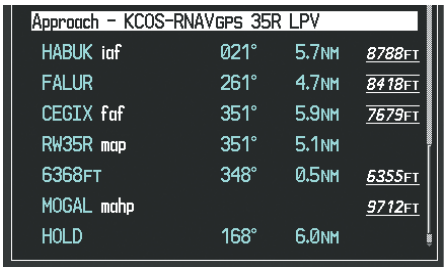
4) With 'ACTIVATE' highlighted, press the **ENT** Key.

TEMPERATURE COMPENSATED ALTITUDE

When temperature compensated altitude is enabled for the loaded approach, the altitudes associated with the approach waypoints are displayed in slanted text.



Altitudes Displayed Without Temperature Compensation



Altitudes Displayed With Temperature Compensation

Enabling temperature compensated altitude:

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

Disabling temperature compensated altitude:

1) From the Active Flight Plan Page, press the **MENU** Key. The Page Menu is displayed.
2) Turn the **FMS** Knob to highlight 'Temperature Compensation'.
3) Press the **ENT** Key. The TEMPERATURE COMPENSATION Window is displayed.
4) Press the **ENT** Key. 'CANCEL COMPENSATION?' is highlighted.
5) Press the **ENT** Key. The temperature compensated altitude at the FAF is cancelled.

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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.

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 without ADS-B directional information
	Proximity Advisory (PA) (GTS 800 only)
	Traffic Advisory (TA)
	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).

Traffic Symbol	Description
	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. (Not available in all installations.) (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.

HELICOPTER TERRAIN AWARENESS & WARNING SYSTEM (HTAWS) DISPLAY (OPTIONAL)

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.*

NOTE: *The terrain system is not available north of 89º North latitude and south of 89º South latitude.*

Displaying the HTAWS Page:

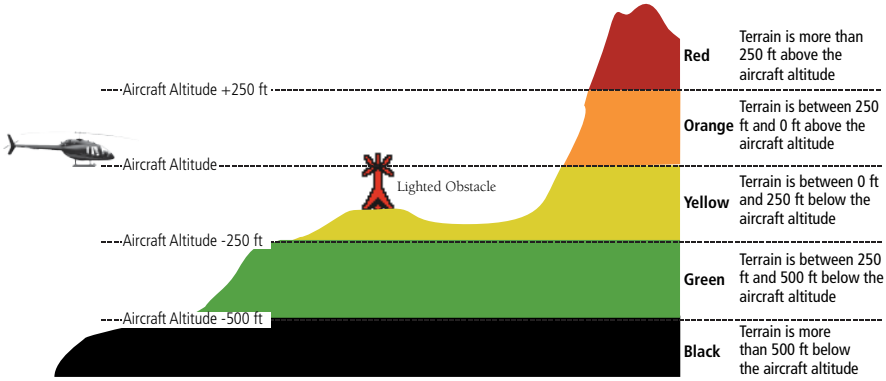
1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select HTAWS Page.

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.

PROFILE VIEW TERRAIN

WARNING: *Do not use Profile View Terrain data for primary terrain avoidance. Profile View Terrain is intended only to enhance situational awareness.*

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

Accessing Profile View:

1) Select the Navigation Map Page.
2) Press the **MAP** Softkey.
3) Press the **PROFILE** Softkey to enable or disable Profile View.

Or:

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

Enabling/Disabling Profile View Terrain on the Navigation Map (when Profile View is enabled):

1) Select the Navigation Map Page.
2) Press the **MAP** Softkey.
3) Press the **TERRAIN** Softkey.

Blank Page

ADDITIONAL FEATURES

SYNTHETIC VISION (OPTIONAL)

WARNING: *Use appropriate primary systems for navigation, and for terrain, obstacle, and traffic avoidance. SVT is intended as an aid to situational awareness only and may not provide 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 SVT runway depiction as the sole means for determining the proximity of the aircraft to the runway or for maintaining the proper approach path angle during landing.*

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

SVT 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. SVT information is shown on the primary flight display (PFD).

SVT 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 SVT enhancement to the PFD, the following feature enhancements have been added to the PFD:

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

Enabling and disabling SVT:

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) Press the **SYN TERR** Softkey. The SVT display will cycle on or off with the **SYN TERR** Softkey.

Enabling and disabling Pathways:

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) Press the **PATHWAY** Softkey. The Pathway feature will cycle on or off with the **PATHWAY** Softkey.

Enabling and disabling Horizon Headings:

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) Press the **HRZN HDG** Softkey. The horizon heading display will cycle on or off with the **HRZN HDG** Softkey.

Enabling and disabling Airport Signs:

1) Press the **PFD** Softkey.
2) Press the **SYN VIS** Softkey.
3) Press the **APTSIGNS** Softkey. Display of airport signs will cycle on or off with the **APTSIGNS** Softkey.

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. The selected Display Pane depiction shows the aircraft position on the moving map in the plan view of most approach charts and on airport diagrams.

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.

AIRPORT DIRECTORY

The Aircraft Owners and Pilots Association (AOPA) and optional AC-U-KWIK Airport Directory add enhanced airport information when viewing airports on the WPT-Airport Information Page.

Both Airport Directories are available for downloading at flygarmin.com. However, copy only one of the databases to the Supplemental Data Card. The system cannot recognize both databases simultaneously.

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.

SCHEDULER

The Scheduler feature can be used to enter and display reminder messages (e.g., Phase 1 Inspection, Switch fuel tanks, or Altimeter-Transponder Check) in the Messages Window on the PFD. Messages can be set to display based on a specific date and time (event), once the message timer reaches zero (one-time; default setting), or recurrently whenever the message timer reaches zero (periodic). Message timers set to periodic alerting automatically reset to the original timer value once the message is displayed. When power is cycled, all messages are retained until deleted, and message timer countdown is resumed.

Scheduler messages appear in the Messagess Window on the PFD. When a scheduler message is waiting, the **MSG** Softkey flashes. Pressing the **MSG** Softkey opens the Messages Window and acknowledges the scheduler message. The softkey label no longer flashes after pressing the **MSG** Softkey. Pressing the **MSG** Softkey again removes the Messages Window from the display, and the scheduler message is deleted from the message queue.

Entering a scheduler message:

1) Select the AUX - Utility Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the first empty scheduler message naming field.
4) Use the **FMS** Knob to enter the message text to be displayed in the Messages Window and press the **ENT** Key.
5) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the field next to Type.
6) Turn the small **FMS** Knob to select the message type:
   - Event—Message issued at the specified date/time
   - One-time—Message issued when the message timer reaches zero (default setting)
   - Periodic—Message issued each time the message timer reaches zero

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

8) For periodic and one-time message, use the **FMS** Knob to enter the timer value (HH:MM:SS) from which to countdown and press the **ENT** Key.

9) For event-based messages:

   a) Use the **FMS** Knob to enter the desired date (DD-MM-YY) and press the **ENT** Key.

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

   c) Use the **FMS** Knob to enter the desired time (HH:MM) and press the **ENT** Key.

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

Deleting a scheduler message:

1) Select the AUX - Utility Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the name field of the scheduler message to be deleted.
4) Press the **CLR** Key to clear the message text. If the **CLR** Key is pressed again, the message is restored.
5) Press the **ENT** Key while the message line is cleared to clear the message text.

PILOT PROFILES

Creating a profile:

1) Use the **FMS** Knob to select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'CREATE' in the Pilot Profile Box.
4) Press the **ENT** Key. A 'Create Profile' window is displayed.
5) Use the **FMS** Knob to enter a profile name up to 16 characters long and press the **ENT** Key. Pilot profile names cannot begin with a blank as the first letter.

6) In the next field, use the small **FMS** Knob to select the desired settings upon which to base the new profile. Profiles can be created based on Garmin factory defaults, default profile settings (initially based on Garmin factory defaults unless edited by the pilot), or current system settings.

7) Press the **ENT** Key.

8) With 'CREATE' highlighted, press the **ENT** Key to create the profile

Or:

Use the large **FMS** Knob to select 'CREATE and ACTIVATE' and press the **ENT** Key to activate the new profile.

9) To cancel the process, select 'CANCEL' with the large FMS Knob and press the **ENT** Key.

Selecting an active profile:

1) Use the **FMS** Knob to select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the active profile field in the Pilot Profile Box.
4) Turn the small **FMS** Knob to display the pilot profile list and highlight the desired profile.
5) Press the **ENT** Key. The system loads and displays the system settings for the selected profile.

Renaming a profile:

1) Use the **FMS** Knob to select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'RENAME' in the Pilot Profile Box.
4) Press the **ENT** Key.
5) In the 'Rename Profile' window, turn the **FMS** Knob to select the profile to rename.
6) Press the **ENT** Key.
7) Use the **FMS** Knob to enter a new profile name up to 16 characters long and press the **ENT** Key.

8) With 'RENAME' highlighted, press the **ENT** Key.
9) To cancel the process, use the large **FMS** Knob to select 'CANCEL' and press the ENT Key.

Deleting a profile:

1) Use the **FMS** Knob to select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'DELETE' in the Pilot Profile Box.
4) Press the **ENT** Key.
5) In the 'Delete Profile' window, turn the **FMS** Knob to select the profile to delete.
6) Press the **ENT** Key.
7) With 'DELETE' highlighted, press the **ENT** Key.
8) To cancel the process, use the large **FMS** Knob to select 'CANCEL' and press the **ENT** Key.

Importing a profile:

1) Insert the SD card containing the Pilot Profile into the top card slot on the MFD.
2) Use the **FMS** Knob to select the AUX - System Setup Page.
3) Press the **IMPORT** softkey. If the correct Pilot Profile file is selected; with 'IMPORT' highlighted press the **ENT** Key.

Or:

If the SD card contains more than one Pilot Profile:

a) Turn the large **FMS** Knob to highlight the select file field in the Pilot Profile Importing Box.
b) Turn the small **FMS** Knob to display the pilot profile list and highlight the desired profile to import and press the **ENT** Key.
c) With 'IMPORT' highlighted, press the **ENT** Key.

4) "Pilot profile import succeeded." is shown in the import results box. Press the **ENT** Key. The imported profile becomes the active Pilot Profile.

Exporting a profile:

1) Insert the SD card for storing the Pilot Profile into the top card slot on the MFD.
2) Use the **FMS** Knob to select the AUX - System Setup Page.
3) Activate the desired Pilot Profile to export. Only the active Pilot Profile can be exported.
4) Press the **EXPORT** softkey.
5) With 'EXPORT' highlighted press the **ENT** Key.
6) "Pilot profile export succeeded." is shown in the export results box. Press the **ENT** Key to exit the Pilot Profile Exporting Box.

Blank Page

ABNORMAL OPERATION

REVERSIONARY MODE

In the event of a loss of power to the PFD with the REV switch in NORM, the switching logic is designed to automatically transfer the MFD into composite PFD/EICAS mode.

In the event that the switching logic does not automatically provide a composite PFD/EICAS mode on the MFD, or the pilot wishes to manually display composite PFD/EICAS mode on either display, the REV switch may be manually positioned to PFD or MFD. When the REV switch is positioned to MFD, the MFD REV Crew Alerting System (CAS) message will display.

NOTE: *The Bell 505 Flight Manual (FM) 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. In the event of a failure of both the PFD and MFD, the emergency frequency (121.500 MHz) automatically becomes the active frequency on the COM radio.

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.

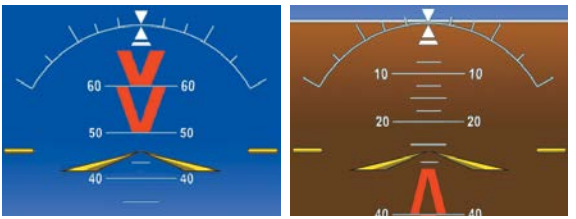
Loss of Hazard Functions with Loss of GPS Position

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
- 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
- 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 amber over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is prominently displayed, also in amber, 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 amber 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

G1000H SYSTEM ANNUNCIATIONS

When an LRU or an LRU function fails, a large red "X" is typically displayed on windows associated with the failed data. Refer to the RFM for additional information regarding pilot responses to these annunciations

System Annunciation	Comment
	Attitude and Heading Reference System is aligning.
	Display system is not receiving attitude information from the AHRS.
	GPS information is either not present or is invalid for navigation use. Note that AHRS utilizes GPS inputs during normal operation. AHRS operation may be degraded if GPS signals are not present (see Bell 505 FM).
	Display system is not receiving valid heading input from AHRS.
	Display system is not receiving heading information, but track is available.
	Display system is not receiving valid transponder information.

System Annunciation	Comment
	CDI is not receiving valid data from the GIA. Does not apply when the CDI is set to GPS.
	Display system is not receiving airspeed input from air data computer.
	Display system is not receiving altitude input from the air data computer.
	Display system is not receiving vertical speed input from the air data computer.
Other Various Red X Indications	A red 'X' through any other display field (such as engine instrumentation display) indicates that the field is not receiving valid data.

WARNING MESSAGES

See the Bell 505 Flight Manual (FM) for recommended pilot actions.

Annunciation Text	Description
BATTERY HOT	Battery is overheating.
ECU FAIL	ECU has detected a critical malfunction and reverted to fixed fuel flow (during start or In flight).
ENG OIL TEMP	ECU has detected high engine oil temperature.
ENG OIL PSI LO	ECU has detected low engine oil pressure.
ENGINE FIRE	Fire detected in the engine compartment.
ENGINE OUT	Ng less than 50%.
FUEL PRESS	Fuel pressure is low.
ROTOR BRAKE	Rotor brake pad(s) not fully retracted.
RPM	With low RPM audio - NR below 97% with power on or NR below 95% with power off. Without audio - NR above 107% power on or NR above 111% with power off.
XMSN OIL PRESS	Transmission oil pressure is below minimum.
XMSN OIL TEMP	Transmission oil temperature is at or above red line.

CAUTION MESSAGES

See the Bell 505 Flight Manual (FM) for recommended pilot actions.

Annunciation Text	Description
BAGGAGE DOOR	Baggage door is not securely latched.
BATTERY COLD	Battery temperature below -5°C.
BATTERY FAIL	Battery has failed and battery power unavailable.
BATTERY FAULT	Battery has detected a fault and battery power is temporarily unavailable.
BATTERY OFF	Battery is not connected to DC Bus.
DRIVE CD INOP	XMSN upper or lower, F/W or T/R detector(s) inoperative.
DUAL FLY	Pilot and copilot throttle switches are in FLY position.
ECU DEGRADED	Malfunction has been detected in the engine controls system.
ECU PMA FAIL	ECU alternator failed. The ECU is now powered by the DC BUS only.

Annunciation Text	Description
ENG CD INOP	One or two engine chip detector(s) inoperative.
ENGINE CHIP	Ferrous particles detected in engine oil.
ENG OIL PSI HI	Engine oil pressure is above maximum.
EPSU FAIL	Electrical power supply unit has failed.
FIRE DET INOP	Engine fire detector is inoperative.
FOPS TST FAIL	FOPS test invalid.
FUEL FILTER	Fuel filter partially blocked.
FUEL LOW	Fuel low condition (75 ±5 pounds) of fuel remaining in the tank.
GEN	Generator switch is off or the generator is not providing power to the DC bus.
GEN OVERLOAD	Current is more than 165 amps for at least 5 seconds.
HMU AUX CTRL	The main metering valve is frozen and the auxiliary metering valve is controlling fuel flow.
IBF CLOGGED	Inlet barrier filter partially blocked. Possible reduction in engine power available.
MGT EXCEED	MGT exceeded.
NG EXCEED	NG exceeded.
NP EXCEED	NP exceeded.
NP SENSOR FAIL	One NP sensor has failed.
Q EXCEED	Engine torque exceeded.
T/R CHIP	Ferrous particles detected in T/R gearbox oil.
THROTTLE INOP	Throttle switches idle command is inoperative.
XMSN CHIP	Ferrous particles detected in transmission or freewheeling unit oil.

ADVISORY MESSAGES

See the Bell 505 Flight Manual (FM) for recommended pilot actions.

Annunciation Text	Description
BATT HEATER ON	Battery internal heater is active.
ECU DATA	One or more ECU information channel(s) is unavailable to the Garmin system.

Annunciation Text	Description
ECU MAINT	ECU Level 1 failure detected.
ENG CD 1 INOP	Illuminates upon landing and indicates which engine chip detector has failed.
ENG CD 2 INOP	Illuminates upon landing and indicates which engine chip detector has failed.
ENGINE CHIP 1	Illuminates upon landing and indicates which engine chip detector is active.
ENGINE CHIP 2	Illuminates upon landing and indicates which engine chip detector is active.
F/W CD INOP	Illuminates upon landing and indicates that the freewheeling unit chip detector has failed.
F/W CHIP	Illuminates upon landing and indicates that the freewheeling unit chip detector is active.
FOPS TST INPRG	ECU is performing flame out protection system test.
FUEL FILTER	Fuel pressure has dropped below the filter pre-clog threshold.
MFD REV	Pilot has selected MFD REV.
START	Start relay is in START mode.
T/R CD INOP	Illuminates upon landing and indicates that the tail rotor chip detector has failed.
XMSN CD 1 INOP	Illuminates upon landing and indicates that the transmission chip detector 1 (mast bearing) has failed.
XMSN CD 2 INOP	Illuminates upon landing and indicates that the transmission chip detector 2 (lower case) has failed.
XMSN CHIP 1	Illuminates upon landing and indicates that the transmission chip detector 1 (mast bearing) is active.
XMSN CHIP 2	Illuminates upon landing and indicates that the transmission chip detector 2 (lower case) is active.

STATUS ANNUNCIATION

Annunciation Text	Description
BATT CHARGING	Battery is charging.
CHIP TEST OK	Test of tail rotor gearbox, transmission upper and lower, and freewheel chip detectors successful.
EXT POWER	External power is connected.
FIRE TEST OK	Test of fire detection system successful.
FOPS TST OK	Flame out protection system test successful.
OK TO SHUTDOWN	Engine cool down completed.
PITOT ON	Pitot Heater is on.
WOG	Weight on gear is active and the aircraft is on ground.

HTAWS ALERTS

Alert Type	PFD/HTAWS Page Alert Annunciation	MFD Pop-Up Alert (except HTAWS Page)	Voice 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"

Alert Type	PFD/HTAWS Page Alert Annunciation	MFD Pop-Up Alert (except HTAWS Page)	Voice Message
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 SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/HTAWS Page Status Annunciation	HTAWS Page Center Banner Annunciation	Voice 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"*

Alert Type	PFD/HTAWS Page Status Annunciation	HTAWS Page Center Banner Annunciation	Voice Message
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.
Excessively degraded GPS signal	HTAWS N/A	None	"HTAWS Not Available" "HTAWS Available" when sufficient GPS signal is received. and HTAWS is not inhibited.

Alert Type	PFD/HTAWS Page Status Annunciation	HTAWS Page Center Banner Annunciation	Voice Message
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.*

TIS ALERTS AND ANNUNCIATIONS

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

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

TIS Failure Annunciations

Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Display Enabled Icon (Other Maps)
TIS Operating	OPERATING	
TIS Standby	STANDBY (also shown in white in center of page)	
TIS Failed*	FAIL	

TIS Modes

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range* Annunciation is removed when traffic comes within the selected display range
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory** Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending)
AGE MM:SS	Appears if traffic data is not refreshed within 6 seconds If after another 6 seconds data is not received, traffic is removed from the display The quality of displayed traffic information is reduced as the age increases
TRFC COAST	The displayed data is not current (6 to 12 seconds since last message) The quality of displayed traffic information is reduced when this message is displayed
TRFC RMVD	Traffic is removed because it is too old for coasting (12 to 60 seconds since last message) Traffic may exist within the selected display range, but it is not displayed
TRFC FAIL	Traffic data has failed
NO TRFC DATA	Traffic has not been detected
TRFC UNAVAIL	The traffic service is unavailable or out of range

**Shown as symbol on Traffic Map Page*
***Shown in center of Traffic Map Page*

TIS Traffic Status Annunciations

VOICE ALERTS

Voice Alert	Description
"One hundred fifty"*	Altitude is at 150 feet.
"ECU Fail"	ECU has detected a critical malfunction and reverted to fixed fuel flow (during start or in flight).
"Engine Fire"	Fire detected in the engine compartment.
"Engine Out"	NG less than 50%.

*For aircraft equipped with optional GRA 55 Radar Altimeter.

G1000H SYSTEM MESSAGE ADVISORIES

Message	Comments
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	GDC is reporting that the altitude error correction is unavailable.
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC is reporting that the airspeed error correction is unavailable.
ADC1 SERVICE – GDC1 needs service. Return unit for repair.	A failure has been detected in the GDC1. 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 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.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving valid airspeed.	The #1 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV only minimums.
APR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.

Message	Comments
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.
AUDIO MANIFEST - Audio software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
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.
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1. COM1 may still be usable. The system should be serviced when possible.
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	The COM2 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.

Message	Comments
COM2 RMT XFR – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 SERVICE – COM2 needs service. Return unit for repair.	The system has detected a failure in COM2. COM2 may still be usable. The system should be serviced when possible.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM2. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.

DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFD with preferred settings, if desired.
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.
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 MISMATCH – Navigation database mismatch. Xtalk is off.	The PFDs and MFD have different navigation database versions or types (Americas, European, etc.) installed. Crossfill is off. Install correct navigation database version or type in all displays.

Message	Comments
DB MISMATCH – Obstacle database mismatch.	The PFDs and MFD have different obstacle database installed. Install correct obstacle database in all displays.
DB MISMATCH – Terrain database mismatch.	The PFDs and MFD have different terrain database versions or types installed. Install correct terrain database version or type in all displays.
DIG GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.

FAILED PATH – A data path has failed.	A data path connected to the GDU, GSD 41, or the GIA 63W has failed.
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
FPL WPT LOCK – Flight plan waypoint is locked.	Upon 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.

Message	Comments
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.
GIA1 COOLING – GIA1 temperature too low.	The GIA1 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA1 COOLING – GIA1 over temperature.	The GIA1 temperature is too high. If problem persists, the system should be serviced.
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
GIA1 MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 has incorrect software installed. The system should be serviced.
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 self-test has detected a problem in the unit. The system should be serviced.
GIA2 COOLING – GIA2 temperature too low.	The GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 COOLING – GIA2 over temperature.	The GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 MANIFEST – GIA2 software mismatch, communication halted.	The GIA2 has incorrect software installed. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	The GIA2 self-test has detected a problem in the unit. The system should be serviced.
GMA1 AUX MANIFEST – GMA1 AUX software mismatch, communication halted.	The audio panel has incorrect aux software installed. The system should be serviced.

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.
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA1 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.
GMA XTALK – GMA crosstalk error has occurred.	An error has occurred in transferring data between the two GMAs. The system should be serviced.
GMU1 MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
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.
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 receiver. The receiver may still be available. The system should be serviced.
GRA1 CAL – GRA1 calibration. Service req'd.	GRA1 has improper calibration. The system should be serviced.
GRA1 CONFIG – GRA1 config error. Config service req'd.	The GRA and GDU have incompatible configurations.
GRA1 MANIFEST – GRA1 software mismatch, communication halted.	The GRA has incorrect software installed. The system should be serviced.
GRA1 SERVICE – GRA1 needs service. Return unit for repair	The GRA self-test has detected a problem in the unit. The system should be serviced.

Message	Comments
GRA1 TEMP – GRA1 over temperature.	The system has detected an over temperature condition in GRA1.
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 addres sconfigured or the mode S address does not match both XPDR mode S addresses.
GTS MANIFEST – GTS software mismatch, communication halted.	The GTS 800 has incorrect software installed. The G1000H system should be serviced.

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 system should be serviced.
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.
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	

INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
INVALID ADM – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.

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.

Message	Comments
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
LRG MAG VAR – Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.

MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	The MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The 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.
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD detected a failure in the basemap database.
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD detected a failure in the ChartView database (optional feature). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD detected a failure in the FliteCharts database (optional feature). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD detected a failure in the obstacle database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.

Message	Comments
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD 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.
MFD1 DB ERR – MFD1 obstacle database missing	The obstacle database is present on another LRU, but is missing on the specified LRU.
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD adetected 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.
MFD1 DB ERR – MFD1 terrain database error exists.	The terrain database is present on another LRU, but is missing on the specified LRU.
MFD1 KEYSTK – MFD [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 MANIFEST – MFD1 software mismatch, communication halted.	The MFD has incorrect software installed. The system should be serviced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
NAV DB UPDATED – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.

NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.

Message	Comments
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 receiver. The receiver may still be available. The system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	A failure has been detected in the NAV2 receiver. The receiver may still be available. The system should be serviced.
NO 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.
NON-MAG UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-up.

PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
PFD1 DB ERR – PFD1 basemap database error exists.	The PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 navigation database error exists.	The PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database error exists.	The 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.

Message	Comments
PFD1 DB ERR – PFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	The PFD detected a failure in the Safe Taxi database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced
PFD1 DB ERR – PFD1 terrain database error exists.	The PFD detected a failure in the terrain database. 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 missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
[PFD1 or MFD1] CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified 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 specified 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 specified 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 specified PFD or MFD contains invalid data.
PFD1 MANIFEST – PFD1 software mismatch, communication halted.	The PFD has incorrect software installed. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.

Message	Comments
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.

SCHEDULER [#] – <message>.	Message criteria entered by the user.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT MAG – Select MAGNETIC NAV ANGLE display units.	The Navigation angle is non-magnetic. Select the MAGNETIC NAV ANGLE display units.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
SLCT NON-MAG – Select alternate NAV ANGLE display units.	The Navigation angle is magnetic. Select the alternate NAV ANGLE display units.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.
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 (4.9 arc-second or better) is not currently installed.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFD have different software versions installed. The system should be service..

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.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.

Message	Comments
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.

UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.

VNV – Unavailable. Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
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.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.

WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
XPDR1 ADS-B FAIL – XPDR1 unable to transmit ADS-B messages.	ADS-B is inoperative. Other transponder functions may be available. Transponder should be serviced when possible.
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFDs are not communicating with each other. The system should be serviced.

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

Flight Plan Import/Export Results	Description
'Flight plan 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.

PILOT PROFILE IMPORT/EXPORT MESSAGES

Pilot Profile Import/Export Results	Description
'No pilot profile plan files found to import.'	Displayed if the SD card does not have one or more valid pilot profile filenames.
'Overwrite existing profile?'	Displayed if the profile name matches the name of existing profile.
'Profile name invalid. Enter a different profile name.'	Displayed if the profile name is invalid.
'All available pilot profiles in use. Delete a profile before importing another.'	Displayed if the maximum number for pilot profiles has been reached.
'Pilot profile import failed.'	Displayed if the importing operation fails for any other reason.
'Pilot profile import succeeded.'	Displayed if the importing operation succeeds.
'Overwrite existing file?'	Displayed if the filename matches the name of an existing file on the SD card.
'Pilot profile export failed.'	Displayed if the export operation fails.
'Pilot profile export succeeded.'	Displayed if the export operation succeeds.

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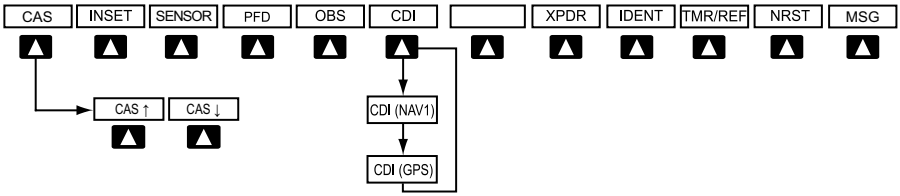
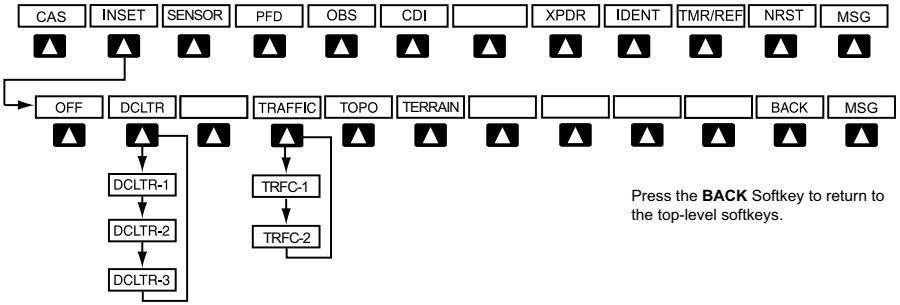
APPENDIX

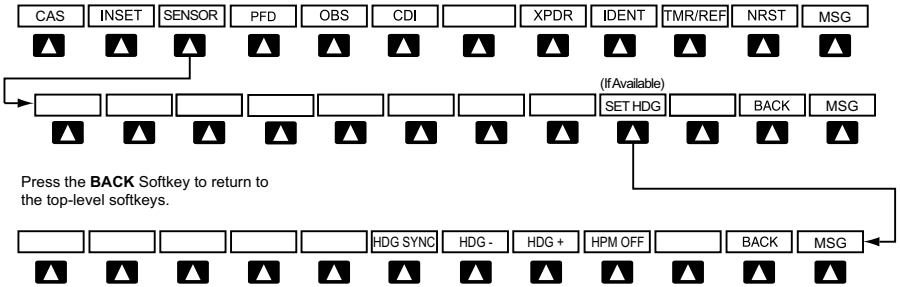
PFD SOFTKEY MAP



Top Level PFD Softkeys



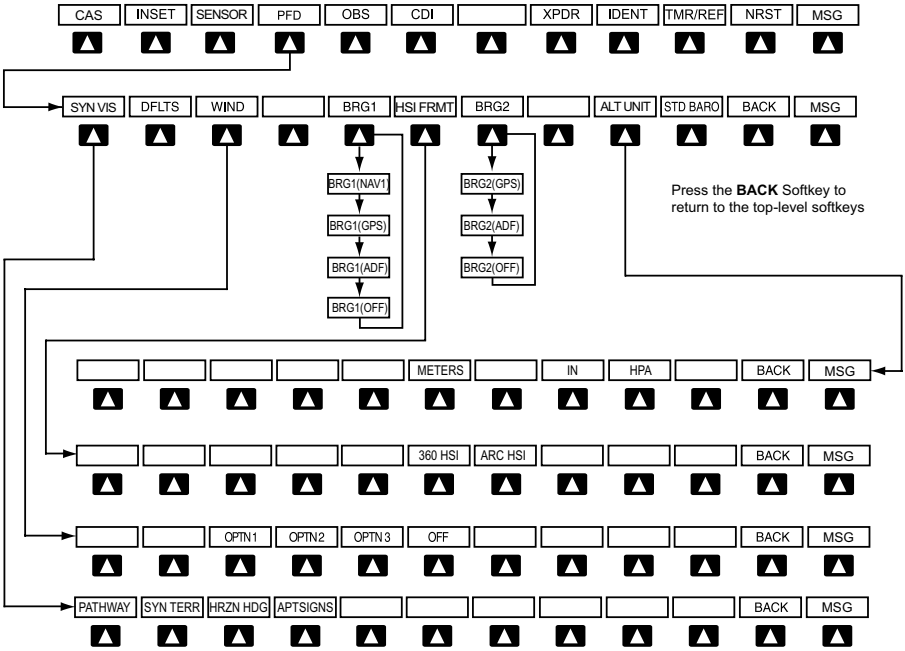
Inset Map Softkeys



Sensor 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
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
	TRAFFIC		Cycles through traffic display options: TRFC-1: Traffic displayed on inset map TRFC-2: Traffic Map Page is displayed in the inset map window
	TOPO		Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map
	TERRAIN		Displays/removes terrain information on Inset Map
SENSOR			Displays the Set Heading Softkey
	SET HDG		(If Available) 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

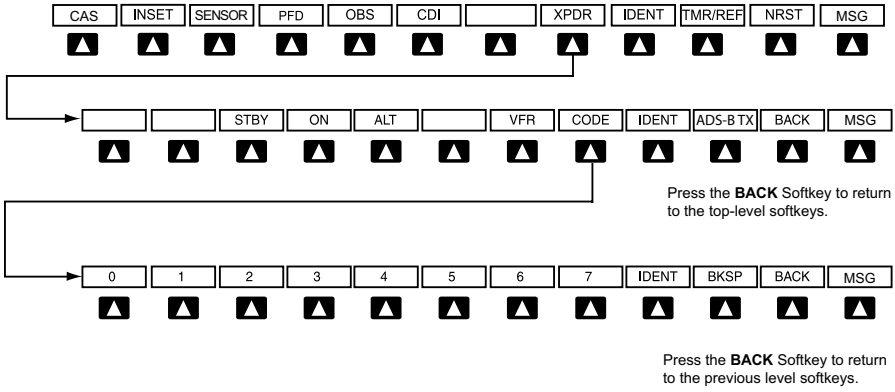


PFD Configuration Softkeys

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

Level 1	Level 2	Level 3	Description
		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
		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
	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.

Level 1	Level 2	Level 3	Description
	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)

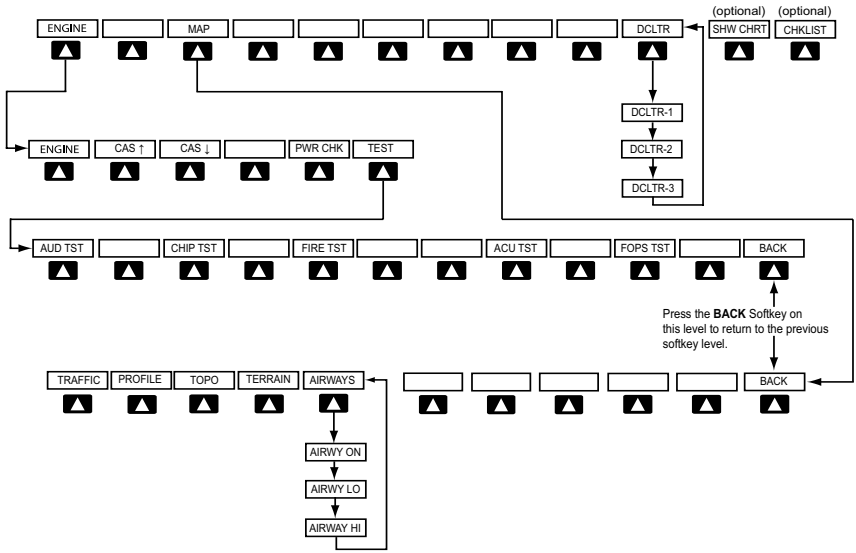


Transponder Softkeys

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		**On Ground -** (White mode indication) Generates Mode S replies to discrete interrogations as well as transmission of acquisition and extended squitters, including ADS-B out. Mode A, Mode C, and Mode S all-call replies are inhibited **Airborne** - (Green mode indication) Generates Mode A, Mode C, and Mode S replies as well as transmissions of acquisition and extended squitters, including ADS-B out.
	VFR		Automatically enters the VFR code (1200 in the U.S.A. only)
	CODE		Displays transponder code selection softkeys 0-7
		0 — 7	Use numbers to enter code
		IDENT	Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
		BKSP	Removes numbers entered, one at a time
	IDENT		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
	ADS-B TX		Enables the transmission of extended squitters containing ADS-B out information
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		Performs a power assurance check
	TEST		Displays additional test options for engine systems
		AUD TST	Audio Alert Test Displays
		CHIP TST	Chip Detector Test
		FIRE TST	Fire Detection System Test

Level 1	Level 2	Level 3	Description
		ACU TST	Auxiliary Control Unit
		FOPS TST	Flame Out Protection System Test
		BACK	Press BACK, to return to the previous page
MAP			Enables second-level Navigation Map softkeys
	TRAFFIC		Displays traffic information on Navigation Map
	PROFILE		Displays/removes Profile View on Navigation Map Page
	TOPO		Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Navigation Map
	TERRAIN		Displays terrain information on Navigation Map
	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
	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 interruption during the database loading process could result in maintenance being required to reboot the system.*

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

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 displays 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

Updating the active navigation database (not using the Dual Navigation Database or Automatic Database Synchronization Features):

1) Go to www.flygarmin.com or www.jeppesen.com. Download the applicable software and install the navigation database on a blank SD card.
2) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display (label of SD card facing left).
3) Turn the system ON. A prompt similar to the following is displayed in the upper left corner of the display:
4) Press the **NO** Softkey to proceed to loading only the active database.
5) A prompt similar to the following is displayed, press the **YES** Softkey to update the active navigation database.
6) After the update completes, the display starts in normal mode. Do not remove power while the display is starting.
7) Turn the system OFF and remove the SD card from the top card slot.
8) Repeat steps 2 through 7 for the other display. Remove the SD card when finished.
9) Apply power to the system and press the **ENT** Key or the right-most softkey on the MFD to acknowledge the startup screen.
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 active navigation database information for each display.
13) Verify the correct navigation database cycle information is shown for each display.

Dual Navigation Database Feature

The dual navigation database feature allows each display to store an upcoming navigation database on the bottom SD card so that the system can automatically load it to replace the active database when the new database becomes effective (the next cycle becomes available seven days prior to its effective date).

The system checks the active and standby databases upon (on-ground only) power-up. If the standby database is current and the active database is out of date, the display will upload the standby database into the active internal database location. Loading

the standby database to the active location takes approximately 45-55 seconds. During the loading process 'Please Wait. Navigation Database Update in Progress. Do Not Remove Power from Displays' will be displayed on screen. After startup is complete, the pilot is alerted that the update is complete by a system alert message, 'NAV DB UPDATED'.

Loading a standby navigation database:

***NOTE:** To do this procedure, use a blank SD card to copy the navigation database. Garmin SD Cards (bottom SD card slots) must NOT be used. The use of SanDisk SD Card is recommended to update the navigation database file. Before utilization, it is recommended to format the SD Card with the FAT32 file system so that displays will read it.*

1) Go to www.flygarmin.com or www.jeppesen.com. Download the applicable software and install the navigation database on a blank SD card.

2) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display.

3) Verify that an SD card is inserted in the bottom slot of each display.

4) Turn the system ON. A prompt similar to the following is displayed.

5) Press the **YES** softkey. The navigation database is copied to the SD card in the bottom of the display.

6) After the navigation database files are copied to the bottom SD card.

7) As instructed on the display, press any key to continue. .

8) Press any key to continue.

9) 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.

10) Turn the system OFF and remove the SD card from the top card slot.

11) Repeat steps 2 through 10 for the other display.

12) Apply power to the system and press the **ENT** Key on the MFD display to acknowledge the startup screen.

13) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
14) Turn the small **FMS** Knob to select the System Status Page.
15) Press the Display Database Selection Softkey to show standby navigation database information for each display.
16) Verify the correct standby navigation database cycle information is shown for each display.

NOTE: *Make sure that no messages related to database errors are displayed in the Messages window of the PFD.*

17) Press the **MSG** Softkey and determine if any message related to databases is active.
18) Remove power from the system.

Updating Basemap, SafeTaxi, Obstacle, Airport Directory

NOTE: *The Basemap, SafeTaxi, Obstacle and Airport Directory databases may be copied to one Supplemental Data Card, then automatically synchronized to the other card(s) in the system.*

1) With the system OFF, remove the Garmin SD Card from the bottom SD card slot of the MFD.
2) Go to www.flygarmin.com. Download the applicable software and install the databases on the Garmin SD card for the MFD.
3) Put the Garmin SD Card back in the bottom SD card slot of the MFD.
4) Turn the system ON.
5) During MFD power-up, check the MFD Power-Up screen and make sure that the database is initialized and shown on the database information.
6) Press the ENT Key on MFD display to acknowledge the startup screen.
7) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
8) Turn the small **FMS** Knob to select the System Status Page.
9) Press the Display Database Selection Softkey to show database information for each display.
10) Verify the correct database cycle information is shown for each display.
11) Press the **MSG** Softkey and determine if any message related to databases is active.
12) Remove power from the system.

Updating Terrain, Chartview and Flitecharts Databases

NOTE: *Jeppesen ChartView can be updated at either www.flygarmin.com or www.jeppesen.com, but must be purchased first from Jeppesen.*

1) With the system OFF, remove the Garmin SD Cards from the bottom SD card slot of each flight display unit.

NOTE: *Label the SD cards for each display.*

2) Go to www.flygarmin.com or www.jeppesen.com (for ChartView only). Download the applicable software and install the databases on the Garmin SD card for each display. (*The FliteCharts or ChartView database must only be installed on the MFD SD Card).*

3) Put the Garmin SD Cards back in the bottom SD card slots of each flight display unit.

4) Turn the system ON.

5) During MFD power-up, check the MFD Power-Up screen and make sure that the database is initialized and shown on the database information.

6) Press the ENT Key on MFD display to acknowledge the startup screen.

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

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

9) Press the Display Database Selection Softkey to show database information for each display.

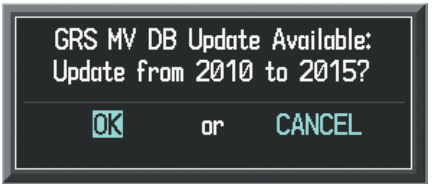
10) Verify the correct database cycle information is shown for each display.

11) Press the **MSG** Softkey and determine if any message related to databases is active.

12) Remove power from the system.

Magnetic Field Variation Database Update

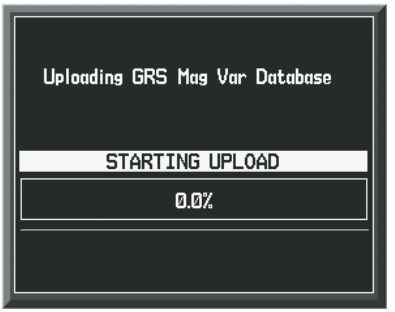
At startup, the system compares this version of the MV DB with that presently being used by the AHRS (GRS). If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page, as shown in the following figure.



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

Symbols

A

B

C

D

E

F

G

H

U

V

W

Z

Blank Page

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