G1000® Integrated Flight Deck

Cockpit Reference Guide for the Piper PA-34-220T Seneca

GARMIN®

This manual reflects the operation of System Software version 1578.01 or later for the Piper PA-34-220T Seneca. 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 the terrain avoidance feature as the sole means of navigation and terrain separation. The terrain avoidance feature is only to be used as and aid to terrain avoidance. Garmin obtains terrain database content from third party sources and is not able to independently verify the accuracy of the terrain data.*

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

WARNING: *Do not use GPS-derived geometric altitude for compliance with air traffic control altitude requirements in the National Airspace System (NAS) or internationally. The primary barometric altimeter must be used for compliance with all air traffic control altitude regulations, requirements, instructions, and clearance.*

WARNING: *Do not use outdated database information. Databases used in the system must be updated regularly in order to ensure that the information remains current.*

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

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

WARNING: *The Garmin system, as installed in this aircraft, has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical.*

WARNING: *Do not use the system until carefully reviewing, and gaining a thorough understanding of all aspects of the system's Pilot's Guide documentation and the Airplane Flight Manual. Do not attempt to learn system operational procedures while the aircraft is in the air. For safety reasons, system operational procedures must be learned on the ground.*

WARNING: *The United States government operates the Global Positioning System and is solely responsible for its accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment. Portions of the 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.*

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

WARNING: *Do not use the system to attempt to penetrate a thunderstorm. The illustrations in this guide are only examples. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Aeronautical Information Manual (AIM) recommend avoiding any thunderstorm identified as severe of giving intense radar echo by at least 20 miles.*

WARNING: *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.*

WARNING: *Because of variation in the earth's magnetic field, operating the system within the following areas could result in loss of reliable attitude and heading indications. North of 72° North latitude at all longitudes. South of 70° South latitude at all longitudes. North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada). North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada). North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia). South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).*

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

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

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

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

NOTE: *Do not rely 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 panel and displays, are subject to change and may not reflect the most current system and databases. Depictions of equipment may differ slightly from the actual equipment.*

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

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

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

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

NOTE: *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 if the air or on the ground. Go to FlyGarmin.com and select Aviation Data Error Report.*

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 G1000 system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the G1000 Pilot's Guide for this aircraft.*

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Part Number	Change Summary
190-01405-00	Initial release

Revision	Date of Revision	Affected Pages	Description
A	May, 2013	All	Production release

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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)

Press the **BARO** Knob.

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.

SYNCHRONIZING THE ALTIMETER BAROMETRIC PRESSURE SETTINGS

1) Select the AUX-SYSTEM SETUP Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight BARO in the SYNCHRONIZATION Window.
4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

SYNCHRONIZE CDI

1) Select the AUX-SYSTEM SETUP Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight CDI in SYNCHRONIZATION Window.
4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

CHANGE NAVIGATION SOURCES

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

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH GPS

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

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 will start counting UP after reaching zero). Press the **CLR** Key or the **TMR/REF** Softkey to remove the window.

TURN INDIVIDUAL VSPEED BUGS ON OR OFF

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the desired Vspeed.
3) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.
4) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

TURN ALL VSPEED BUGS ON OR OFF

1) Press the **TMR/REF** Softkey.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight the desired option.
4) Press the **ENT** Key. Press the **TMR/REF** Softkey to remove the window.

SET BAROMETRIC ALTIMETER MINIMUM DESCENT ALTITUDE

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the OFF/BARO/TEMP COMP field to the right of 'MINIMUMS'.
3) Turn the small **FMS** Knob clockwise to select BARO or TEMP COMP. Selecting TEMP COMP will allow the system to use an altitude compensated for temperature.
4) Press the **ENT** Key.
5) Use the small **FMS** Knob to enter the desired altitude.
6) Press the **ENT** Key.
7) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

DISPLAYING WIND DATA

1) Press the **PFD** Softkey.
2) Press the **WIND** Softkey to display wind data below the Selected Heading.
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.

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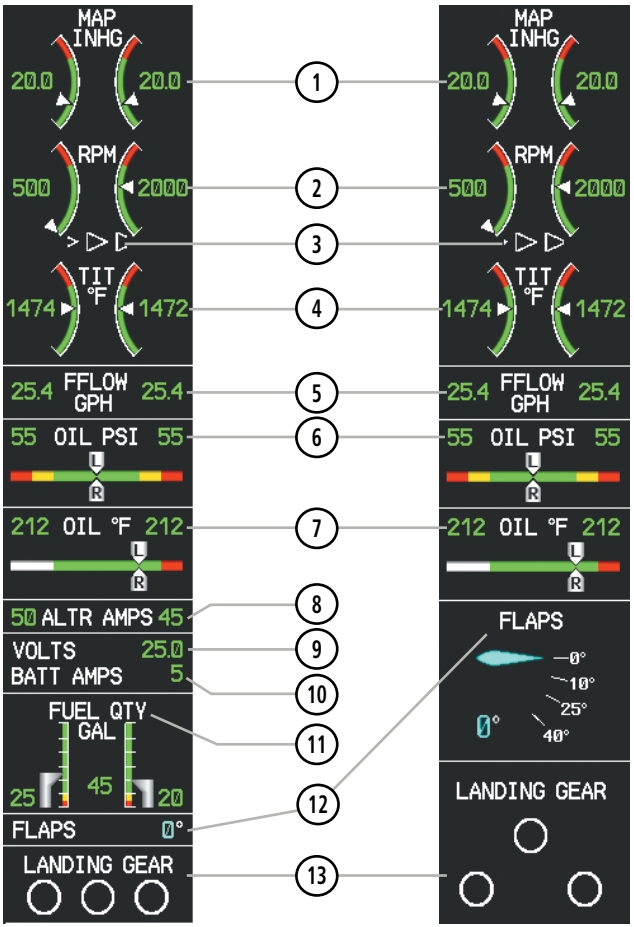
ENGINE INDICATION

ENGINE DISPLAY



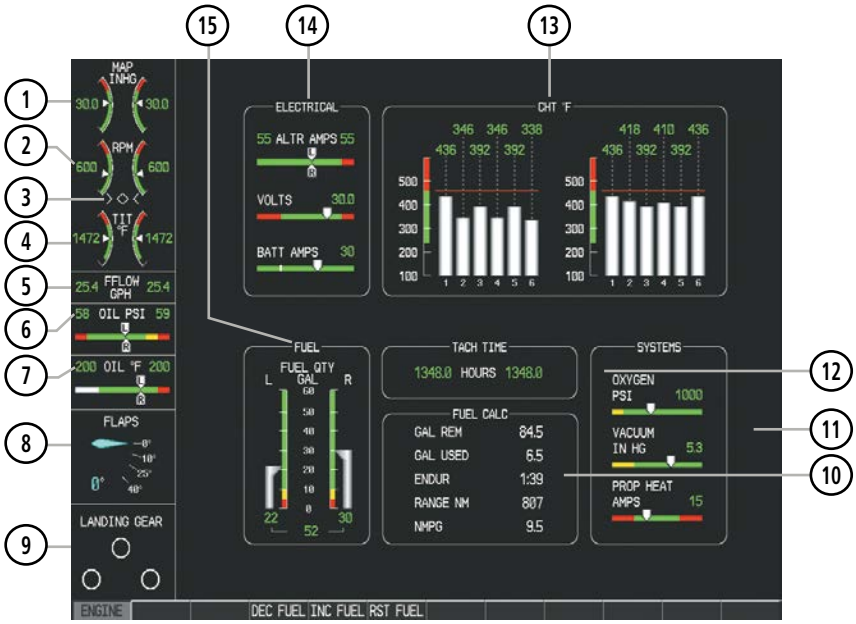
Engine Display when Engine Page is displayed

Engine Display

(1) **Engine Manifold Pressure Gauge (MAN IN HG)**	Displays manifold pressure in inches of Mercury (in Hg) to indicate engine power
(2) **Tachometer (RPM)**	Displays propeller speed in revolutions per minute (rpm)
(3) **Propeller Sync Indicator**	Points towards the higher-speed propeller when the propellers are out of sync.
(4) **Turbo Inlet Temperature Indicator (TIT °F)**	Displays the temperature for the right and left turbo inlets in °F
(5) **Fuel Flow Indicator (FFLOW GPH)**	Displays fuel flow in gallons per hour (gph)
(6) **Oil Pressure Indicator (OIL PSI)**	Displays oil pressure in pounds per square inch (psi)
(7) **Oil Temperature Indicator (OIL °F)**	Displays oil temperature in degrees Fahrenheit (°F)
(8) **Alternator Current(ALTR AMPS)**	Displays each alternator current in amperes
(9) **Voltage (VOLTS)**	Displays the bus voltage.
(10) **Battery Current(BATT AMPS)**	Displays the battery current in amperes
(11) **Fuel Quantity Indicator (FUEL QTY GAL)**	Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank.
(12) **Flap Position (FLAPS)**	Displays flap position in degrees
(13) **Landing Gear Status (LANDING GEAR)**	Displays landing gear status

ENGINE PAGE

Press the **ENGINE** Softkey or turn the large **FMS** Knob and select the EIS - Engine Page.



Engine Page

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(8) **Flap Position (FLAPS)**	Displays flap position in degrees
(9) **Landing Gear Status (LANDING GEAR)**	Displays landing gear status
(10) **Fuel Calculations Group (FUEL CALC)**	Displays calculated fuel used (GAL USED), endurance (ENDUR), and range (in nautical miles, RANGE NM), and fuel efficiency (in nautical miles per gallon, NMPG) based on the displayed fuel remaining (GAL REM) and the fuel flow totalizer
(11) **Systems Group (SYSTEMS)**	Displays oxygen in pounds per square inch (OXYGEN PSI), vacuum in inches of Mercury (VACUUM IN HG), and propeller heat in amperes (PROP HEAT AMPS)
(12) **Engine Hours (TACH TIME)**	Displays the total time in hours the engine has been in service
(13) **Cylinder Head Temperature Bar Graph (CHT °F)**	Displays head temperatures for all cylinders in °F
(14) **Electrical Group (ELECTRICAL)**	Displays alternator (ALTR AMPS) and battery (BATT AMPS) currents in amperes and bus voltage (VOLTS)
(15) **Fuel Quantity Gauges (L/R FUEL QTY GAL)**	Displays the total amount of fuel and the amount of fuel in gallons (gal) for each side of a standard fuel tank

Fuel Calculations

NOTE: *Fuel calculations do not use the aircraft fuel quantity indicators and are calculated from the last time the fuel was reset.*

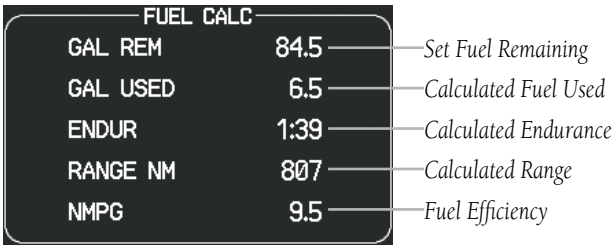
Fuel used (GAL USED), endurance (ENDUR), range (in nautical miles, RANGE NM), and fuel efficiency (in nautical miles per gallon, NMPG) are calculated based on the displayed fuel remaining (GAL REM) and the fuel flow totalizer. The calculated range also takes into account the aircraft's heading and the wind direction and speed.

Adjusting the fuel totalizer quantity:

On the Engine Page, use the **DEC FUEL** and **INC FUEL** softkeys to obtain the desired fuel remaining (GAL REM). Each press of the softkey increments or decrements in one gallon increments.

Resetting the fuel totalizer:

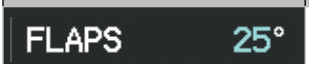
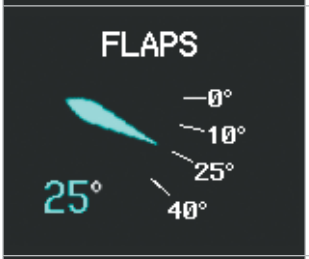
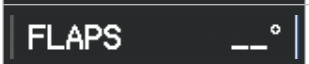
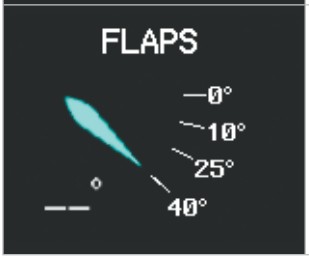
On the Engine Page, select the **RST FUEL** Softkey; this resets displayed fuel remaining (GAL REM) to the maximum fuel capacity for the aircraft and fuel used to zero.



Fuel Calculations Group

FLAP INDICATIONS

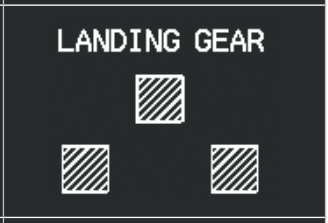
Flap positions are labeled 0°, 10°, 25°, and 40°. An invalid flap position is displayed as '**--**'.

Indication	Description
	Flaps normal (EIS)
	Flaps normal (Engine Page displayed)
	Invalid flap position (EIS)
	Invalid flap position (Engine Page displayed)

Flap Indications

LANDING GEAR INDICATIONS

Landing Gear statuses are shown using the indications in the following table.

Position	EIS	Engine Page
Up & Locked		
In Transition		
Down and Locked		
Warning		

Landing Gear Indications

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NAV/COM/TRANSPONDER/AUDIO PANEL

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.

DME TUNING

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

SELECTING A COM RADIO

Transmit/Receive

Press the **COM1 MIC**, **COM2 MIC**, or **COM3 MIC** Key (optional COM, if installed) on the audio panel.

Receive Only

Press the **COM1**, **COM2**, or **COM3** Key (optional COM, if installed) on the audio panel.

SELECTING A NAV RADIO

1) To begin navigating using a navigation radio, press the **CDI** Softkey on the PFD to select VOR1/LOC1 (NAV1) or VOR2/LOC2 (NAV2).
2) Press the **NAV1**, **NAV2**, **DME**, or **ADF** Key on the audio panel to select or deselect the navigation radio audio source. All radio keys can be selected individually or together.

NAV/COM TUNING

1) Press the small tuning knob to select the desired radio for tuning. A light blue box highlights the radio frequency to be tuned.
2) Turn the respective tuning knobs to enter the desired frequency into the standby frequency field. The large knob enters MHz and the small knob enters kHz.
3) Press the **Frequency Transfer** Key to place the frequency into the active frequency field.

DIGITAL CLEARANCE RECORDER AND PLAYER

*NOTE: Only the audio for the selected **COM MIC** Key is recorded. Audio is not recorded for COM3 MIC.*

- Pressing the **PLAY** Key once plays the latest recorded memory block, then returns to normal operation.
- Pressing the **MKR/MUTE** Key while playing a memory block stops play.
- Pressing the **PLAY** Key during play begins playing the previously recorded memory block. Each subsequent press of the **PLAY** Key begins playing the next previously recorded block.

INTERCOM SYSTEM (ICS) ISOLATION

Press the **PILOT** and/or **COPLT** Key to select those isolated from hearing the Nav/Com radios and music.

Mode	PILOT KEY ANNUNCIATOR	COPLT KEY ANNUNCIATOR	Pilot Hears	Copilot Hears	Passenger Hears
ALL	OFF	OFF	Selected radios; pilot; copilot; passengers; music	Selected radios; pilot; copilot; passengers; music	Selected radios; pilot; copilot; passengers; music
PILOT	ON	OFF	Selected radios; pilot	Copilot; passengers; music	Copilot; passengers; music
COPILOT	OFF	ON	Selected radios; pilot; passengers; music	Copilot	Selected radios; pilot; passengers; music
CREW	ON	ON	Selected radios; pilot; copilot	Selected radios; pilot; copilot	Passengers; music

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GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation using the MFD

1) Press the **Direct-to** (D▸) Key on the MFD.
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 using the PFD

1) Press the **Direct-to** Key (D▸) on the PFD.
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' 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** Key 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.

   OR

   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.
3) 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 will 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.

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

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

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 SVT 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.

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

Blank Page

FLIGHT PLANNING

WEIGHT PLANNING

All procedures apply to the MFD and the Control Unit unless otherwise stated.

Entering Weight Parameters

The Weight Planning Page is displayed after system power-up. If it is necessary to return to this page, turn the large **FMS** Knob to select the 'AUX' page group. Turn the small **FMS** Knob to select the Weight Planning Pge.

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

Entering Fuel Parameters

1) Press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'FUEL ON BOARD' field.
3) Turn the small **FMS** Knob to enter the desired fuel quantity.
4) Press the **ENT** Key. The cursor is now in the 'FUEL RESERVES' field.
5) Turn the small **FMS** Knob to enter the desired reserve fuel quantity.
6) Press the **FMS** Knob to remove the cursor.
7) Press the **ENT** Key.

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' will be 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.

CREATE A USER WAYPOINT USING THE MAP POINTER

1) Press the **Joystick** to activate the panning function and pan to the map location of the desired user waypoint.

2) Press the **ENT** Key. The User Waypoint Information Page is displayed with the captured position.

NOTE: *If the pointer has highlighted a map database feature, one of three things happens upon pressing the* **ENT** *Key: 1) information about the selected feature is displayed instead of initiating a new waypoint, 2) a menu pops up allowing a choice between 'Review Airspaces' or 'Create User Waypoint', or 3) a new waypoint is initiated with the default name being the selected map item.*

3) Enter a user waypoint name (up to six characters).

4) Press the **ENT** Key to accept the selected name.
5) If desired, define the type and location (i.e., LAT/LON, RAD/RAD or RAD/DIS) of the waypoint.
6) Press the **ENT** Key to accept the new waypoint.
7) If desired, change the storage method of the waypoint to "TEMPORARY" or "NORMAL" by moving the cursor to "TEMPORARY" and selecting the **ENT** Key to check or uncheck the box.
8) Press the **FMS** Knob to remove the flashing cursor.
9) Press the **GO BACK** Softkey to return to the map page.

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) Select 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

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 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 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 necessary, 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 (shown by the insertion point indicator).
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' 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 user waypoint.

d) Press the **ENT** Key.

6) 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. The airway is inserted before the highlighted waypoint (as shown by the insertion point indicator). 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 press "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 as indicated by the insertion point indicator).

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.

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.

REMOVING A USER-DEFINED HOLD (CREATED AT THE AIRCRAFT P.POS)

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 PPOS-H waypoint.

3) Press the **CLR** Key. A "Remove Holding Pattern?" confirmation window is displayed.

4) Select 'OK' and press the **ENT** Key. The holding pattern is removed from the active flight plan. Select 'CANCEL' and press the **ENT** Key to cancel the removal of the holding pattern.

REMOVING A USER-DEFINED HOLD (CREATED AT AN ACTIVE 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 MFD **FPL** Key and turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

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

d) 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 for 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 **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 of the MFD and turn the small **FMS** Knob to select the Flight Plan Catalog Page.
   b) Press the **FMS** Knob to activate the cursor.
   c) Turn the large **FMS** Knob to highlight the desired flight plan.
   d) 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 for 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 for 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 for 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 to display the Active Flight Plan Page on the MFD.

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 (as indicated by the insertion point indicator). 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

1) Insert the SD card into the top card slot on the MFD.

2) Press the **FPL** Key on the Control Unit 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 for 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.

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 or TEMP COMP.

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

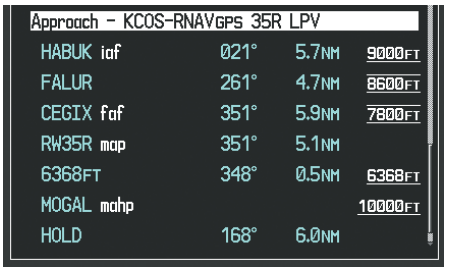
1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE MISSED APPROACH'.
3) Press the **ENT** Key. A confirmation window is displayed.
4) With 'ACTIVATE' highlighted, press the **ENT** Key.

   Or:

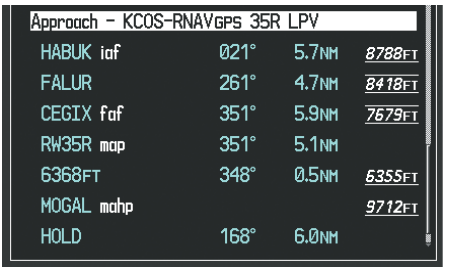
   Press the go-around button:

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.

Blank Page

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.

STORMSCOPE® (OPTIONAL)

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

Displaying Stormscope Lightning Data on the Navigation Map Page

1) Press the **MAP** Softkey.
2) Press the **STRMSCP** Softkey. Press the **STRMSCP** Softkey again to remove Stormscope Lightning Data from the Navigation Map Page.

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

Select 'Cell' or 'Strike' as the Stormscope Lightning Mode

1) Press the **MENU** Key (with the Navigation Map Page displayed).
2) Turn either **FMS** Knob to highlight 'Map Setup'.
3) Press the **ENT** Key.

4) Turn the small **FMS** Knob to highlight 'Weather'.
5) Press the **ENT** Key.
6) Turn the large **FMS** Knob to place the cursor in the 'STRMSCP MODE' field.
7) Turn the small **FMS** Knob to display the 'Cell/Strike' window.
8) Turn either **FMS** Knob to select 'Cell' or 'Strike'. Press the **ENT** Key.
9) Push the **FMS** Knob to return to the Navigation Map Page.

Clear Stormscope Lightning Data from the Navigation Map Page

1) Press the **MENU** Key (with the Navigation Map Page displayed).
2) Turn either **FMS** Knob to highlight the 'Clear Stormscope® Lightning' field and press the **ENT** Key.

NOTE: *If heading input is lost, strikes and/or cells must be cleared manually after the execution of each turn. This is to ensure that the strike and/or cell positions are depicted accurately in relation to the nose of the aircraft.*

Stormscope Page

1) Turn the large **FMS** Knob until the Map Page group is selected.
2) Turn the small **FMS** Knob until the Stormscope Page is selected.

Change the Stormscope Lightning Mode Between 'Cell' and 'Strike'

1) Select the Stormscope Page.
2) Press the **MODE** Softkey. The **CELL** and **STRIKE** Softkeys are displayed. Press the **CELL** Softkey to display 'CELL' data or press the **STRIKE** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box located in the upper left corner of the Stormscope Page.

NOTE: *"Cell mode" uses a clustering program to identify clusters of electrical activity that indicate cells.*

Change the Viewing Mode Between 360˚ and 120˚

1) Select the Stormscope Page.
2) Press the **VIEW** Softkey. The **360** and **ARC** Softkeys are displayed. Press the **360** Softkey to display a 360˚ viewing area or press the **ARC** Softkey to display a 120˚ viewing area.
Press the **CLEAR** Softkey to remove all Stormscope lightning data from the display.

SIRIUSXM WEATHER (OPTIONAL)

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.

Displaying SiriusXM Weather on the Navigation Map Page

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

Display METAR and TAF information on the Airport Information Page

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

Displaying Weather on the SiriusXM Weather Data Link Page

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

Map Panning Information – SiriusXM Weather Data Link Page

1) Push in the **Joystick** to display the panning arrow.
2) Move the **Joystick** to place the panning arrow on AIRMETs, TFRs, METARs, or SIGMETs.

3) Press the **ENT** Key to display pertinent information for the selected product.

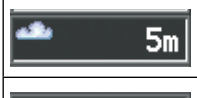
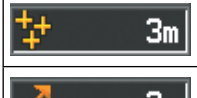
Note that pressing the **ENT** Key when panning over an AIRMET or a SIGMET displays an information box that shows the text of the report. Panning over an airport with METAR information does not display more information but allows the user to press the **ENT** Key and select that Airport's Information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

Enabling/disabling winds aloft data display in Profile View:

1) Select the Navigation Map Page.
2) Press the **MENU** Key.
3) With Map Setup highlighted, press the **ENT** Key
4) Turn the small **FMS** Knob to select the Profile Group and press the **ENT** Key
5) Turn the large **FMS** Knob to select 'Profile Winds'.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.
7) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

NOTE: NEXRAD data cannot be displayed at the same time as terrain, echo tops, turbulence, or icing data is displayed.

SiriusXM Weather Products and Symbols

Wx Product Status Icons	Description
	**NEXRAD** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**ECHO TOP** - The age of the displayed data is shown at the right. Not displayed when CLOUD TOP is displayed.
	**CLOUD TOP** - The age of the displayed data is shown at the right. Not displayed when ECHO TOP is displayed.
	**XM LIGHTNING** - The age of the displayed data is shown at the right.
	**CELL MOVEMENT** - The age of the displayed data is shown at the right.

Wx Product Status Icons	Description
	**SIGMET & AIRMET** - The age of the displayed data for each is shown at the right.
	**METAR** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**SURFACE ANALYSIS with CITY FORECAST** - The upper symbol depicts Surface Analysis. The lower symbol depicts City Forecast. The age of the displayed data for each is shown at the right. The selected forecast period is shown at the bottom.
	**FREEZING LEVEL** - The age of the displayed data is shown at the right.
	**WINDS ALOFT** - Available for the US and Canada. The age of the displayed data for each is shown at the right. The altitude selection is shown at the bottom.
	**COUNTY WARNING** - The age of the displayed data is shown at the right.
	**CYCLONE WARNING** - The age of the displayed data is shown at the right.
	**AIREP** - The age of the displayed data is shown at the right.
	**PIREP** - The age of the displayed data is shown at the right. Urgent Pireps are displayed in yellow.
	**TURBULENCE** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
	**ICING POTENTIAL** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
No Status Icon	**TFR**- Depicted as an area outlined in yellow

CONNEXT WEATHER (OPTIONAL)

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.*

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

Registering with Garmin Flight Data Services

A subscriber account must be established prior to receiving Connext Weather products. Contact Garmin Flight Data Services at https://fly.garmin.com/fly-garmin/support/applications/satelliteservices/ or by calling 1-866-739-5687 in the United States or (011) 913-440-1135.

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

1) With the aircraft outside and having a clear view of the sky, turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select the AUX-SYSTEM STATUS. Note the System ID number in the AIRFRAME field.
3) Turn the large **FMS** Knob to select the MAP Page group.
4) Turn the small **FMS** Knob to select the MAP-WEATHER DATA LINK (CNXT) Page.
5) Press the **MENU** Key. If necessary, select 'Display GFDS Weather'.
6) Press **ENT** Key. The 'GARMIN FLIGHT DATA SERVICE REGISTRATION' Window is now displayed.

7) Press the **MENU** Key. The Page Menu window is now displayed.
8) Using the **FMS** Knob enter the access code obtained from Garmin Flight Data Services in the ACCESS CODE field.
9) Press the **ENT** Key. REGISTER will now be highlighted.
10) Press the **ENT** Key. System registration is complete when 'REGISTERED' is displayed in the STATUS field.

Accessing Connext Weather Products

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

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

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

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

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Radar Precipitation (PRECIP)		30	U.S./Canada: 3* Europe: 15
Infrared Satellite (IR SAT)		60	30
Data Link Lightning (DL LTNG)		30	Continuous

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
SIGMETs/AIRMETs (SIG/AIR)		60	Continuous
Meteorological Aerodrome Report (METARs)		90	Continuous
Winds Aloft (WIND)		60	Continuous
Pilot Weather Report (PIREPs)		90	Continuous
Temporary Flight Restrictions (TFRs)	no product image	60	Continuous
Terminal Aerodrome Reports (TAFs)	no product image	60	Continuous

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

Setting Up and Customizing the Connext Weather Data Link Page

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

Restoring Default Connext Weather Data Link Page Settings

1) Select the Connext Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'Weather Setup' highlighted, press the **ENT** Key.
4) Press the **MENU** Key.
5) Highlight the desired default(s) to restore (all or for selection) and press **ENT** Key.

Switching Between Connext, and SiriusXM Weather Sources

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

Viewing Legends for Displayed Connext Weather Products

1) Select the Connext Weather Data Link Page.
2) Select the **LEGEND** Softkey to display the legends for the displayed weather products.

   Or:

   a) Press the **MENU** Key.

   b) Select 'Weather Legend' and press the **ENT** Key.
3) Turn the **FMS** Knob to scroll through the legends if more are available than fit in the window.
4) To remove the Legend Window, select the **LEGEND** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Setting Up and Customizing Weather Data for the Navigation Map Page

1) Select the Navigation Map Page.
2) Press the **MENU** Key.
3) With 'Map Setup' highlighted, press the **ENT** Key.

4) Turn the small **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.

5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.

6) Turn the small **FMS** Knob to scroll through options for each product (ON/ OFF, range settings).

7) Press the **ENT** Key to select an option.

8) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

Connext Weather Data Requests

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

Requesting Connext Weather Data Manually

1) Select the Connext Weather Data Link Page.

2) Press the **MENU** Key.

3) With 'GFDS Weather Request' highlighted, press the **ENT** Key.

4) Turn the large **FMS** Knob to highlight the desired coverage option(s) and press the **ENT** Key to check or uncheck one of more of the following coverage selections:

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

5) Turn the large **FMS** Knob highlight to the 'DIAMETER / RTE WIDTH' distance field and turn the small **FMS** Knob to select the desired diameter and route width of the request, then press the **ENT** Key.

6) Turn the large **FMS** Knob until the 'SEND REQ' button is highlighted. Press the **ENT** Key to initiate the request immediately or press the **FMS** Knob to return to the Connext Data Link Page without requesting data.

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

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

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

Weather Request Status Message	Description
Auto requests inhibited Send manual request to reset.	The system has disabled automatic weather data requests due to excessive errors. Automatic weather data requests have stopped. Send a manual weather data request to resume automatic updates.
Auto update retry: ## Seconds	The system will attempt another automatic weather data request after an error occurred during the previous request. Timer counts down until the next automatic request occurs.
GFDS Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.
GFDS Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GDL 59 or a GIA is off-line.
GFDS Comm Error [5]	The Iridium or GFDS networks are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.

GFDS Comm Error [6]	A communications error has occurred. It this error persists, the system should be serviced.
GFDS Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the data request.
GFDS Comm Error [8]	A server error has occurred or invalid data received.
GFDS Login Invalid	There is a problem with the GFDS registration. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or (011) 913-440-1135 for assistance.
GFDS Server Temporarily Inop	The GFDS weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
GFDS Server Inop	The GFDS weather data server will be out of service for at least 30 minutes.
Invalid Coverage Area	The weather data request coverage area does not contain at least one of the following: a waypoint, a flight plan, or a flight plan destination. Verify at least one of the coverage options is enabled (checked) and contains required criteria, then re-send the data request.
Weather Request Status Message	**Description**
No GFDS Subscription	The system is not be currently subscribed to GFDS, or the access code is incorrect. Verify the access code. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or (011) 913-440-1135 for assistance.
Reduce Request Area	The GFDS weather data request area exceeds size limits. Reduce weather coverage area and re-send data request.
Request Cancelled	The user has cancelled a GFDS weather data request.
Requested area too large. Reduce coverage area.	The size of the GFDS weather data request has exceeded limits. Reduce the size of the coverage area and try the weather data request again.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.
Transfer Preempted	The data link is busy. Retry request later.

Cancelling a Connext Weather Data Request in Progress

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

Enabling Automatic Connext Data Requests

1) Select the Connext Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Weather Request' highlighted, press the **ENT** Key.
4) Choose the desired weather coverage options.
5) Turn the large **FMS** Knob to select the 'UPDATE RATE' setting. Then turn the small **FMS** Knob to highlight the desired automatic update frequency (OFF, 5 Min, 10 Min, 15 Min, 20 Min, 25 Min, 30 Min, 45 Min, or 60 Min), then press the **ENT** Key.
6) The 'SEND REQ" button is highlighted and a countdown timer is displayed in the 'REQUEST STATUS' based on the currently selected update rate. Press the **ENT** Key to immediately send an immediate Connext Data Request.

   Or:

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

Connext Weather Products

Precipitation

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

***NOTE:** Precipitation data cannot be displayed on the Navigation Map Page at the same time as terrain.*

Displaying Precipitation Weather Information

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

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

Precipitation Limitations

Radar images may have certain limitations:

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

The following may cause abnormalities in displayed radar images:

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

Infrared Satellite

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

Displaying Cloud Tops information

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

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

Data Link Lightning

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

If the aircraft is also equipped with an on-board lightning detection system (e.g., L-3 WX-500 Stormscope®), only one lightning product may be enabled for display at a time.

Displaying Data Link Lightning information

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

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

SIGMETs and AIRMETs

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

Displaying SIGMETs and AIRMETs

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

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

METARs and TAFs

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

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

Displaying METAR and TAF text

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

Or:

1) Select the Weather Information Page.
   a) Turn the large **FMS** Knob to select the Waypoint Page Group.
   b) Select the **WX** Softkey to select the Weather Information Page.
2) Press the **FMS** Knob to display the cursor.
3) Use the **FMS** Knob to enter the desired airport and press the **ENT** Key.
4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. Note that the METAR text must be completely scrolled through before scrolling through the TAF text.

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

Winds Aloft

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

Displaying Winds Aloft data

1) Select the Connext Weather Data Link Page.
2) Select the **MORE WX** Softkey.
3) Select the **WIND** Softkey.
4) Select the desired altitude level: SFC (surface) up to 42,000 feet. Select the **NEXT** or **PREV** Softkey to cycle through the altitude softkeys. The **WIND** Softkey label changes to reflect the altitude selected.

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

PIREPs

Pilot Weather Reports (PIREPs) describe in-flight weather encountered by pilots. A PIREP may contain unforecast adverse weather conditions, such as low in-flight visibility, icing conditions, wind shear, turbulence, and type of aircraft flown. PIREPs are issued as either Routine (UA) or Urgent (UUA).

Displaying PIREP text

1) Select the Connext Weather Data Link Page.
2) Select the **MORE WX** Softkey.
3) Select the **PIREPS** Softkey.
4) Press the **RANGE** Knob and pan to the desired weather report. A gray circle will appear around the weather report when it is selected.
5) Press the **ENT** Key. The PIREP text is first displayed in a decoded fashion, then as raw text.
6) Use the **FMS** Knob or the **ENT** Key to scroll through the PIREP text.
7) Press the **FMS** Knob or the **CLR** Key to close the PIREP text window and return to the Connext Weather Data Link Page.

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

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

TRAFFIC ADVISORY SYSTEM (TAS)

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

WARNING: *Do not rely solely upon the display of traffic information to accurately depict all of the traffic 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. .*

Traffic Symbol	Description
	Non-Threat Traffic (intruder is beyond 5 nm and greater than 1200' vertical separation)
	Proximity Advisory (PA) (intruder is within 5 nm and less than 1200' vertical separation)
	Traffic Advisory (TA) (closing rate, distance, and vertical separation meet TA criteria)
	Traffic Advisory Off Scale

Traffic Symbol Description

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 **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.

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 "TAS System Test OK" is heard. If the self test fails, the system reverts to Standby Mode and a voice alert "TAS System Test Fail" is heard.

Displaying Traffic on the Navigation Map

1) Ensure the TAS system is operating. With the Navigation Map displayed, press the **MAP** Softkey.

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

TERRAIN AND OBSTACLE PROXIMITY

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

Displaying Terrain and Obstacles on the Terrain Proximity Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Terrain Proximity Page.
3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** Softkeys. When the **ARC** Softkey is pressed, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.
4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Displaying Terrain and Obstacles on the Navigation Map

1) With the Navigation Map displayed, press the **MAP** Softkey.
2) Press the **TERRAIN** Softkey. Terrain and obstacle proximity will now be displayed on the map.
3) Terrain and obstacles may be displayed in the Profile View by selecting the **PROFILE** Softkey.

TERRAIN-SVS

NOTE: *Terrain-SVS is only available when the Synthetic Vision Technology (SVT) option is installed and the TAWS-B option has not been installed.*

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

Display Terrain on the TERRAIN-SVS Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Terrain-SVS Page.
3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is selected, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.
4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".
3) Press the **ENT** Key.

Terrain-SVS Inhibit

Inhibit Terrain

While the Terrain-SVS Page is displayed, press the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Inhibit Terrain'.
3) Press the **ENT** Key.

Enable Terrain

While the Terrain-SVS Page is displayed, press the **INHIBIT** Softkey.

Or:

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Enable Terrain'.
3) Press the **ENT** Key.

NOTE: *If Terrain-SVS alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.*

TERRAIN AWARENESS & WARNING SYSTEM (TAWS-B) DISPLAY (OPTIONAL)

WARNING: *Do not use the terrain avoidance feature as the sole means of navigation and terrain separation. The terrain avoidance feature is only to be used as and aid to terrain avoidance. Garmin obtains terrain database content from third party sources and is not able to independently verify the accuracy of the terrain data.*

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

NOTE: *TAWS-B operation is only available when the G1000 is configured for a TAWS-B installation.*

Manual System Test

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Test TAWS'.
3) Press the **ENT** Key. During the test 'TAWS TEST' is displayed in the center of the TAWS-B Page.

   When all is in working order, "TAWS System Test, OK" is heard.

Display Terrain on the TAWS-B Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the TAWS-B Page.
3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is pressed, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.

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

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".
3) Press the **ENT** Key.

TAWS Inhibit

NOTE: *If TAWS-B alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.*

Inhibit TAWS

While the TAWS-B Page is displayed, press the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Inhibit TAWS'.
3) Press the **ENT** Key.

Enable TAWS

While the TAWS-B Page is displayed, press the **INHIBIT** Softkey.

Or:

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Enable TAWS'.
3) Press the **ENT** Key.

AIRBORNE COLOR WEATHER RADAR

WARNING: *Begin transmitting only when it is safe to do so. If it is desired to transmit while the aircraft is on the ground, no personnel or objects should be within 11 feet of the antenna.*

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

Displaying Weather on the Weather Radar Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Weather Radar Page.
3) Press the **MODE** Softkey.
4) If the aircraft is on the ground, press the **STANDBY** Softkey to initiate the one minute warm-up period. After the warm-up is complete, the radar will enter the Standby Mode. After the aircraft is airborne, press the **WEATHER** Softkey.

   Or:

   If the aircraft is already airborne, press the **WEATHER** or **GROUND** Softkey. The one-minute warm-up period will be initiated, after which the radar will begin transmitting. The horizontal scan is initially displayed.
5) Turn the **Joystick** to select the desired range.
6) If desired, press the **VERTICAL** Softkey for vertical scanning.

Adjusting Antenna Tilt

Move the **Joystick** up or down to adjust the tilt of the antenna up or down. Monitor the displayed tilt value in the TILT field.

When scanning vertically, a Tilt Line may be displayed to aid in positioning the tilt of the antenna. If the Tilt Line is not displayed, perform the following steps:

1) Press the **MENU** Key
2) Turn the large **FMS** Knob to select 'Show Tilt Line'.
3) Press the **ENT** Key.

Adjusting Antenna Bearing

Move the **Joystick** right or left to adjust the azimuth position of the antenna right or left. Monitor the displayed bearing value in the BEARING field.

When scanning horizontally, a Bearing Line may be displayed to aid in positioning the antenna for the vertical scan. If the Bearing Line is not displayed, perform the following steps:

1) Press the **MENU** Key
2) Turn the large **FMS** Knob to select 'Show Bearing Line'.
3) Press the **ENT** Key.

Vertically Scan a Storm Cell

1) While in the Horizontal Scan view, move the **Joystick** to place the Bearing Line on the desired storm cell, or other area, to be vertically scanned.
2) Press the **VERTICAL** Softkey. A vertical 'slice' of the selected area will now be displayed.
3) Move the **Joystick** right or left to move the scanned "slice" a few degrees right or left.
4) Turn the **Joystick** to adjust the range.
5) To select a new area to be vertically scanned, press the **HORIZON** Softkey to return to the Horizontal Scan view and repeat the previous steps.

Adjusting Gain

WARNING: *Changing the gain in Weather Mode will cause precipitation intensity to be displayed as a color not representative of the true intensity. Remember to return the gain setting to 'Calibrated' for viewing the actual intensity of precipitation.*

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

Ground Mapping

1) Press the **MODE** Softkey.
2) Press the **GROUND** Softkey to place the radar in Ground Map Mode.
3) Press the **BACK** Softkey.

Sector Scan

1) While in the Horizontal Scan Mode, move the **Joystick** right or left to place the Bearing Line in the desired position. The location of the Bearing Line will become the center point of the Sector Scan.
2) Press the **FMS** Knob to display the cursor.
3) Turn the large **FMS** Knob to place the cursor in the SECTOR SCAN field.
4) Turn the small **FMS** Knob to select FULL, 60˚, 40˚, or 20˚ scan.
5) If desired, readjust the Bearing Line with the **Joystick** to change the center of the Sector Scan.
6) Press the **FMS** Knob to remove the cursor.

Antenna Stabilization

1) To activate or deactivate the antenna stabilization, press the **MODE** Softkey.
2) Press the **STAB ON** Softkey to activate antenna stabilization or press the **STAB OFF** Softkey to deactivate. The current stabilization condition is shown in the upper right of the weather radar display.

Weather Attenuated Color Highlight (WATCH®)

To activate or deactivate the WATCH® feature, press the **WATCH** Softkey. This feature is only available in the Horizontal Scan Mode.

Weather Alert

To activate or deactivate Weather Alert, press the **WX ALRT** Softkey. Activating and deactivating also enables or inhibits the alert on the PFD.

Automatic Standby

When the weather radar system is in the Weather or Ground Map Mode, upon landing the system will automatically switch to Standby Mode.

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 either the accuracy or reliability upon which to solely base decisions and/or plan maneuvers to avoid terrain, obstacles, or traffic.*

WARNING: *Do not use 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 optional enhancement to the G1000 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
- Terrain and Obstacle Alerting
- Three-dimensional Traffic
- Airport Signs
- Runway Display

Displaying SVT Terrain

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

Displaying Pathways

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

Displaying Heading on the Horizon

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

Displaying Airport Signs

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

TERMINAL PROCEDURE CHARTS

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

SafeTaxi®

SafeTaxi® is an enhanced feature that 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®

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 MFD depiction shows the aircraft position on the plan view of most approach charts.

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) or AC-U-KWIK Airport Directory database offers detailed information regarding services, hours of operation, lodging options, and more for various airports. This information is viewed on the WPT-Airport Information Page.

The Airport Directory databases are revised every 56 days. The Airport Directory is always available for use after the expiration date. Check fly.garmin.com for the current database.

View Airport Directory Information

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

SIRIUSXM RADIO ENTERTAINMENT (OPTIONAL)

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

Selecting the XM Radio Page

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

Active Channel and Channel List

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

Selecting a Category

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

1) Select the **CATGRY** Softkey on the XM Radio Page.
2) Select the **CAT +** and **CAT -** softkeys to cycle through the categories.

   Or:

   Turn the small **FMS** Knob to display the 'Categories' list. Highlight the desired category with the small **FMS** Knob.
3) Press the **ENT** Key.

Select an Available Channel within the Selected Category

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

   Or:

Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.

3) With the desired channel highlighted, press the **ENT** Key.

Entering a Channel Directly

1) While on the XM Radio Page, select the **CHNL** Softkey.
2) Select the **DIR CH** Softkey. The channel number in the Active Channel Box is highlighted.
3) Select the numbered softkeys located on the bottom of the display to directly select the desired channel number.
4) Press the **ENT** Key to activate the selected channel.

Assigning Channel Presets

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

1) On the XM Radio Page, with the desired channel active, select the **PRESETS** Softkey to access the first five preset channels (**PS1 - PS5**).
2) Select the **MORE** Softkey to access the next five channels (**PS6 – PS10**), and again to access the last five channels (**PS11 – PS15**). Selecting the **MORE** Softkey repeatedly cycles through the preset channels.
3) Select the **SET** Softkey.
4) Select any one of the (**PS1 - PS15**) softkeys to assign a number to the active channel.

Adjusting Volume

1) With the XM Radio Page displayed, press the **VOL** Softkey.
2) Press the **VOL –** Softkey to reduce volume or press the **VOL +** Softkey to increase volume. (Once the **VOL** Softkey is pressed, the volume can also be adjusted using the small **FMS** Knob.)

Mute SiriusXM Audio

1) Select the XM Radio Page or XM Information Page.
2) Press the **MUTE** Softkey to mute the audio. Press the **MUTE** Softkey again to unmute the audio.

ABNORMAL OPERATION

REVERSIONARY MODE

Should a system detected failure occur in either display, the G1000 automatically enters reversionary mode. In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

In the event of display failure, the display modes are as follows:

- **PFD failure –** Press the **DISPLAY BACKUP** Button on the audio panel to put the MFD in reversionary mode.
- **MFD failure –** PFD1 and PFD 2 enter reversionary mode.
- **PFD2 failure –** PFD 1 and the MFD function normally.

In installations containing one audio panel, reversionary display mode can be manually activated by pressing the **DISPLAY BACKUP** Button on the audio panel.

In installations containing two audio panels, manual activation of reversionary display mode is accomplished by pressing the **DISPLAY BACKUP** Button on the appropriate audio panel.

- **PFD1 –** By pressing the **DISPLAY BACKUP** Button on the left audio panel.
- **MFD –** By pressing the **DISPLAY BACKUP** Button on the left or the right audio panel.
- **PFD2 –** By pressing the **DISPLAY BACKUP** Button on the right audio panel.

***NOTE:** The PA-34-220T Seneca Pilot's Operating Handbook (POH) always takes precedence over the information found in this section.*

ABNORMAL COM OPERATION

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

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

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

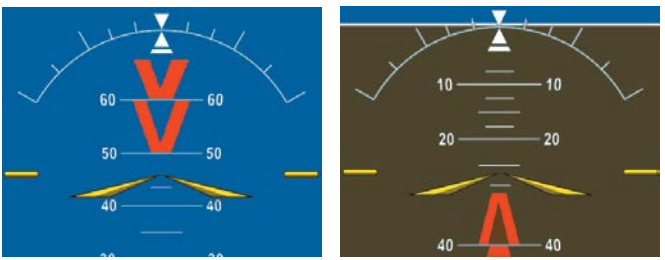
Loss of Hazard Functions with Loss of GPS Position

UNUSUAL ATTITUDES

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

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

- Traffic Annunciations
- AFCS Annunciations
- Flight Director Command Bars
- Inset Map
- Temperatures
- DME Information Window
- Wind Data
- Selected Heading Box
- Selected Course Box
- Transponder Status Box
- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
  - Timer/References
  - Nearest Airports
  - Flight Plan
  - Messages
  - Procedures
- 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 G1000 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 G1000 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 G1000 stops navigating in GPS Mode.*

DR Mode is indicated on the G1000 by the appearance of the letters 'DR' superimposed in yellow over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is prominently displayed, also in yellow, on the HSI slightly above and to the right of the aircraft symbol on the CDI as shown in the following figure. The CDI deviation bar is displayed in yellow, but will be removed from the display after 20 minutes. 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 G1000 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 G1000 through DR while there is no heading and/or airspeed data available should not be used for navigation.

DR Mode is inherently less accurate than the standard GPS/SBAS Mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction compounds the relative inaccuracy of DR Mode. Because of this degraded accuracy, the crew must maintain position awareness using other navigation equipment until GPS-derived position data is restored.

CDI 'DR' Indication on PFD

Symbolic Aircraft
(Map pages and Inset Map)

Dead Reckoning Indications

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

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

Also, while the G1000 is in DR Mode, the autopilot will couple to GPS for up to 20 minutes. Terrain Proximity, TERRAIN-SVS, and TAWS-B are also 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

G1000 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 PA-34-220T Seneca Pilot's Operating Handbook (POH) 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 POH).
	CDI is not receiving valid data from the corresponding GIA. Does not apply when the CDI is set to GPS.
	Display system is not receiving valid heading input from AHRS.
	Display system is not receiving valid transponder information.

G1000 SYSTEM ANNUNCIATIONS (CONT.)

System Annunciation	Comment
	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.

CAS ANNUNCIATIONS

The following alerts are configured specifically for the PA-34-220T Seneca aircraft. See the PA-34-220T Seneca POH for information regarding pilot responses.

Warning Annunciations

Annunciation Window Text	Description	Audio Alert
L ENG CHT	Left engine CHT in warning range	Triple Chime
R ENG CHT	Right engine CHT in warning range	
L ALTR FAIL	Left Alternator failure	
R ALTR FAIL	Right Alternator failure	
L FUEL QTY	Left fuel quantity in warning range	
R FUEL QTY	Right fuel quantity in warning range	
L START ENGD	Left engine starter motor energized when engine is running	
R START ENGD	Right engine starter motor energized when engine is running	
GEAR SYS	A failure of a gear system component has been detected	
CHECK GEAR	Landing gear are not down and locked or landing gear is selected UP on the ground	
HTR OVERHEAT	Heater unit has sensed an overheat condition	
BAGGAGE DOOR	Forward baggage door is not closed	
PROP HEAT FAIL	Propeller heat failure*	

* Optional

Caution Annunciations

Annunciation Window Text	Description	Audio Alert
L FUEL QTY	Left fuel quantity in caution range	Double Chime
R FUEL QTY	Right fuel quantity in caution range	
PITOT HEAT FAIL	Pitot heat failure	
PITOT HEAT OFF	Pitot heat selected OFF	
GEAR SYS	A failure of a gear system component has been detected	

Annunciation Window Text	Description	Audio Alert
CHECK GEAR	Landing gear are not down and locked	Double Chime
HYDR PUMP ON	Hydraulic pump is running when it should not be running	
SURF DEICE FAIL	Surface de-ice system failure*	
VACUUM PRESS LOW	Vacuum system pressure abnormal*	
AC DOOR OPEN	Air conditioning condenser door is open during inflight engine failure condition*	
OXYGEN LOW	Oxygen pressure in caution range*	

* Optional

Advisory Annunciations

Annunciation Window Text	Description	Audio Alert
EMERG BATT ON	Emergency power in use	SingleChime
FUEL IMBAL	Fuel imbalance (left vs. right tank quantity)	
FUEL X-FEED ON	Fuel cross-feed valve selected open	
MAINT MODE ON	Maintenance Mode ON	
MFD FAN FAIL	MFD display fan is inoperative	
PFD1 FAN FAIL	PFD1 display fan is inoperative	
PFD2 FAN FAIL	PFD2 display fan is inoperative	
AV FAN FAIL	Aviation cooling fan is inoperative	
SURF DEICE ON	Surface de-ice normal cycle is active*	
L VAC FAIL	Left engine vacuum pump failure*	
R VAC FAIL	Right engine vacuum pump failure*	
AC DOOR OPEN	Air conditioning condenser door is open*	
BAGGAGE DOOR	Forward baggage door is not closed	

* Optional

SYSTEM MESSAGES

Alerts Window Text	Description
INCOMING CALL	Incoming Iridium voice call*
WOW MISCOMPARE	Left and right squat switches do not agree

* Optional

COMPARATOR ANNUNCIATIONS

Comparator Window Text	Condition
ALT MISCOMP	Difference in altitude sensors is ≥ 200 ft.
IAS MISCOMP	If both airspeed sensors detect < 35 knots, this is inhibited.
	If either airspeed sensor detects ≥ 35 knots, and the difference in sensors is > 10 kts.
	If either airspeed sensor detects ≥ 80 knots, and the difference in sensors is > 7 kts.
HDG MISCOMP	Difference in heading sensors is > 6 degrees.
PIT MISCOMP	Difference in pitch sensors is > 5 degrees.
ROL MISCOMP	Difference in roll sensors is > 6 degrees.
ALT NO COMP	No data from one or both altitude sensors.
IAS NO COMP	No data from one or both airspeed sensors.
HDG NO COMP	No data from one or both heading sensors.
PIT NO COMP	No data from one or both pitch sensors.
ROL NO COMP	No data from one or both roll sensors..

REVERSIONARY SENSOR ANNUNCIATIONS

Reversionary Sensor Window Text	Condition
BOTH ON ADC1	Both PFDs are displaying data from the number one Air Data Computer.
BOTH ON ADC2	Both PFDs are displaying data from the number two Air Data Computer.
BOTH ON AHRS1	Both PFDs are displaying data from the number one Attitude & Heading Reference System.
BOTH ON AHRS2	Both PFDs are displaying data from the number two Attitude & Heading Reference System.

Reversionary Sensor Window Text	Condition
BOTH ON GPS1	Both PFDs are displaying data from the number one GPS receiver.
BOTH ON GPS2	Both PFDs are displaying data from the number two GPS receiver.
USING ADC1	PFD2 is displaying data from the #1 Air Data Computer.
USING ADC2	PFD1 is displaying data from the #2 Air Data Computer.
USING AHRS1	PFD2 is displaying data from the #1 AHRS.
USING AHRS2	PFD1 is displaying data from the #2 AHRS.
USING GPS1	PFD2 is displaying data from the #1 GPS.
USING GPS2	PFD1 is displaying data from the #2 GPS.

VOICE ALERTS

Voice Alert	Priority	Description
"Stall"	Warning	Imminent stall is sensed by stall vane
"Airspeed"		Airspeed has exceeded VNE.
"Minimums, Minimums"		The aircraft has descended below the preset minimum descent altitude
"Check Gear"		Landing gear are not down and locked
"Traffic"	Caution	Played when a Traffic Advisory (TA) is issued with the TIS system.
"Traffic, (distance, bearing, altitude)"		Played when a Traffic Advisory (TA) is issued with the optional GTS 825 TAS system. See the Hazard Avoidance section for additional details on GTS 825 voice alerts.
"Check Gear"		Landing gear are not down and locked
"TAS System Test Passed"	Advisory	Played when the optional GTS 825 traffic system passes a pilot-initiated self test.
"TAS System Test Failed"		Played when the optional GTS 825 traffic system fails a pilot-initiated self test.
"Vertical track"		Aircraft is one minute from Top of Descent. Issued only when VNAV is enabled.
"TIS Not Available"		The aircraft is outside the Traffic Information Service (TIS) coverage area.
"Timer Expired"		Countdown timer on the PFD has reached zero.

TERRAIN-SVS ALERTS

Alert Type	PFD/MFD TERRAIN-SVS Page Annunciation	MFD Pop-Up Alert	Aural Message
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING - TERRAIN	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING - TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING - OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING - OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION - TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION - OBSTACLE	"Caution; Obstacle, Obstacle"

TERRAIN-SVS SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD Alert Annunciation	TERRAIN-SVS Page Annunciation	Aural Message
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting is disabled	TER INH	None	None
MFD Terrain or Obstacle database unavailable or invalid. Terrain-SVS operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None

Alert Type	PFD/MFD Alert Annunciation	TERRAIN-SVS Page Annunciation	Aural Message
Terrain System Test Fail	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
No GPS position	TER N/A	NO GPS POSITION	"Terrain System Not Available"
Excessively degraded GPS signal, Out of database coverage area	TER N/A	None	"Terrain System Not Available"
Sufficient GPS signal received after loss	None	None	"Terrain System Available"

TAWS-B ALERTS

Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	"Pull Up"
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN - PULL-UP or TERRAIN AHEAD - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up" or "Terrain Ahead, Pull Up; Terrain Ahead, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD - PULL-UP or TERRAIN - PULL-UP	Terrain Ahead, Pull Up; Terrain Ahead, Pull Up" or "Terrain, Terrain; Pull Up, Pull Up"

Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP or OBSTACLE AHEAD - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up" or "Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD - PULL-UP or OBSTACLE - PULL-UP	"Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up" or "Obstacle, Obstacle; Pull Up, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN or TERRAIN AHEAD	"Caution, Terrain; Caution, Terrain" or "Terrain Ahead; Terrain Ahead"
Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN AHEAD or CAUTION - TERRAIN	"Terrain Ahead; Terrain Ahead" or "Caution, Terrain; Caution, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE or OBSTACLE AHEAD	"Caution, Obstacle; Caution, Obstacle" or "Obstacle Ahead; Obstacle Ahead"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD or CAUTION - OBSTACLE	"Obstacle Ahead; Obstacle Ahead" or "Caution, Obstacle; Caution, Obstacle"
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"
Altitude Callout "500"	None	None	"Five-Hundred"
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Negative Climb Rate Caution (NCR)	TERRAIN	DON'T SINK or TOO LOW - TERRAIN	"Don't Sink" or "Too Low, Terrain"

TAWS-B SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD Alert Annunciation	TAWS-B Page Annunciation	Aural Message
System Test in Progress	TAWS TEST	TAWS TEST	None
System Test Pass	None	None	"TAWS System Test OK"
TAWS Alerting is disabled	TAWS INH	None	None
MFD Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None
TAWS-B System Test Fail	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
No GPS position	TAWS N/A	NO GPS POSITION	"TAWS Not Available"
Excessively degraded GPS signal, Out of database coverage area	TAWS N/A	None	"TAWS Not Available"
Sufficient GPS signal received after loss	None	None	"TAWS Available"

MFD & PFD MESSAGE ADVISORIES

Message	Comments
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFDs with preferred settings, if desired.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFDs are not communicating with each other. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD and/or MFD self-test has detected a problem. The system should be serviced.
PFD2 SERVICE – PFD2 needs service. Return unit for repair.	
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	
MANIFEST – PFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – PFD2 software mismatch, communication halted.	
MANIFEST – MFD1 software mismatch, communication halted.	
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
PFD2 CONFIG – PFD2 config error. Config service req'd.	
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFDs have different software versions installed. The system should be serviced.

MFD & PFD MESSAGE ADVISORIES (CONT.)

Message	Comments
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD and/or MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD2 COOLING – PFD2 has poor cooling. Reducing power usage.	
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD and/or MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD2 KEYSTK – PFD2 [key name] Key is stuck.	
MFD1 KEYSTK – MFD [key name] Key is stuck.	
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PFD2 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 voltage is low. The system should be serviced.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD and/or PFD detected a failure in the navigation database. Attempt to reload the aviation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 navigation database error exists.	
PFD2 DB ERR – PFD2 navigation database error exists.	

DATABASE MESSAGE ADVISORIES

Message	Comments
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD and/or PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 basemap database error exists.	
PFD2 DB ERR – PFD2 basemap database error exists.	
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD and/or PFD detected a failure in the terrain database. Ensure that the terrain card is properly inserted in display. Replace terrain card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	
PFD2 DB ERR – PFD2 terrain database error exists.	
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 terrain database missing.	
PFD2 DB ERR – PFD2 terrain database missing.	
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD and/or PFD detected a failure in the obstacle database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database error exists.	
PFD2 DB ERR – PFD2 obstacle database error exists.	
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 obstacle database missing.	
PFD2 DB ERR – PFD2 obstacle database missing.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
MFD1 DB ERR – MFD1 airport terrain database error exists.	The MFD and/or PFD detected a failure in the airport terrain database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 airport terrain database error exists.	
PFD2 DB ERR – PFD2 airport terrain database error exists.	
MFD1 DB ERR – MFD1 airport terrain database missing.	The airport terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 airport terrain database missing.	
PFD2 DB ERR – PFD2 airport terrain database missing.	
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD and/or PFD detected a failure in the Safe Taxi database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	
PFD2 DB ERR – PFD2 Safe Taxi database error exists.	
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD and/or PFDs 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 and/or PFDs 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 Airport Directory database error exists.	The MFD and/or PFD 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.
PFD1 DB ERR – PFD1 Airport Directory database error exists.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
NAV DB UPDATED – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFDs and MFD have different navigation database versions or regions installed. Crossfill is off. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Standby Navigation database mismatch.	The PFDs and MFD have different standby navigation database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFDs and MFD have different terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFDs and MFD have different obstacle database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Airport Terrain database mismatch.	The PFDs and MFD have different airport terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
TERRAIN DSP – [PFD1, PFD2 or MFD1] Terrain awareness display unavailable.	One of the terrain, airport terrain, or obstacle databases required for TAWS in the specified PFD or MFD is missing or invalid.

GMA 1347 MESSAGE ADVISORIES

Message	Comments
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The G1000 system should be serviced.
GMA2 FAIL – GMA2 is inoperative.	
GMA XTALK – GMA crosstalk error has occurred.	An error has occurred in transferring data between the two GMAs. The G1000 system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The G1000 system should be serviced.
GMA2 CONFIG – GMA2 config error. Config service req'd.	
MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The G1000 system should be serviced.
MANIFEST – GMA2 software mismatch, communication halted.	
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 G1000 system should be serviced when possible.
GMA2 SERVICE – GMA2 needs service. Return unit for repair.	

GIA 63W MESSAGE ADVISORIES

Message	Comments
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 and/or GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 and/or GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	
GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 COOLING – GIA2 temperature too low.	
GIA1 COOLING – GIA1 over temperature.	The GIA1 and/or GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 over temperature.	
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 and/or GIA2 self-test has detected a problem in the unit. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 and/or GIA 2 has incorrect software installed. The system should be serviced.
MANIFEST – GIA2 software mismatch, communication halted.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
MANIFEST– COM1 software mismatch, communication halted.	COM1 and/or COM2 software mismatch. The G1000 system should be serviced.
MANIFEST– COM2 software mismatch, communication halted.	
MANIFEST– NAV1 software mismatch, communication halted.	NAV1 and/or NAV2 software mismatch. The G1000 system should be serviced.
MANIFEST– NAV2 software mismatch, communication halted.	
COM1 CONFIG – COM1 config error. Config service req'd.	COM1 and/or COM2 configuration settings do not match backup configuration memory. The G1000 system should be serviced.
COM2 CONFIG– COM2 config error. Config service req'd.	
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1 and/or COM2. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1 and/or COM2. COM1 and/or COM2 may still be usable. The system should be serviced when possible.
COM2 SERVICE – COM2 needs service. Return unit for repair.	
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 and/or COM2 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	

GIA 63W MESSAGE ADVISORIES (CONT.)

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

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 and/or NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The system should be serviced.
G/S2 FAIL – G/S2 is inoperative.	
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The receiver may still be available. The system should be serviced when possible.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	
FAILED PATH – A data path has failed.	A data path connected to the GDU or the GIA 63/W has failed.

GEA 71 MESSAGE ADVISORIES

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

GTX 33 & 33 W/ES MESSAGE ADVISORIES

Message	Comments
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.

GTX 33 & 33 W/ES MESSAGE ADVISORIES (CONT.)

Message	Comments
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR1 ADS-B FAIL – XPDR1 unable to transmit ADS-B messages.	GTX 33 w/ES only. ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.

GRS 77 MESSAGE ADVISORIES

Message	Comments
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.
AHRS2 TAS – AHRS2 not receiving valid airspeed.	The #2 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS2 GPS – AHRS2 using backup GPS source.	The #2 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.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The #2 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.

GRS 77 MESSAGE ADVISORIES (CONT.)

Message	Comments
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The #2 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.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The #2 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS2 SRVC – AHRS2 Magnetic-field model needs update.	The #2 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	
MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.
MANIFEST – GRS2 software mismatch, communication halted.	The #2 AHRS has incorrect software installed. The system should be serviced.

GMU 44 MESSAGE ADVISORIES

Message	Comments
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HDG FAULT – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.

GMU 44 MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
MANIFEST – GMU2 software mismatch, communication halted.	

GDL 69A MESSAGE ADVISORIES

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

GDC 74A MESSAGE ADVISORIES

Message	Comments
MANIFEST – GDC1 software mismatch, communication halted.	The GDC 74A has incorrect software installed. The system should be serviced.
MANIFEST – GDC2 software mismatch, communication halted.	

GWX 68 ALERT MESSAGES

Message	Comments
GWX CONFIG – GWX config error. Config service req'd.	GWX 68 configuration settings do not match those of the GDU configuration. The system should be serviced.
GWX FAIL – GWX is inoperative.	The GDU is not receiving status packet from the GWX 68 or the GWX 68 is reporting a fault. The GWX 68 radar system should be serviced.
GWX SERVICE – GWX needs service. Return unit for repair.	A failure has been detected in the GWX 68. The GWX 68 may still be usable.
MANIFEST – GWX software mismatch, communication halted.	The GWX 68 has incorrect software installed. The system should be serviced.
WX ALERT – Possible severe weather ahead.	Possible severe weather detected within +/- 10 degrees of the aircraft heading at a range of 80 to 320 nm.

MISCELLANEOUS MESSAGE ADVISORIES

Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-up, the system detects that a stored flight plan waypoint is locked. This occurs when an aviation 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 aviation database update. Verify that stored flight plans contain correct waypoint locations.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

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

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
APR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
VNV – Unavailable. Excessive 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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
VNV – Unavailable. Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
NON WGS84 WPT – Do not use GPS for navigation to [xxxx]	The position of the selected waypoint [xxxx] is not calculated based on the WGS84 map reference datum and may be positioned in error as displayed. Do not use GPS to navigate to the selected non-WGS84 waypoint.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
FAILED PATH – A data path has failed.	A data path connected to the GDU, GDL 69A, or the GIA 63/W has failed.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The G1000 system should be serviced.
MAG VAR WARN – Large magnetic variance. Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
SVT – SVT DISABLED: Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVT – SVT DISABLED: Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
[PFD1, PFD2, 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, PFD2, 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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
[PFD1, PFD2, 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, PFD2, 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.
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.
TRN AUD FAIL – Trn Awareness audio source unavailable.	The audio source for terrain awareness is offline. Check GIA1 or GIA 2.
TERRAIN AUD CFG – Trn Awareness audio config error. Service req'd.	Terrain audio alerts are not configured properly. 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.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. One or more of these waypoints did not import successfully.

Flight Plan Import/Export Results	Description
'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.
'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 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.

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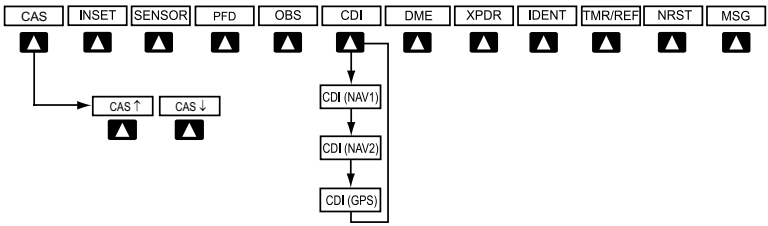
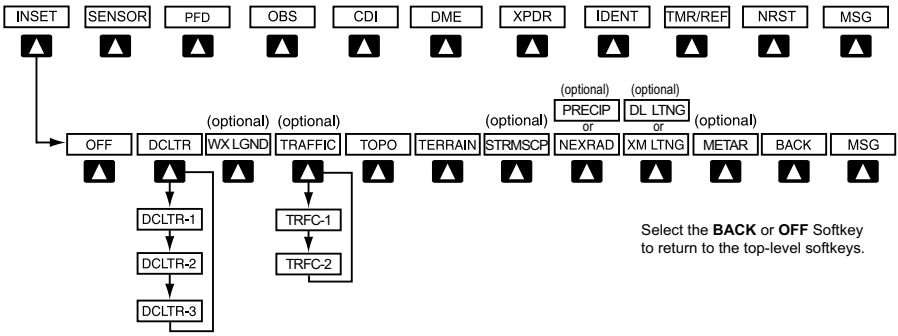
APPENDIX

PFD SOFTKEY MAP



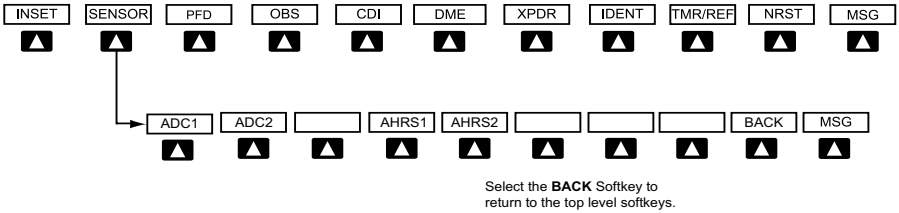
Top Level PFD Softkeys



Inset Map Softkeys

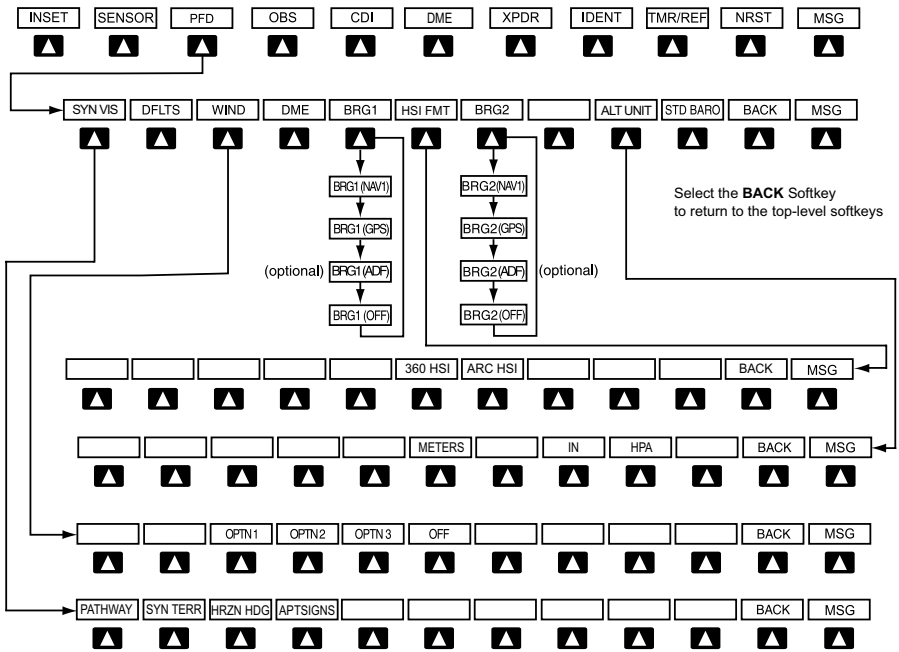
Level 1	Level 2	Description
CAS		Displayed only when a sufficient number of items are displayed in the Annunciation Window to warrant scrolling
	CAS ↑	When available, scrolls up through the caution alerts when pressed
	CAS ↓	When available, scrolls down through the caution alerts when pressed
INSET		Displays Inset Map in PFD lower left corner
	OFF	Removes Inset Map

Level 1	Level 2	Description
	DCLTR (3)	Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan
	WX LGND	Displays icon and age on the Inset Map for the selected weather products (optional)
	TRAFFIC	Cycles through traffic display options: TRFC-1: Traffic displayed on inset map TRFC-2: Traffic Map Page is displayed in the inset map window. (optional feature)
	TOPO	Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map
	TERRAIN	Displays terrain information on Inset Map
	STRMSCP	Press to display the Stormscope lightning data on the Inset Map (within a 200 nm radius of the aircraft)
	NEXRAD **or** **PRECIP**	Displays NEXRAD weather and coverage information on Inset Map (optional) Displays Connext™ or FIS-B precipitation on Inset Map (optional)
	XM LTNG **or** **DL LTNG**	Displays SiriusXM lightning information on Inset Map (optional) Displays Connext™ Weather lightning information on Inset Map (optional)
	METAR	Displays METAR flags on airport symbols shown on the Inset Map (optional)



Sensor Softkeys

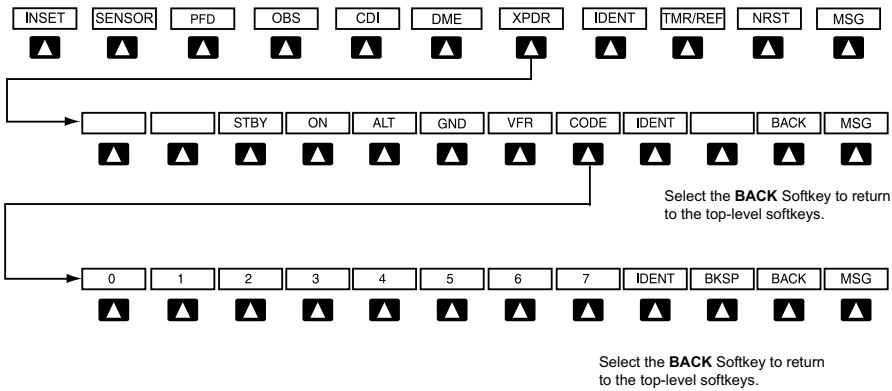
Level 1	Level 2	Description
SENSOR		Displays softkeys for selecting the #1 and #2 AHRS and Air Data Computers
	ADC1	Selects the #1 Air Data Computer
	ADC2	Selects the #2 Air Data Computer
	AHRS1	Selects the #1 AHRS
	AHRS2	Selects the #2 AHRS



PFD Configuration Softkeys

Level 1	Level 2	Level 3	Description
PFD			Displays second-level softkeys for additional PFD configurations
	SYN VIS		Displays the softkeys for enabling or disabling Synthetic Vision features
		PATHWAY	Displays rectangular boxes representing the horizontal and vertical flight path of the active flight plan
		SYN TERR	Enables synthetic terrain depiction
		HRZN HDG	Displays compass heading along the Zero-Pitch line
		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	Wind direction arrows with head-wind and crosswind components
		OPTN 2	Wind direction arrow and speed
		OPTN 3	Wind direction arrow with direction and speed
		OFF	Information not displayed
	DME		Press to display the DME information window
	BRG1		Cycles the Bearing 1 Information Window through NAV1 or GPS/ waypoint identifier and GPS-derived distance information.
	HSI FRMT		Displays the HSI formatting softkeys

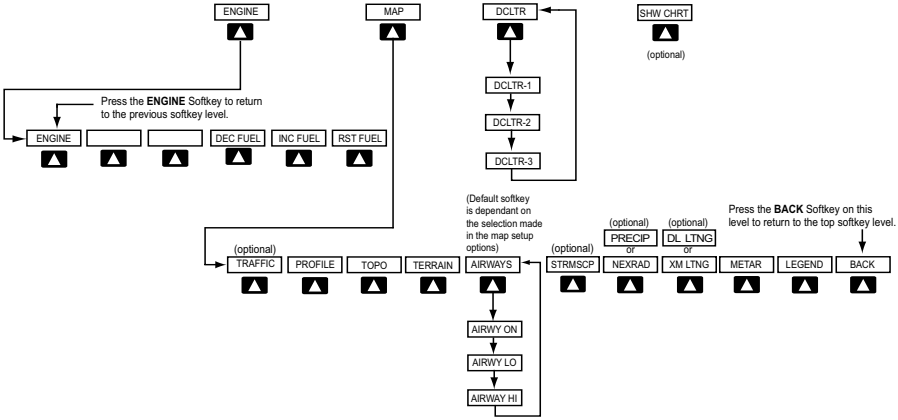
Level 1	Level 2	Level 3	Description
		360 HSI	Displays the HSI in a 360 degree format
		ARC HSI	Displays the HSI in an arc format
	BRG2		Cycles the Bearing 2 Information Window through NAV2 or GPS/ waypoint identifier and GPS-derived distance information.
	ALT UNIT		Displays softkeys for setting the 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)
	ALT		Selects Mode C – Altitude Reporting Mode (transponder replies to identification and altitude interrogations)
	GND		Manually selects Ground Mode, the transponder does not allow Mode A and Mode C replies, but it does permit acquisition squitter and replies to discretely addressed Mode S interrogations.
	VFR		Automatically enters the VFR code (1200 in the U.S.A. only)
	CODE		Displays transponder code selection softkeys 0-7
		0 — 7	Use numbers to enter code
		BKSP	Removes numbers entered, one at a time
IDENT			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
TMR/ REF			Displays Timer/References Window
NRST			Displays Nearest Airports Window
MSG			Displays Message Window

MFD SOFTKEY MAP



MFD Softkeys

Level 1	Level 2	Level 3	Level 4	Description
ENGINE				Displays the default engine softkey level. Press again to return to the previous softkey level.
	DEC FUEL			Press to decrease fuel quantity in 1-gallon increments
	INC FUEL			Press to increase fuel quantity in 1-gallon increments
	RST FUEL			Resets remaining fuel to zero
MAP				Enables second-level Navigation Map softkeys
	TRAFFIC			Displays traffic information on Navigation Map (optional)
	PROFILE			Displays/removes Profile View on Navigation Map Page

Level 1	Level 2	Level 3	Level 4	Description
	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
	STRMSCP			Displays Stormscope lightning on the Navigation Map (optional feature). Stormscope lightning and XM lightning are mutually exclusive when displaying on the Navigation Map.
	NEXRAD or PRECIP			Displays NEXRAD weather and coverage information on the Navigation Map (optional) Displays Connext™ or FIS-B precipitation on Navigation Map (optional)

Level 1	Level 2	Level 3	Level 4	Description
	XM LTNG **or** **DL LTNG**			Displays SiriusXM lightning information on the Navigation Map (optional) Displays Connext™ Weather lightning information on the Navigation Map (optional)
	METAR			Displays METAR flags on airport symbols shown on the Navigation Map (optional)
	LEGEND			Displays the legend for the selected weather products. Available only when NEXRAD, XM LTNG, PROFILE and/or METAR softkeys are selected.
	BACK			Returns to top-level soft-keys
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
SHW CHRT				When available, displays optional airport and terminal procedure charts

LOADING UPDATED DATABASES

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

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

In some cases it may be necessary to obtain an unlock code from Garmin in order to make the database product functional. It may also be necessary to have the system configured by a Garmin authorized service facility in order to use some database features.

If an error occurs during synchronization, an error message will be displayed, followed by the affected display in the Sync Status section of the Database Window. If synchronization completes on one display, but an error occurs on another, the error message will be displayed with the affected 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

Loading Garmin Database Updates

Updating Basemap, SafeTaxi, Airport Terrain, Obstacle, and Airport Directory Databases

These databases may be copied to one Supplemental Data Card, then automatically synchronized to other card in the system:

1) With system power OFF, remove the MFD database card from the bottom card slot of the MFD.

2) Update the basemap, SafeTaxi, airport terrain, obstacle and/or airport directory databases on the MFD card.

3) Insert the MFD database card into the bottom card slot of the MFD.

4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. If a 'Verifying' message is seen, wait for the system to finish loading before proceeding to step 5.

5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.

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

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

8) Monitor the Sync Status in the Database Window. Wait for all databases to complete synching, indicated by 'Complete' being displayed.

9) Remove and reapply power to the system.

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

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

12) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB, PFD1 DB,** or **PFD2 DB**). Verify the correct database cycle information is shown for each database for each display.

Updating Terrain, FliteCharts, and ChartView Databases

1) With system power OFF, remove the Supplemental Data Card from the bottom card slot of the MFD and both PFDs.

2) Copy the updated terrain database to both Supplemental Data Cards. Copy the updated FliteCharts or ChartView database to one Supplemental Data Card.

3) Insert the updated Supplemental Data Cards into the bottom card slot of the MFD and PFDs. The Supplemental Data Card containing the FliteCharts or ChartView database is inserted in the MFD.

4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. A 'Verifying' message may be seen. If this message is present, wait for the system to finish loading before proceeding to step 5.

5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.

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

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

8) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB, PFD1 DB,** or **PFD2 DB**). Verify the correct database cycle information is shown for each database for each display.

9) Remove power from the system.

Loading the Jeppesen Navigation Database as the Active Navigation Database

The Jeppesen Navigation Database that is loaded to internal memory as the active database will be used by the system.

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

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

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display (PFD1, PFD2 or MFD) to be updated (label of SD card facing left).

2) Turn the system ON. A prompt is displayed in the upper left corner of the display:

```
DO YOU WANT TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD?
THE STANDBY DATABASE WILL BE ACTIVATED UPON THE FIRST ON-GROUND POWER CYCLE ON OR
AFTER 00:00 SYSTEM TIME ON THE EFFECTIVE DATE.
            FROM            TO
REGION:     WORLDWIDE       WORLDWIDE
CYCLE:      1211            1212
EFFECTIVE:  26-AUG-2012     18-NOV-2012
EXPIRES:    23-SEP-2012     16-DEC-2012

NO WILL BE ASSUMED IN 21 SECONDS.
```

3) Press the **NO** Softkey to proceed to loading the active database.
4) A prompt similar to the following is displayed. Press the **YES** Softkey to update the active navigation database.

```
DO YOU WANT TO UPDATE THE ACTIVE NAVIGATION DATABASE?
SELECTING YES WILL OVERWRITE THE ACTIVE NAVIGATION DATABASE.
            FROM            TO
REGION:     WORLDWIDE       WORLDWIDE
CYCLE:      1211            1212
EFFECTIVE:  26-AUG-2012     18-NOV-2012
EXPIRES:    23-SEP-2012     16-DEC-2012

NO WILL BE ASSUMED IN 8 SECONDS.
UPDATING THE ACTIVE NAVIGATION DATABASE, PLEASE WAIT.
.
UPDATED 1 FILES SUCCESSFULLY!
PRESS ANY KEY TO CONTINUE.
CONTINUING IN 8 SECONDS.
```

5) After the update completes, the display starts in normal mode.
6) Turn the system OFF and remove the SD card from the top card slot.
7) Repeat steps 1 through 6 for the other displays (PFD1, PFD2 or MFD).
8) Apply power to the system and press the **ENT** Key to acknowledge the startup screen.
9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
10) Turn the small **FMS** Knob to select the System Status Page.
11) Press the Display Database Selection Softkey to show active navigation database information for each display (**MFD1 DB**, **PFD1 DB, PFD2 DB**). Verify the correct active navigation database cycle information is shown for each display.

Loading the Jeppesen Navigation Database as the Standby Navigation Database

The purpose of the Standby Navigation Database is to allow the loading of the next cycle of the Jeppesen Navigation Database to the bottom SD card, prior to its effective date. (The Jeppesen Navigation Database is available from Jeppesen seven days prior to its effective date.)

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

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

2) Verify that an SD card is inserted in the bottom slot of each PFD and the MFD.

3) Turn the system ON. A prompt is displayed.

```
DO YOU WANT TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD?
THE STANDBY DATABASE WILL BE ACTIVATED UPON THE FIRST ON-GROUND POWER CYCLE ON OR
AFTER 00:00 SYSTEM TIME ON THE EFFECTIVE DATE.
            FROM            TO
REGION:     WORLDWIDE       WORLDWIDE
CYCLE:      1211            1212
EFFECTIVE:  26-AUG-2012     18-NOV-2012
EXPIRES:    23-SEP-2012     16-DEC-2012

NO WILL BE ASSUMED IN 21 SECONDS.
```

4) Press the **YES** Softkey. The navigation database is copied to the SD card in the bottom card slot of the MFD.

5) After the navigation database files are copied to the bottom SD card, press any key to verify, as instructed.

6) After database verification is complete, press any key to continue as instructed on the display.

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

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

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

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

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

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

12) Turn system power OFF.

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

14) Turn system power ON.

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

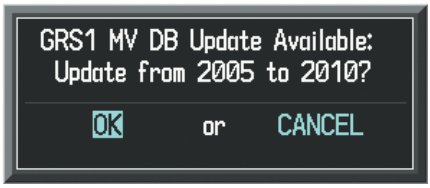
16) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

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

18) Press the Display Database Selection Softkey to show standby navigation database information for each display (**MFD1 DB**, **PFD1 DB, PFD2 DB**). Verify the correct standby navigation database cycle information is shown for each display.

Magnetic Field Variation Database Update

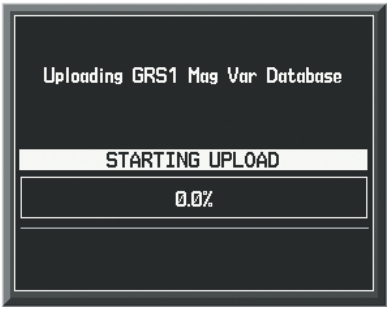
At startup, the system compares this version of the MV DB with that presently being used by each AHRS (GRS1 and GRS2). If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page, as shown in the following figure. Note, in the following example, GRS1 is the first AHRS to indicate an update is available. In actuality, this is dependent on which AHRS is the first to report status to the system. GRS2 may be displayed before GRS1. The order is not important, only that both AHRS be updated.



GRS1 Magnetic Field Variation Database Update Prompt

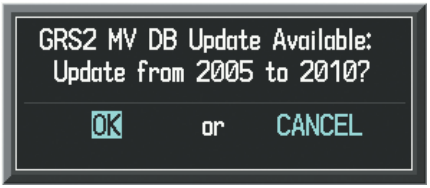
Loading the magnetic field variation database update:

1) 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.



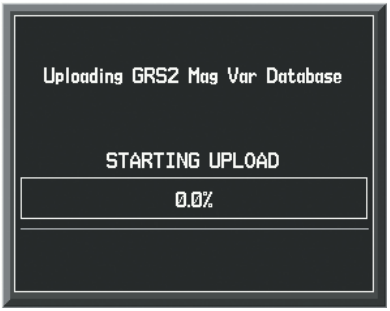
Uploading Database to GRS1

2) When the upload is complete, the prompt for the next GRS upload is displayed, as seen in the following figure.



GRS2 Magnetic Field Variation Database Update Prompt

3) With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed as shown in the following figure. When the upload is complete, the system is ready for use.



Uploading Database to GRS2

T

V

W

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