

GARMIN

G3000® Integrated Flight Deck

Cockpit Reference Guide



TBM 930

FLIGHT INSTRUMENTS

ENGINE & AIRFRAME SYSTEMS

NAV/COM/TRANSPONDER/AUDIO PANEL

AUTOMATIC FLIGHT CONTROL SYSTEM

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This manual reflects the operation of System Software 2234.03 or later for the Socata TBM 930. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

Garmin International, Inc.

1200 East 151st Street, Olathe, Kansas 66062, U.S.A.

Tel: 913.397.8200

Fax: 913.397.8282

Aircraft On Ground (AOG) Hotline: 913.397.0836

Aviation Dealer Technical Support: 888.606.5482

Garmin AT, Inc.

2345 Turner Road SE, Salem, OR 97302, U.S.A.

Tel: 503.581.8101

Fax 503.364.2138

Garmin (Europe) Ltd.

Liberty House, Hounsdown Business Park, Southampton, Hampshire SO40 9LR U.K.

Tel: +44 (0) 238 052 4000

Fax: +44 (0) 238 052 4004

Aviation Support: +44 (0) 370 850 1243

Garmin Corporation

No. 68, Zhangshu 2nd Road, Xizhi District, New Taipei City, Taiwan

Tel: 34-93-357-2608

Fax: 34-93-429-4484

Web Site Address: www.garmin.com

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



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



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



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



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



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



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



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



WARNING: Always obtain qualified instruction prior to operational use of this equipment.



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



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



WARNING: When using the autopilot to fly an approach with vertical guidance, the autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.



WARNING: Do not rely 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: Because of variation in the earth's magnetic field, do not rely on the accuracy of attitude and heading indications (GRS 77 installations only) in the following geographic areas: 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 rely on information from a lightning detection system display as the sole basis for hazardous weather avoidance. Range limitations and interference may cause the system to display inaccurate or incomplete information. Refer to documentation from the lightning detection system manufacturer for detailed information about the system.



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



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



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



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



WARNING: Do not assume weather radar transmission is disabled unless all display panes displaying weather radar are set to Standby Mode, and are displaying 'STANDBY' in the center of each weather radar display. Transmission is also disabled by touching the Radar On Button or pressing the Radar On Softkey to set the weather radar system to Off Mode, as indicated by a gray annunciator.



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



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



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



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



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



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



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



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



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



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



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



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



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



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

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



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



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



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



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



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



NOTE: Operate G3000 system power through at least one cycle in a period of four days of continuous operation to avoid an autonomous system reboot.

Part Number	Change Summary
190-02047-00	
Rev A	Initial release
Rev B	Removed APR Advisory System Message
Rev C	Added Animated NEXRAD for SiriusXM Weather

Revision	Date of Revision	Affected Pages	Description
A	March, 2016	All	Added Support for HF Radio Added SELCAL Added other GDU 6.56 parameters

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FLIGHT INSTRUMENTS

SELECTING THE ALTIMETER BAROMETRIC PRESSURE SETTING

- 1) Turn the applicable **BARO** Knob (located either side of the AFCS controller) to select the desired setting.
- 2) Press the **BARO** Knob after descending past the barometric transition altitude.

SELECTING STANDARD BAROMETRIC PRESSURE

Press the **BARO** Knob to select standard pressure; STD BARO is displayed in the Barometric Setting box.

CHANGING ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) Scroll down, and touch the Baro Select Units Button.
- 3) Touch either the **Inches (IN)** or **Hectopascals (HPA)** Button.

SETTING THE BARO TRANSITION ALERT

- 1) From the **Home** Screen, touch **Utilities > Setup > Avionics Settings**.
- 2) Touch the **Alerts** Tab.
 - To turn the alert on or off, touch the respective **BARO Transition ALT Climb** or **BARO Transition LVL Descent** Button.
 - To set or change the Baro Transition Alert Altitude, touch the respective data field. Enter the desired altitude or flight level on the keypad, and touch **Enter**.

SYNCHRONIZING THE ALTIMETER BAROMETRIC PRESSURE SETTINGS

- 1) From the **Home** Screen, touch **Utilities > Setup > Avionics Settings**.
- 2) Touch the **System** Tab.
- 3) Scroll until Sync Altimeter Baro Pressure becomes visible.

- 4) To turn the function on or off, touch the Sync Altimeter Baro Pressure data field.
- 5) Touch the button for the desired setting synchronization setting (**On** or **Off**).

SETTING THE SELECTED ALTITUDE

Turn the **ALT SEL** Knob to set the Selected Altitude in 100-ft increments (increments reduce to 10 feet for approach) up to the aircraft's service ceiling. When meters are displayed, Selected Altitude is adjusted in 50 meter increments.

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

If desired, press the **ALT SEL** Knob to synchronize the selected altitude to the displayed altitude to the nearest 10 ft.

DISPLAYING SELECTED ALTITUDE IN METERS

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) Scroll down until Meters Overlay **Enable** becomes visible.
- 3) To turn the function on or off, touch the Meters Overlay **Enable** Button. An illuminated green annunciator below 'Enable' indicates that the function is on.

SETTING THE MINIMUM DESCENT ALTITUDE/DECISION HEIGHT

- 1) From the MFD **Home** Screen, touch **Utilities > Minimums**.
- 2) Touch the **Minimums** Button.
- 3) Touch **Baro, Temp Comp** (use the keypad to enter the desired temperature for temperature compensated VNAV), **or Radio Alt**, (**OFF** is selected by default). To remove the window from the PFD display, touch **OFF**.
- 4) Use the keypad to enter the desired altitude (from zero to 16,000 feet for Baro and zero to 2,500 feet for Radio Alt), and touch **Enter**.

TESTING THE RADAR ALTIMETER (KRA 405B ONLY)

- 1) Turn the **FMS** Knob to select the AUX - System Status Page on the MFD.
- 2) Select the **RA TEST** Softkey.

Or:

- 1) Press the **MENU** Key.
- 2) Turn the **FMS** Knob to highlight 'Enable RA Test Mode' and press the **ENT** Key.

The 'RA TEST' annunciation is displayed above the RA box. To cancel the test, select the **RA TEST** Softkey again, or turn the **FMS** Knob to exit the AUX - System Status Page.

CHANGE NAVIGATION SOURCES

- 1) From the **PFD Home** Page, touch the **Nav Source** Button to change from FMS to VOR1/LOC1.
- 2) Touch the **Nav Source** Button again to change from VOR1/LOC1 to VOR2/LOC2.
- 3) Touch the **Nav Source** Button a third time to return to FMS.

Or:

- 1) Press the **Active NAV** Softkey to change from FMS to VOR1/LOC1.
- 2) Press the **Active NAV** Softkey again to change from VOR1/LOC1 to VOR2/LOC2.
- 3) Press the **Active NAV** Softkey a third time to return to GPS.

SELECTING THE AOA INDICATOR DISPLAY MODE

- 1) From **PFD Home**, touch the **PFD Settings** Button.
- 2) Select AOA settings button.
- 3) Touch the **On**, **Off**, or **Auto** Button.

CHANGING THE SELECTED FMS CDI SETTING

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Setup** > **Avionics Settings**.
- 2) Touch the **System** Tab.

- 3) Touch the **GPS CDI** Data Field.
- 4) Touch the desired setting (**2.00 NM**, **1.00 NM**, **0.30 NM**, or **AUTO**).

CHANGING NAVIGATION ANGLE SETTING

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Setup** > **Avionics Settings**.
- 2) Touch the **Units** Tab.
- 3) Touch the **Nav Angle** Button.
- 4) Touch the desired setting (**Magnetic** or **True**).

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH FMS

- 1) From **PFD Home**, touch the **OBS** Button to select OBS Mode.
- 2) Turn the **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) Touch the **OBS** Button again to return to automatic waypoint sequencing.

ADJUSTING SELECTED HEADING

- 1) Turn the **HDG** Knob on the AFCS Controller to set the Selected Heading.
- 2) Press the **HDG** Knob to synchronize the bug to the current heading.

ADJUSTING SELECTED COURSE

- 1) Turn the **CRS** Knob to set the Selected Course (for each PFD).
- 2) Press the **CRS** Knob to re-center the CDI and return the course pointer to the bearing of the active waypoint or navigation station (see OBS Mode for adjusting a GPS course).

SELECTING BEARING DISPLAY AND CHANGING NAVIGATION SOURCES

- 1) From **PFD Home**, touch the **Bearing 1** Button or the **Bearing 2** Button to display the desired bearing pointer and information with NAV1 source.
- 2) Touch the **Bearing** Button again to change the bearing source to NAV2.
- 3) Touch the **Bearing** Button again to change the bearing source to FMS.

- 4) Touch the **Bearing** Button again to change the bearing source to ADF.
- 5) To remove the bearing pointer and information, touch the **Bearing** Button again.

DISPLAYING WIND DATA

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) Scroll as necessary, and touch the Wind Button.
- 3) Touch the Wind Data Field.
- 4) Touch desired wind option button (**Option 1**, **Option 2**, **Option 3**, or **Off**) to change how wind data is displayed.
 - **Option 1**: Wind direction arrows with headwind and crosswind components
 - **Option 2**: Wind direction arrow and speed
 - **Option 3**: Wind direction arrow with direction and speed
 - **Off**: Removes wind data from the PFD

DISPLAYING THE AOA INDICATOR

- 1) From **PFD Home**, touch the **PFD Settings** Button.
- 2) Touch the **Other PFD Settings** Button.
- 3) Touch the **On**, **Off**, or **Auto** Button. Selecting **Auto** has the same function as selecting **On**.

MANUALLY CHANGING VSPEEDS AND ENABLING/DISABLING VSPEED BUGS

- 1) From **PFD Home**, touch **Speed Bugs**.
- 2) Touch the enable/disable button for the corresponding Vspeed. If the enable/disable button is diminished, a Vspeed value must be provided before the Vspeed bug can be enabled.
- 3) To change a Vspeed value, touch datafield button for the corresponding Vspeed. Then enter a value for the selected Vspeed using either the Keypad or the large and small upper knobs. When finished, touch **Enter**. The pencil icon next to the Vspeed value indicates that the Vspeed is a pilot-entered value.

ENABLING/DISABLING VSPEED BUGS AS A GROUP

- 1) From **PFD Home**, touch **Speed Bugs**.
- 2) To enable all Vspeed bugs, touch the **All On** Button. To disable all Vspeed bugs, touch the **All Off** Button.

RESTORING ALL VSPEED DEFAULT VALUES

- 1) From **PFD Home**, touch **Speed Bugs**.
- 2) Touch the **Restore All Defaults** Button. The system restores all takeoff and landing Vspeed reference settings to their default values, and disables the display of all Vspeed bugs.

SYNTHETIC VISION SYSTEM



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.

Garmin SVT™ (Synthetic Vision Technology) functionality is offered as an enhancement to the 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).

In addition to SVT enhancement to the PFD, the following features have been added to the PFD:

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

Enabling/disabling SVT Terrain with Flight Path Marker:

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) Touch the SVT Terrain **Enable** Button. Button annunciator is green when enabled, gray when disabled.

Enabling/disabling Horizon Headings:

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) If necessary, touch the SVT Terrain **Enable** Button to enable the display of SVT Terrain (button annunciator is green).
- 3) Scroll as necessary, then touch the Horizon Heading **Enable** Button. Button annunciator is green when enabled, gray when disabled.

Enabling/disabling SVT Pathways:

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) If necessary, touch the SVT Terrain **Enable** Button to disable the display of SVT Terrain (button annunciator is gray).
- 3) Scroll and touch the SVT Pathways **Enable** Button.

Enabling/disabling SVT Airport Signs:

- 1) From **PFD Home**, touch **PFD Settings**.
- 2) If necessary, touch the SVT Terrain **Enable** Button to enable the display of SVT Terrain (button annunciator is green).
- 3) Scroll and touch the SVT Airport Signs **Enable** Button.

Enabling or Disabling the Field of View Indication:

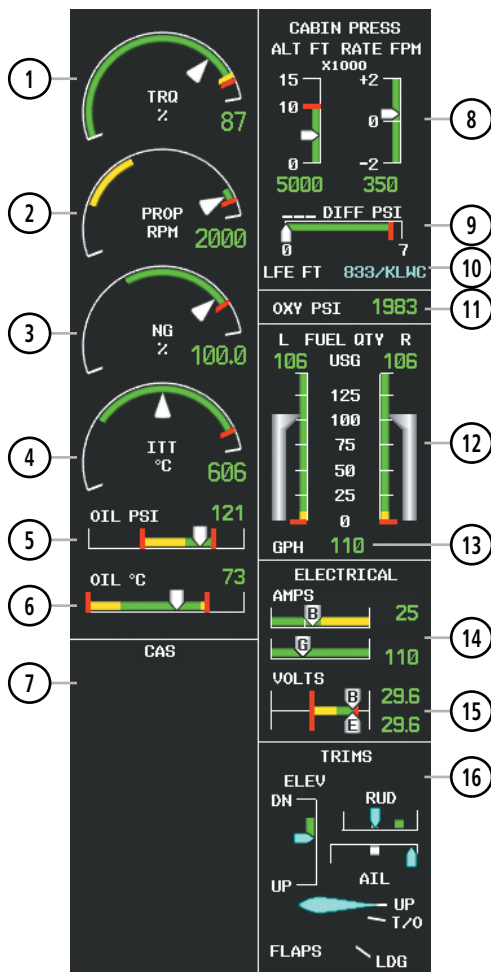
- 1) From **Home**, touch **Map > Map Settings**.
- 2) Touch the **Other** Tab.
- 3) Scroll to display the **Field of View** Annunciator Button.
- 4) Touch the **Field of View** Button to enable or disable the field of view indication. A green annunciator on the button indicates the field of view is enabled. A gray annunciator indicates the field of view is disabled.

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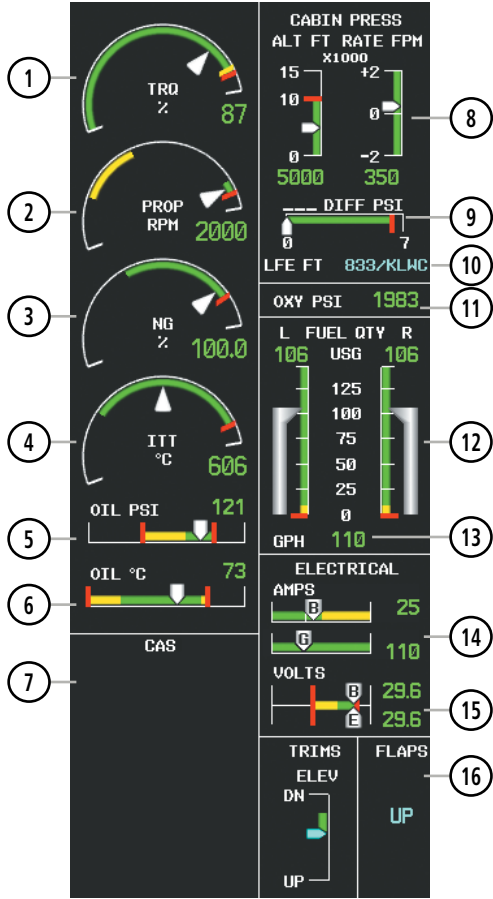
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ENGINE & AIRFRAME SYSTEMS

ENGINE PARAMETER DISPLAYS



EIS Display (Normal Mode)



EIS Display (Reversionary)

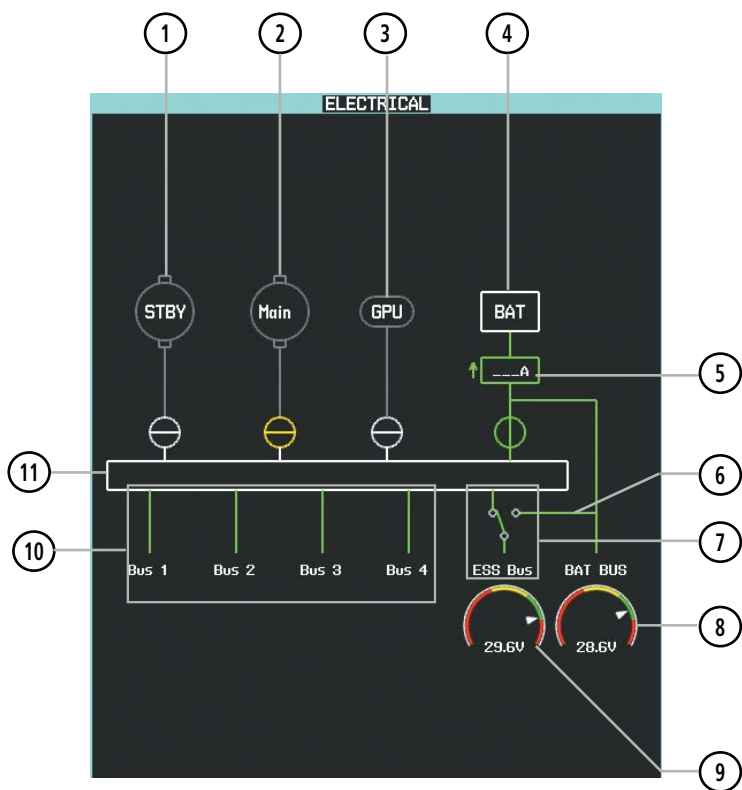
- | | | |
|----------------------------|---|--|
| ① Torque | ⑦ CAS Display | ⑬ Fuel Flow |
| ② Propeller Speed | ⑧ Cabin Pressure Altitude and Change Rate | ⑭ Battery and Generator Currents |
| ③ Generator Speed | ⑨ Differential Pressure | ⑮ Battery and Essential Bus Voltages |
| ④ Interturbine Temperature | ⑩ Landing Field Elevation (LFE) | ⑯ Elevator, Aileron, and Rudder Trim and Flap Position |
| ⑤ Oil Pressure | ⑪ Oxygen Pressure | |
| ⑥ Oil Temperature | ⑫ Fuel Quantity | |

SYNOPTICS

Electrical System

Accessing the Electrical System Synoptics:

From **Home**, touch **Aircraft Systems > Electrical Power**.



① Standby Generator

② Main Generator

③ Ground Power Unit Door

④ Battery

⑤ Amperage

⑥ Battery Bus

⑦ Essential Bus

⑧ Battery Bus Voltage

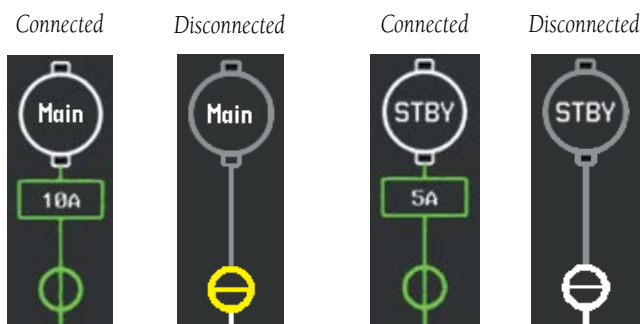
⑨ Essential Bus Voltage

⑩ DC Buses 1 through 4

⑪ Main Bus

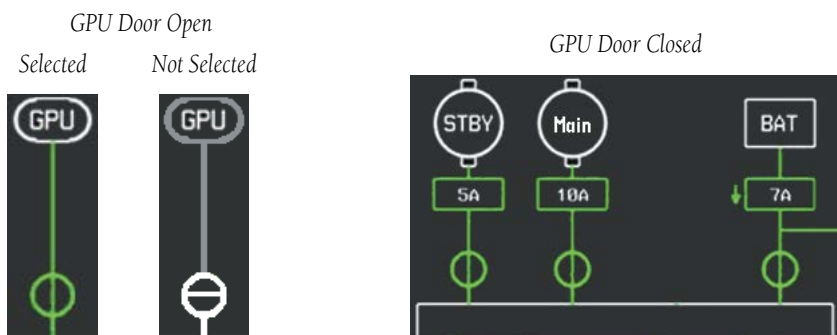
Electrical Synoptics Page

Active generator currents are displayed below the generator icons. A disconnected generator is indicated in gray; the current is removed from the display and the switch symbol is closed.



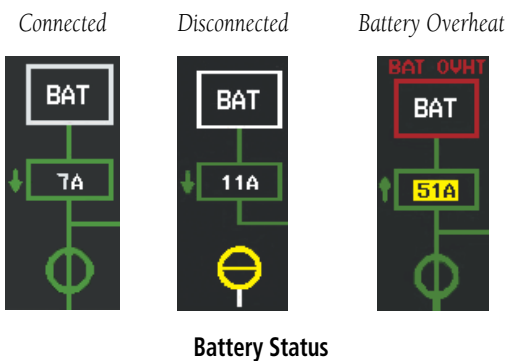
Generator Status

GPU status information is removed from the electrical diagram when the GPU door is closed. If the GPU door is open and selected, the GPU status is shown in green; when the door is open, but not selected, the status is shown in gray with the switch closed. A CAS message, 'GPU DOOR' is generated if the GPU door is open.



GPU Door Status

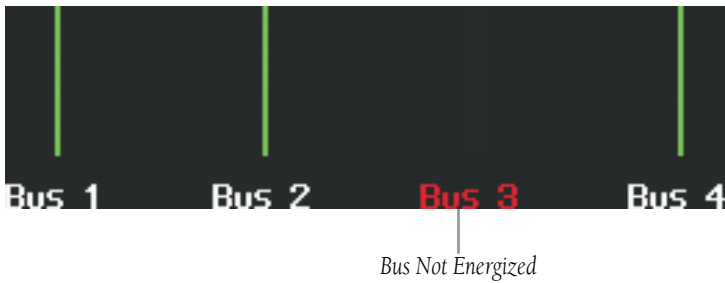
Battery connection status to the main bus is indicated in green; direction of current flow is indicated with an arrow next to the current display. If the battery is disconnected from the main bus, the switch is closed. Battery overheating is indicated in red with a 'BAT OVHT' annunciation; a CAS message is also generated.



Battery and essential bus voltages are displayed using gauges. DC buses are shown in green when energized. When not energized, the connection line to the main bus is removed and the bus label is displayed in red.

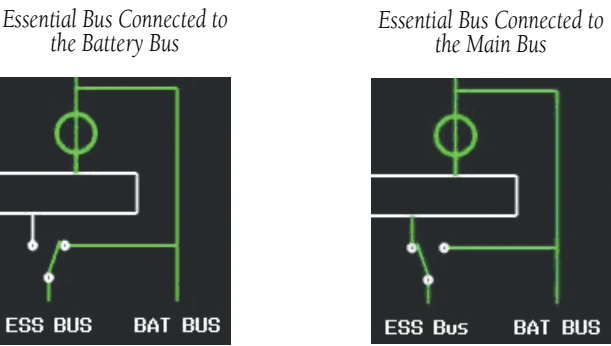


Battery and Essential Bus Low Voltage



DC Bus Status

The Emergency Buses switch has two positions, UP (open) and DN (ground). If the switch is in the UP position, the essential bus is connected to the battery bus. If the switch is in the DN position, the essential bus is connected to the main bus.



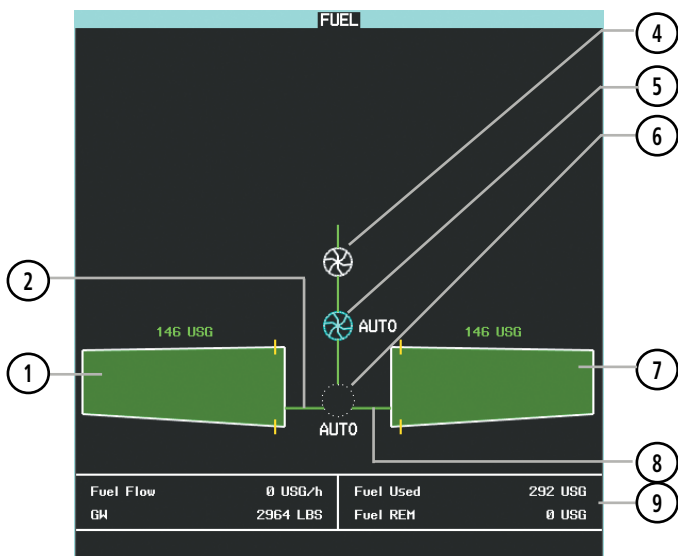
Essential Bus Connections

A red “X” over a component indicates invalid data or a failed unit.

Fuel System

Accessing the Fuel System Synoptics:

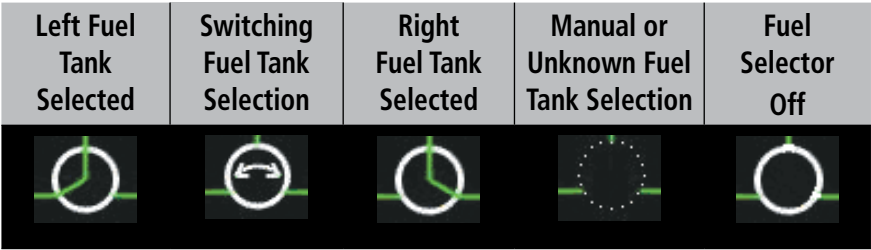
From **Home**, touch **Aircraft Systems > Fuel**.



- ① Left Fuel Tank
- ② Left Fuel Line
- ③ Fuel Pressure (if installed)
- ④ Engine Driven Boost Pump
- ⑤ Auxiliary Boost Pump
- ⑥ Fuel Selector
- ⑦ Right Fuel Tank
- ⑧ Right Fuel Line
- ⑨ Fuel Flow Data

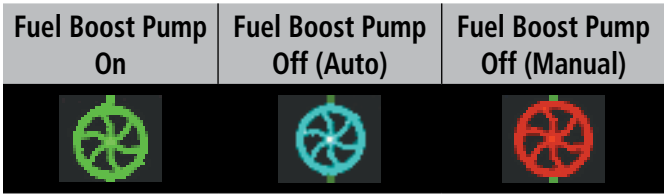
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Fuel Selector Status

If the auxiliary fuel boost pump is on, the symbol is displayed in green. The mode, automatic (AUTO) or manual (MAN) is displayed next to the pump symbol. If the boost pump is off, the symbol is shown in cyan (automatic mode) or red (manual mode).



Auxiliary Boost Pump Status

Fuel used and Fuel remaining are calculated based on the rate of fuel flow.

GENERAL SYSTEMS

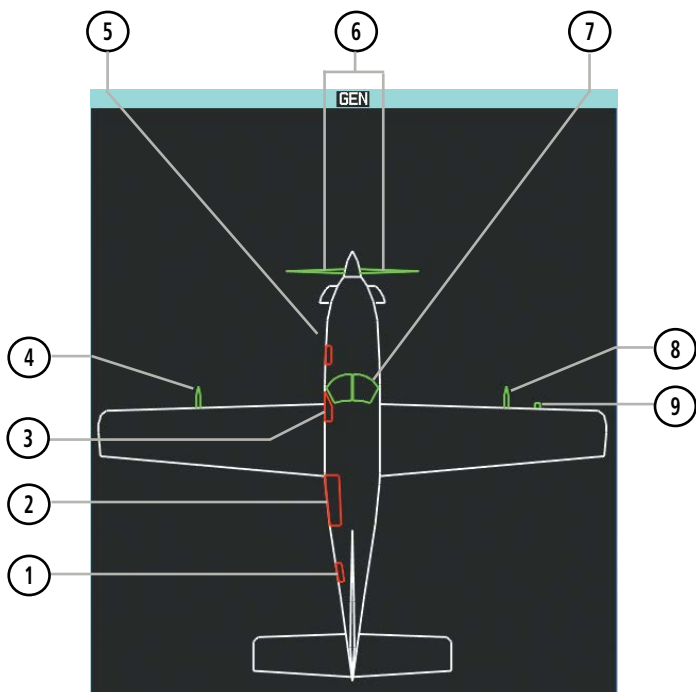
The General Synoptics Page aircraft diagram displays open doors in red (CAS messages also generated). Statuses of propeller, stall sensor heater, pitot probe, and windshield heat are also indicated on the diagram:

- White indicates that heat is off (propeller and windshield)
- Cyan indicates heat has been selected (windshield)
- Green indicates heat is on
- Amber indicates heat has failed (propeller, pitot tube, and stall sensor).

Invalid sensor information is indicated with a red ‘X’.

Accessing the General Systems Synoptics:

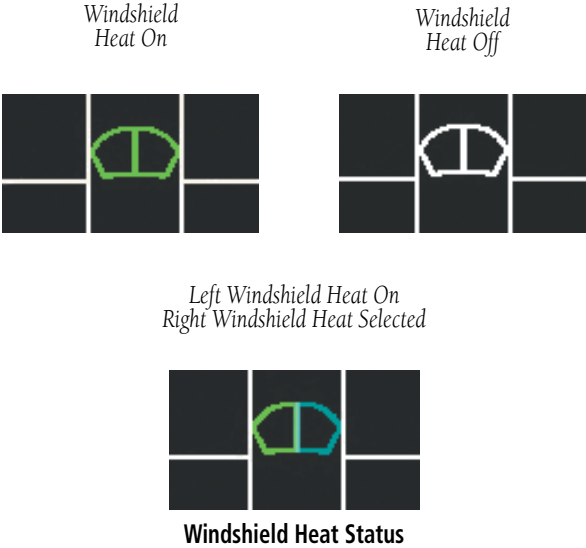
From **Home**, touch **Aircraft Systems > General**.



- ① Rear Cargo Door Open
- ② Cabin Door Open
- ③ Pilot Door Open
- ④ Pitot Probe 1
- ⑤ Forward Cargo Door Open

- ⑥ Propeller Heaters
- ⑦ Right Windshield Heat On
- ⑧ Pitot Probe 2
- ⑨ Stall Warning Sensor

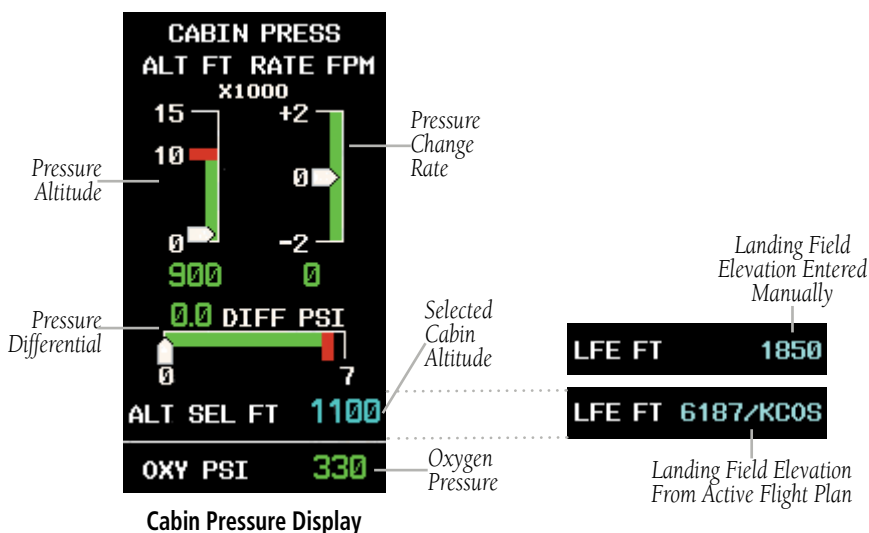
General Synoptics Page



CABIN PRESSURIZATION

Cabin pressurization information (cabin altitude, rate of change, and differential cabin pressure) is shown at the top of the right EICAS column.

Cabin altitude (ALT FT) is shown on a color-coded scale labeled in 5,000-ft increments with a display (in feet) below. Cabin altitude change rate (RATE FPM) is displayed on a scale in terms of 2,000 fpm increments with a display (in fpm) below. Cabin pressure differential (DIFF PSI), in pounds per square inch (psi), is indicated on a color-coded scale with a display.



The pressure (in psi) for the oxygen system is given as a readout below the cabin pressurization display under normal display conditions.

LFE (LANDING FIELD ELEVATION)

The Landing Field Elevation Screen on the Touchscreen Controller allows the pilot to select Manual or FMS Mode. The Landing Field Elevation automatically displays magenta dashes during power-up. Once a flight plan is entered, the Landing Field Elevation is updated to reflect the new destination elevation. FMS entered values appear in magenta. Manually entered values appear in cyan. If the Landing Field Elevation data is not set while in the air, the digits are replaced with amber dashes. If the Landing Field Elevation data is not set while on the ground, the digits are replaced with dashes.

Adjusting the Landing Field Elevation Settings:

- 1) From **Home**, touch **Aircraft Systems > Landing Field Elev.**
- 2) Touch the **FMS** or **Manual** Button as desired. If using FMS Destination, the Landing Elevation digits will be magenta. If using Manual Mode, the text will be cyan.
- 3) Touch **Landing Elevation** Button to set the Landing Elevation.
- 4) Input the Landing Elevation by touching the number keys, or touch **Use FMS Destination** Button to use the Landing Field Elevation from the active flight plan.

CREW ALERTING SYSTEM (CAS)



NOTE: Refer to the Pilot’s Operating Handbook (POH) for emergency procedures.

The Crew Alerting System (CAS) Display is located in the lower left corner of the EICAS Display on the MFD. Up to 11 messages can be displayed; when more than 11 messages accumulate, the **Up** and **Down** Scroll CAS Buttons become available on the **PFD Home** Screen. Use the **Up** and **Down** CAS Buttons to scroll through the CAS messages.

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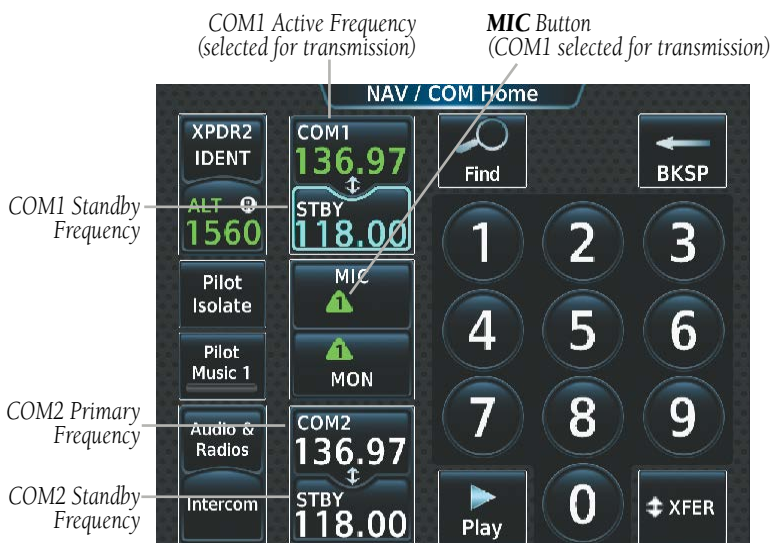
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NAV/COM/TRANSPONDER/AUDIO PANEL



NAV/COM Home Screen



Audio & Radios Screen



Selected COM Radio and Frequency Displayed on PFD



Selected COM Radio and Frequency Displayed on MFD

SELECTING A COM RADIO

Selecting a COM Radio for transmission:

Touch the **MIC** Button on the **NAV/COM Home** screen to switch between COM1 and COM2 radios until the desired COM is selected.

Or:

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Touch the desired **MIC** Button on the Audio & Radios Screen to select the COM radio for transmission.

Selecting a COM Radio for monitoring:

Touch the **MON** Button on the **NAV/COM Home** screen to monitor the COM not selected for transmission.

Or:

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Touch the **COM1** Button or **COM2** Button to select the COM radio for monitoring.

CNS Bar Symbol	Description
	COM1 selected for transmission/monitoring
	COM2 selected for transmission/monitoring
	HF selected for transmission/monitoring
	An additional audio source is manually selected for monitoring

CNS Bar MIC/MON Button Symbols

COM FREQUENCY TUNING

Selecting a COM1/2 frequency using the Touchscreen Controller:

- 1) Touch the COM1 **STBY** Button or COM2 **STBY** Button on the **NAV/COM Home** Screen to select that radio for tuning.
- 2) Use the keypad to select the frequency.
- 3) Touch the **Enter** Button to accept the new frequency as the COM1/COM2 standby frequency; or touch the **XFER** Button to accept the new frequency as the COM1/COM2 active frequency and transfer the previously active frequency to the standby frequency; or touch the COM1/COM2 active frequency on the **NAV/COM Home** Screen to accept the new frequency as the COM1/COM2 active frequency and transfer the previously active frequency to the standby frequency.

Or:

- 1) Press the small upper knob to select the COM desired for tuning (selected standby frequency is cyan).
- 2) Turn the large and small right knobs to tune the frequency (Large knob increases/decreases MHz; Small knob increases/decreases kHz).

- 3) Press the small upper knob to enter the new frequency as the standby frequency; or press and hold the small upper knob to transfer the new standby frequency to the active frequency.

Or:

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Touch the COM1/COM2 volume slider, or press the small upper knob, to select COM1/COM2 for tuning.
- 3) Turn the large and small upper knobs to select the frequency (Large knob increases/decreases MHz; Small knob increases/decreases kHz).
- 4) Press the small upper knob to accept the new frequency as the standby frequency; or press and hold the small upper knob to accept the new frequency as the COM1/COM2 active frequency and transfer the previously active frequency to the standby frequency; or touch the COM1/COM2 active frequency on the **NAV/COM Home** Screen to accept the new frequency as the COM1/COM2 active frequency and transfer the previously active frequency to the standby frequency.

Or:

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Touch the COM1/COM2 frequency button to display the COM1/COM2 Standby Screen.
- 3) Use the keypad to select the desired frequency.
- 4) Touch the **Enter** Button to accept the new frequency as the COM1/COM2 standby frequency; or touch the **XFER** Button to accept the new frequency as the COM1/COM2 active frequency and transfer the previously active frequency to the standby frequency.

CHANGING COM FREQUENCY CHANNEL SPACING

- 1) From **Home**, touch **Utilities > Setup > Avionics Settings**.
- 2) Scroll the list to show the COM Channel Spacing button.
- 3) Touch the COM Channel Spacing button to display the choice of **25.0 kHz** or **8.33 kHz**.
- 4) Touch the channel spacing button.

SIMULTANEOUS COM OPERATION

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Touch the **Copilot** Tab.
- 3) If necessary, touch the **Sync to Pilot** Button to disable synchronizing the copilot COM selections to the pilot.
- 4) Touch the **COM1** or **COM2** MIC Button to select COM1/COM2 for copilot transmissions.

SELECTING THE HF COM RADIO

Selecting the HF COM Radio for transmission:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) Touch the desired **MIC** Button on the Audio & Radios Screen to select the HF COM radio for transmission.

Selecting an HF COM Radio for monitoring:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) Touch the **HF** Button to select the HF COM radio for monitoring.

SELECTING A NAV RADIO

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 3) Touch the **NAV1** or **NAV2** Button on the Audio & Radios Screen to select/deselect the radio for monitoring.

NAV RADIO TUNING

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find **NAV1** or **NAV2**.
- 3) Touch the **NAV1** or **NAV2** frequency button to select NAV1/NAV2 for tuning, and display the NAV1/NAV2 frequency tuning screen.
- 4) Use the keypad to input the desired frequency.
- 5) Touch the **Enter** Button to enter the new frequency as the NAV1/NAV2 standby frequency; or touch the **XFER** Button to enter the new frequency as the NAV1/NAV2 standby frequency and transfer it to the active frequency.

ADF TUNING

Selecting an ADF frequency:

- 1) Touch the **Audio & Radios** button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find the ADF.
- 3) Touch the ADF control button to display the ADF Mode/Tuning Screen.
- 4) Use the keypad to select the desired frequency.
- 5) Touch the **Enter** Button to enter the new frequency as the ADF standby frequency; or touch the **XFER** Button to enter the new frequency as the ADF standby frequency and transfer it to the active frequency.

Finding and selecting an ADF frequency:

- 1) Touch the **Audio & Radios** Button on the on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find the ADF.
- 3) Touch the ADF control button to display the ADF Mode/Tuning Screen.
- 4) Touch the **Find** Button.
- 5) Touch the tab for the desired type of frequency (Recent, Nearest, Dest, Flight Plan, or Favorite).
- 6) Scroll the list to find the desired frequency.
- 7) Touch the frequency button to enter the new frequency as the ADF standby frequency.

Selecting an ADF receiver mode:

- 1) Touch the **Audio & Radios** Button on the on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find the ADF.
- 3) Touch the ADF control button to display the ADF Mode/Tuning Screen.
- 4) Touch the **ANT, ADF, ADF/BFO, or ANT/BFO** Button to select the ADF mode.

Transferring the active and standby ADF frequencies:

- 1) Touch the **Audio & Radios** Button on the on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find the ADF.
- 3) Touch the ADF Control Button.
- 4) Touch the **XFER** Button.

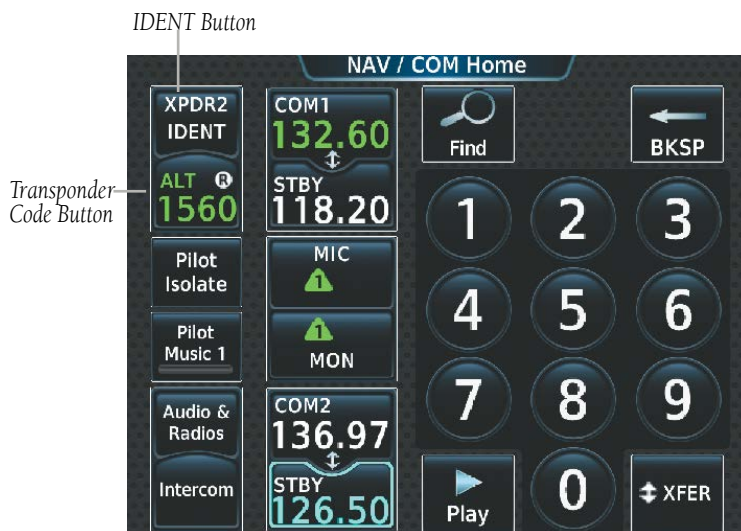
Or

- 1) Touch the **Audio & Radios** Button on the **NAV/COM Home** Screen to display the Audio & Radios Screen.
- 2) Scroll the list to find the ADF.
- 3) Touch the ADF Volume Slider to select the ADF for transfer.
- 4) Press and hold the small upper knob to transfer the frequencies.

DME TUNING

- 1) Touch **Audio & Radios** to display the Audio & Radios Screen.
- 2) Scroll the list to find the DME.
- 3) Touch the DME mode control button to display the DME Mode Window.
- 4) Touch the **NAV1 Mode**, **NAV2 Mode**, or **HOLD Mode** Button to select the DME mode. An 'H' is appended to the end of the frequency on the PFD to represent DME Hold mode.

ENTER A TRANSPONDER CODE



Transponder Display and Controls

- 1) Touch the Transponder Code Button on the **NAV/COM Home** Screen to display the Transponder Screen.
- 2) Use the keypad to input the desired code.
- 3) Touch the **Enter** Button to activate the new code.

SELECTING A TRANSPONDER MODE

- 1) Touch the Transponder Code/Mode Button to display the Transponder Screen.
- 2) Touch a Mode Selection Button to activate the transponder mode.

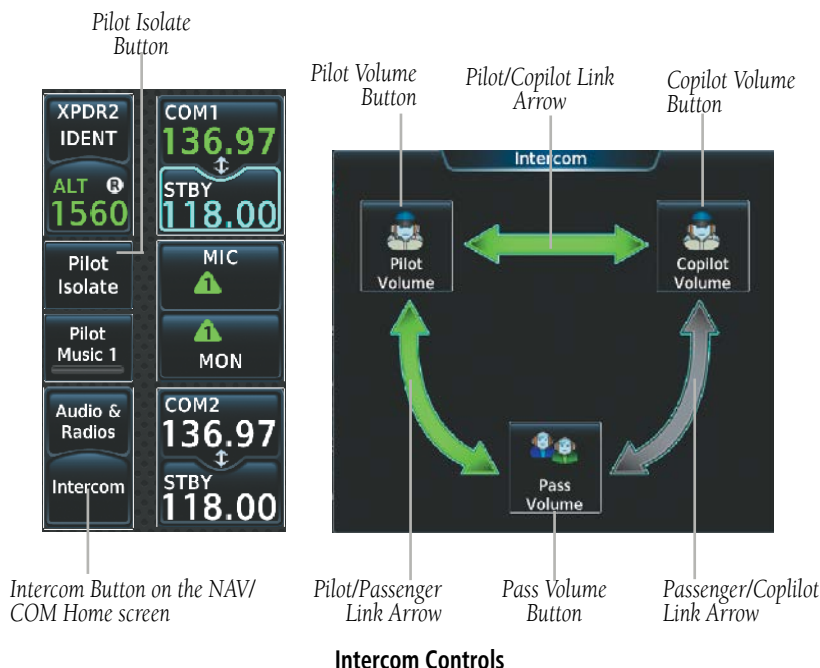
TRANSPONDER IDENT

Touch the **XPDR1 IDENT** or **XPDR2 IDENT** Button. When touched, **IDENT** pulsates and is displayed as green text for approximately 20 seconds, indicating identification is active. After 20 seconds, **IDENT** returns to a steady state and is again displayed as white text.

INTERCOM

Enable/Disable Intercom Links

- 1) Touch the Intercom Button on the **NAV/COM Home** screen to bring up the Intercom screen.
- 2) Touch the Link Arrow to enable (green) or disable (gray) the intercom link.



Enable/Disable Pilot Isolate

Touch the **Pilot Isolate** Button on the **NAV/COM Home** Screen to bring up the Intercom screen and to automatically isolate the Pilot audio from the Copilot and Passenger audio.

Adjusting Intercom Volume

- 1) Touch the **Intercom** Button on the **NAV/COM Home** screen to display the Intercom Screen.
- 2) Touch the **Pilot Volume**, **Copilot Volume**, or **Pass Volume** Button to display the Pilot, Copilot, or Passenger Intercom Settings Screen.
- 3) Adjust the volume by using the middle knob or by sliding your finger on the volume slider.

Adjusting Intercom Squelch:

- 1) Touch the **Intercom** Button on the **NAV/COM Home** screen to display the Intercom Screen.
- 2) Touch the **Pilot Volume**, **Copilot Volume**, or **Pass Volume** Button to display the Pilot, Copilot, or Passenger Intercom Settings Screen.
- 3) Touch the **Auto** Squelch button to deselect it.
- 4) Adjust the squelch by using the lower knob or by sliding your finger on the squelch slider.

CLEARANCE RECORDER AND PLAYER

- 1) Touch the **Audio & Radios** Button in the CNS Bar on the **NAV/COM Home** screen to display the Audio & Radios Screen.
- 2) Scroll the list to find **Recorder**.
- 3) Touch the **Recorder** Play Button () to play the latest recorded memory block. The **Recorder** Stop Button () is displayed while the audio is playing. Touch the **Recorder** Stop Button during play of a memory block to stop play. When the present memory block has finished playing the **Recorder** Play Button is displayed again.
- 4) Touch the Previous Button () to play the previously recorded memory block. Each subsequent press of the Previous Button selects the previously recorded memory block, if any exist.
- 5) Touch the Next Button () to play the next recorded memory block. Each subsequent press of the Next Button selects the next recorded memory block, if any more exist.

SELCAL

Entering the SELCAL Code:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) Touch the **Pilot** Tab or **Copilot** Tab.
- 3) Scroll the list to find **SELCAL**.
- 4) Touch the **SELCAL ID** Button.
- 5) Enter the assigned 4 character SELCAL code and touch the **ENTER** Button. The 'Update SELCAL code?' confirmation window appears.
- 6) Touch the **OK** Button to confirm.

Selecting/Deselecting SELCAL:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) Touch the **Pilot** Tab or **Copilot** Tab.
- 3) Scroll the list to find **SELCAL**.
- 4) Touch the **SELCAL** Button.

AUXILIARY AUDIO (MUSIC)

Selecting/deselecting the Auxiliary Audio input:

Touch the **Pilot Music 1** Button on the **NAV/COM Home** Screen to select/deselect the auxiliary audio input for the pilot position.

Or:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) If selecting for the Copilot or Passengers, touch the **Copilot** Tab or the **Pass** Tab.
- 3) Scroll the list to find **Music** (**Music 1** if selecting for the Passenger).
- 4) Touch the **Music** (**Music 1** if selecting for the Passenger) Button to select/deselect the auxiliary audio input for the selected position (pilot, copilot, or passengers).

Configuring Auxiliary Audio Mute Settings:

- 1) Touch the **Audio & Radios** Button to display the Audio & Radios Screen.
- 2) If selecting for the Copilot or Passengers, touch the **Copilot** Tab or the optional **Pass** Tab.
- 3) Scroll the list to find **Music** (**Music 1** if selecting for the Passenger).
- 4) Touch the **Mute Settings** Button to display the Music Mute Settings Window.
- 5) Select the **Intercom**, and/or the **Radio Inputs**, and/or the **Aural Alerts** (Pilot and Copilot only) Buttons to select which items will mute auxiliary audio.

AUTOMATIC FLIGHT CONTROL SYSTEM



NOTE: If sensor information (other than attitude) required for a flight director mode becomes invalid or unavailable, the flight director automatically reverts to the default mode for that axis.



NOTE: If the attitude information required for the default flight director modes becomes invalid or unavailable, the autopilot automatically disengages.

FLIGHT DIRECTOR ACTIVATION

An initial press of an AFCS Controller key listed in the following table (when the flight director is not active) activates the pilot-side flight director in the listed modes. The flight director may be turned off and the Command Bars removed from the displays by pressing the **FD** Key again. The **FD** Key is disabled when the autopilot is engaged.

Control Pressed	Modes Selected			
	Lateral		Vertical	
FD Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
CWS Button	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
GA Switch	Takeoff (on ground)	TO	Takeoff (on ground)	TO
	Go Around (in air)	GA	Go Around (in air)	GA
ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
VNV Key	Roll Hold (default)	ROL	Vertical Path Tracking*	VPATH
NAV Key	Navigation**	FMS VOR LOC	Pitch Hold (default)	PIT
BC Key	Backcourse***	BC	Pitch Hold (default)	PIT
APR Key	Approach**	FMS VOR LOC	Pitch Hold (default)	PIT
HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT
LVL Button	Level Mode	LVL	Level Mode	LVL

*Valid VNV flight plan must be entered before **VNV** Key press activates flight director.

The selected navigation receiver must have a valid VOR or LOC signal or active GPS course before **NAV or **APR** Key press activates flight director.

***The selected navigation receiver must have a valid LOC signal before **BC** Key press activates flight director.

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/descend to the Selected Altitude		PIT
Selected Altitude Capture	Captures the Selected Altitude		ALTS
Altitude Hold	Holds the current Altitude Reference	ALT	nnnnn FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	VS	nnnn FPM
Flight Level Change, IAS Hold	Maintains the current aircraft airspeed (in IAS or Mach) while the aircraft is climbing/descending to the Selected Altitude	FLC	nnn KT
Flight Level Change, Mach Hold		FLC	M .nnn

* ALTS is armed automatically when PIT, VS, FLC, TO, or GA is active, and under VPTH when the Selected Altitude is to be captured instead of the VNAV Target Altitude.

LATERAL MODES

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

* No annunciation appears in the AFCS Status Box. The acceptable bank angle range is indicated in green along the Roll Scale of the Attitude Indicator

** The Heading, Navigation GPS and Navigation VOR mode maximum roll command limit will be limited to the Low Bank mode value if it is engaged.

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COMBINATION MODES (VNV, APR, NAV, BC, GA)

Mode	Description	Control	Annunciation
Vertical Path Tracking	Captures and tracks descent legs of an active vertical profile	VNV Key	VPATH
VNV Target Altitude Capture	Captures the Vertical Navigation (VNV) Target Altitude	*	ALTV
Glidepath	Captures and tracks the WAAS glidepath on approach	APR Key	GP
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Navigation, GPS **	Captures and tracks the selected navigation source (GPS, VOR, LOC)	NAV Key	FMS
Navigation, VOR Enroute Capture/Track **			VOR
Navigation, LOC Capture/Track (No Glideslope)			LOC
Backcourse Capture/Track	Captures and tracks a localizer signal for backcourse approaches	BC Key	BC
Approach, GPS	Captures and tracks the selected navigation source (GPS, VOR, LOC)	APR Key	FMS
Approach, VOR Capture/Track			VAPP
Approach, LOC Capture/Track (Glideslope Mode automatically armed)			LOC
Takeoff	Commands a constant pitch angle and wings level on the ground in preparation for takeoff	GA Switch	TO
Go Around	Commands a constant pitch angle and wings level in the air		GA

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

** The Heading, Navigation GPS and Navigation VOR mode maximum roll command limit will be limited to the Low Bank mode value if it is engaged.

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Blank Page

GPS NAVIGATION

DIRECT-TO NAVIGATION

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Direct To** ➔.
- 2) Touch the **Select Waypoint** button to display the keypad.
- 3) Enter the waypoint identifier.
- 4) Touch the **Enter** Button to accept the identifier, and return to the Direct To Screen.
- 5) Touch the **VNAV Altitude** Button to display the keypad.
- 6) Enter the desired VNAV altitude.
- 7) Touch the **Enter** Button to accept the altitude, and return to the Direct To Screen.
- 8) Touch the **VNAV Offset** Button to display the keypad.
- 9) Touch the **(Before) -** Button.
- 10) Enter the offset distance.
- 11) Touch the **Enter** Button to accept the offset distance, and return to the Direct To Screen.
- 12) Touch the **Activate** ➔ Button to activate the direct-to.

Cancelling a Direct To:

- 1) From the **Home** Screen on the Touchscreen Controller, touch **Direct To**.
- 2) Touch the **Cancel** ➔ Button.
- 3) Touch the **YES** Button in response to the question "Cancel ➔ XXXXXX".

ACTIVATE A STORED FLIGHT PLAN

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch a stored flight plan button to display the Catalog Options Window.
- 4) Touch the **Activate** Button.
- 5) Touch the **OK** Button in response to "Activate Selected Flight Plan and Replace Current Active Route?". To cancel the request, touch the **Cancel** Button.

ACTIVATE A FLIGHT PLAN LEG

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**.
- 2) Scroll the list, if necessary, and touch the waypoint selection button to select the destination waypoint for the desired leg. The Waypoint Options Window is displayed.
- 3) Touch the **Activate Leg to Waypoint** Button.
- 4) Touch the **OK** Button in response to "Activate Leg?". The new active flight plan leg is activated. To cancel the request, touch the **Cancel** Button.

INVERTING THE ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan > Standby Flight Plan**.
- 2) Touch the **Flight Plan Options** Button to display the Flight Plan Options Screen.
- 3) Touch the **Invert** Button.
- 4) Touch the **Yes** Button in response to "Invert flight plan?". The flight plan is inverted. To cancel the request, touch the **No** Button.

STOP NAVIGATING A FLIGHT PLAN

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Delete Flight Plan** Button.
- 3) Touch the **OK** Button in response to "Delete all waypoints in flight plan?". The active flight plan is deleted. To cancel the request, touch the **Cancel** Button.

VERTICAL NAVIGATION (VNAV)

The system can use altitude constraints associated with lateral waypoints to give guidance for vertical navigation. These altitudes are, depending on the specific instance, manually entered or retrieved from the published altitudes in the navigation database.

Active Flight Plan

→

KMKC / KCOS

ALT

DTK / DIS

BRK

Black Forest

10400FT

353°

PROC

Approach – KCOS–RNAV GPS Y 35R

LPV

Standby Flight Plan

HABUK

iaf

9370FT

166°

VNAV

FALUR

8100FT

262°

Flight Plan Options

CEGIX

faf

8100FT

352°

18.9NM

7898FT

Temperature Compensated

3.2NM

3.9NM

6.0NM

Cyan Text with Pencil Icon

White Text

Cyan Text

White Text with Altitude Restriction Bars

Active Flight Plan Screen - Waypoint Altitude Constraints

5000FT

Cross AT or ABOVE 5,000 ft

3000FT

Cross AT or BELOW 3,000 ft

2300FT

Cross AT 2,300 ft

5000FT

3000FT

Cross BETWEEN 3,000 ft & 5,000 ft

Altitude Constraint Examples

Altitudes associated with departure, arrival, and approach procedures are “auto-designated”. This means the system automatically uses the altitudes loaded with the procedure for giving vertical speed and deviation guidance. Note that these altitudes are displayed as cyan text up to, but not including, the FAF. The FAF is always a “reference only” altitude and cannot be designated, unless the selected approach does not provide vertical guidance. In this case, the FAF altitude can be designated and/or modified.

Altitudes that have been designated for use in vertical guidance can be “undesignated”. The altitude is now displayed only as a reference. It is not used to give vertical guidance. Other displayed altitudes may change due to re-calculations or be rendered invalid as a result of manually changing an altitude to a non-designated altitude.

Altitude constraints are displayed and entered to the nearest foot mean sea level (MSL) or flight level to the nearest hundred feet. An altitude constraint in feet above ground level (AGL) format is supported for airports. When a database altitude restriction is displayed, the system allows entry of a different altitude, effectively overriding the database restriction. When a database altitude restriction of type “AT or ABOVE” or “AT or BELOW” is activated, the system uses the “AT” portion of the restriction to define the vertical profile.

White Text	Cyan Text
5000FT Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. No white line above or below to indicate a potential constraint. 5000FT Altitude retrieved from the navigation database. White line above or below indicates the type of constraint, as shown in the preceding figure. These altitudes are provided as a reference, and are not designated to be used in determining vertical guidance.	5000FT Altitude is designated for use in determining vertical guidance. A pencil icon indicates manual designation or manual data entry. 5000FT The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.

Deleting an altitude constraint provided by the navigation database:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**.
- 2) Scroll the list, if necessary, and touch a VNAV ALT button to display the VNAV Altitude Window.
- 3) Touch the **Remove VNAV ALT** Button. A ‘Remove VNAV altitude?’ window is displayed.
- 4) Touch the **OK** Button. The altitude is now shown in white, indicating it is not used for vertical guidance. To cancel the request, touch the **Cancel** Button.

Designating the current waypoint altitude to be used for vertical guidance:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**.
- 2) Scroll the list, if necessary, and touch a VNAV ALT button to display the VNAV Altitude Window.
- 3) Touch the **Enter** Button to designate the current altitude to be used for vertical guidance. The altitude is now shown in blue, indicating it is usable for vertical guidance.

Selecting and designating a new waypoint altitude to be used for vertical guidance:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**
- 2) Scroll the list, if necessary, and touch a VNAV ALT button to display the VNAV Altitude Window.
- 3) If necessary, touch the **Flight Level** Button or the **MSL** Button to choose the altitude entry type.
- 4) Use the keypad to enter a new VNAV altitude and touch the **Enter** Button to designate the new altitude to be used for vertical guidance. The altitude is now shown in blue and displays the pencil icon, indicating it has been manually entered, and is usable for vertical guidance.

Deleting an altitude constraint that has been manually entered:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**
- 2) Scroll the list, if necessary, and touch a VNAV ALT button to display the VNAV Altitude Window.
- 3) Touch the **Remove VNAV ALT** Button. A 'Remove VNAV altitude?' window is displayed.
- 4) Touch the **OK** Button. The altitude is now shown in white, indicating it is not usable for vertical guidance. To cancel the request, touch the **Cancel** Button.

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

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan**
- 2) Scroll the list, if necessary, and touch a VNAV ALT button to display the VNAV Altitude Window.
- 3) Touch the **Remove VNAV ALT** Button. A 'Remove or Revert to published VNAV altitude of nnnnnFT?' confirmation window is displayed.
- 4) Touch the **Revert** Button. The altitude is now the database altitude and is shown in cyan, indicating it is usable for vertical guidance.

FLIGHT PLANNING

WEIGHT AND FUEL PLANNING

Calculating basic operating weight:

- 1) From MFD **Home**, touch **Utilities** > **Weight and Fuel**.

Or:

From MFD **Home**, touch **Aircraft Systems** > **Weight and Fuel**.

- 2) Touch the **Set Empty Weight** Button to display the keypad.
- 3) Use the keypad to enter the basic empty weight.
- 4) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.
- 5) Touch the **Crew & Stores** Button to display the keypad.
- 6) Use the keypad to enter the crew and stores weight.
- 7) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.

Calculating zero fuel weight:

- 1) From MFD **Home**, touch **Utilities** > **Weight and Fuel**.

Or:

From MFD **Home**, touch **Aircraft Systems** > **Weight and Fuel**.

- 2) Touch the **Payload** Tab to display the zero fuel weight calculation.
- 3) Touch the **Passengers** Button to display the keypad.
- 4) Use the keypad to enter the number of passengers.
- 5) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.
- 6) Touch the **WT Each** button to display the keypad.
- 7) Use the keypad to enter the average passenger weight.
- 8) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.
- 9) Touch the **Cargo** Button to display the keypad.
- 10) Use the keypad to enter the cargo weight.
- 11) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.

Calculating aircraft weight:

- 1) From MFD **Home**, touch **Utilities** > **Weight and Fuel**.

Or:

From MFD **Home**, touch **Aircraft Systems** > **Weight and Fuel**.

- 2) Touch the **Takeoff** Tab to display the aircraft weight calculation.
- 3) Touch the **Fuel On Board** Button to display the keypad.
- 4) Use the keypad to enter the fuel on board.
- 5) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.

Or:

- 1) From MFD **Home**, touch **Utilities** > **Weight and Fuel**.

Or:

From MFD **Home**, touch **Aircraft Systems** > **Weight and Fuel**.

- 2) Touch the **Takeoff** Tab to display the aircraft weight calculation.
- 3) Touch the **FOB SYNC** Button to insert the fuel weight from the fuel sensors.

Entering fuel reserve and estimated holding time:

- 1) From MFD **Home**, touch **Utilities** > **Weight and Fuel**.

Or:

From MFD **Home**, touch **Aircraft Systems** > **Weight and Fuel**.

- 2) Touch the **Landing** Tab to display the landing weight and fuel calculations.
- 3) Touch the **Fuel Reserves** Button to display the keypad.
- 4) Use the keypad to enter the fuel reserves weight.
- 5) Touch the **Holding Time** Button to display the keypad.
- 6) Use the keypad to enter the estimated holding time.
- 7) Touch the **Enter** Button to accept the entry, and return to the Weight and Fuel Screen.

TRIP PLANNING

Selected Route Segment

Manual Entry Button

Trip Planning

Trip Route

Active Flight Plan – Remaining

P.POS → KCOS

Input Data

Manual Entry

Depart Time

21:33UTC

Ground Speed

255KT

Fuel On Board

25 GAL

Total Fuel Flow

10.9 GAL/HR

Cal Airspeed

220KT

Indicated Alt

10461 FT

Pressure

29.92 IN

Total Air Temp

-1°C

Trip Route Button

Input Data (sensor/pilot)

- Departure Time
- Ground Speed
- Fuel On Board
- Fuel Flow
- Calibrated Airspeed
- Indicated Altitude
- Barometric Pressure
- Total Air Temperature

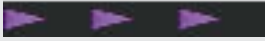
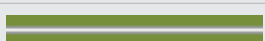
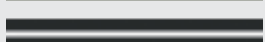
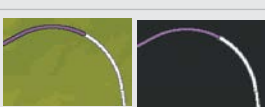
The trip statistics are calculated based on the trip route selected and the trip planning inputs.

Trip Route Mode	Trip Route Button	Description
Stored Flight Plan - Cumulative Mode	Trip Route Stored Flight Plan – Cumulative KM KC → KCOS	Waypoints are the starting and ending waypoints of the selected flight plan.
Stored Flight Plan - Leg Mode	Trip Route Stored Flight Plan – Leg MCI → TIFTO	Waypoints are the endpoints of the selected leg.
Active Flight Plan - Remaining Mode	Trip Route Active Flight Plan – Remaining P.POS → KCOS	The ‘from’ waypoint is the aircraft present position, and the ‘to’ waypoint is the endpoint of the active flight plan.
Active Flight Plan - Leg Mode	Trip Route Active Flight Plan – Leg P.POS → TOP	The ‘from’ waypoint is the aircraft present position or a selected waypoint, and the ‘to’ waypoint is the endpoint of the selected leg. In automatic mode, the ‘from’ waypoint is always present position.
Waypoint Mode	Trip Route MCI → TOP	Manually selected waypoints (if there is an active flight plan, these default to the endpoints of the active leg).

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Flight Plan Leg Type	Symbol
Active Course Leg* (Absolute Terrain On)	
Active Course Leg* (Absolute Terrain Off)	
Active Heading Leg* (Absolute Terrain On)	
Active Heading Leg* (Absolute Terrain Off)	
Active Roll Steering Path*† (Absolute Terrain On)	
Active Roll Steering Path*† (Absolute Terrain Off)	
Course Leg in current flight segment (Absolute Terrain On)	
Course Leg in current flight segment (Absolute Terrain Off)	
Course Leg not in current flight segment (Absolute Terrain On)	
Course Leg not in current flight segment (Absolute Terrain Off)	
Heading Leg (Absolute Terrain On)	
Heading Leg (Absolute Terrain Off)	
Roll Steering Path † (Absolute Terrain On)	
Roll Steering Path † (Absolute Terrain Off)	
Future Roll Steering Path ‡ (Absolute Terrain On)	
Future Roll Steering Path ‡ (Absolute Terrain Off)	
Turn Anticipation Arc (Absolute Terrain On/Absolute Terrain Off)	
* The active leg or path is the one currently being flown, and is shown in magenta. † A roll steering path is a computed transition between two disconnected legs. ‡ A roll steering path in the flight plan that is beyond the next leg appears as a future roll steering path. When a future roll steering path becomes the next leg in the flight plan, it appears as a roll steering path.	

Flight Plan Leg Symbols

Selecting the Stored Flight Plan - Cumulative trip route mode:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Trip Route** Button to display the Input Selection Window.
- 3) Touch the **Select from Flight Plan** Button to display the Select Flight Plan Screen.
- 4) Scroll the list, if necessary, and touch a stored flight plan button to display the Select Flight Plan Leg Screen.
- 5) Touch the **Cumulative Flight Plan** Button to select the mode and return to the Trip Planning Screen.

Selecting the Stored Flight Plan - Leg trip route mode:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Trip Route** Button to display the Input Selection Window.
- 3) Touch the **Select from Flight Plan** Button to display the Select Flight Plan Screen.
- 4) Scroll the list, if necessary, and touch a stored flight plan button to display the Select Flight Plan Leg Screen.
- 5) Scroll the list, if necessary, and touch a flight plan leg selection button to select the mode and return to the Trip Planning Screen.

Selecting the Active Flight Plan - Remaining trip route mode:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Trip Route** Button to display the Input Selection Window.
- 3) Touch the **Select from Flight Plan** Button to display the Select Flight Plan Screen.
- 4) Scroll the list, if necessary, and touch the active flight plan button to display the Select Flight Plan Leg Screen.
- 5) Touch the **Remaining Flight Plan** Button to select the mode and return to the Trip Planning Screen.

Selecting the Active Flight Plan - Leg trip route mode:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Trip Route** Button to display the Input Selection Window.
- 3) Touch the **Select from Flight Plan** Button to display the Select Flight Plan Screen.
- 4) Scroll the list, if necessary, and touch the active flight plan button to display the Select Flight Plan Leg Screen.
- 5) Scroll the list, if necessary, and touch a flight plan leg selection button (P.POS → Waypoint or Waypoint → Waypoint) to select the mode and return to the Trip Planning Screen.

Selecting the waypoints trip route mode:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Trip Route** Button to display the Input Selection Window.
- 3) Touch the **Select Starting and Ending Waypoints** Button to display the Select Starting and Ending Locations Window.
- 4) Touch the starting waypoint button to display the Select Starting Location Window.
- 5) Select the starting waypoint:

Touch the **Present Position** Button to use the present position of the aircraft and return to the Select Starting and Ending Locations Window.

Or:

Touch the **Waypoint** Button to select a waypoint using the keypad and return to the Select Starting and Ending Locations Window.
- 6) Touch the ending waypoint button to select a waypoint using the keypad and return to the Select Starting and Ending Locations Window.
- 7) Touch the **Accept** Button to select the mode and return to the Trip Planning Screen.

Entering manual data for trip statistics calculations:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Trip Planning**.
- 2) Touch the **Manual Entry** Button to enable the manual entry data field buttons.
- 3) Touch an input data field button and use the keypad to select the value.
- 4) Touch the **Enter** Button to accept the value and return to the Trip Planning Screen.
- 5) Repeat steps 3 and 4 for each of the data fields.

USER WAYPOINTS

Selecting A User Waypoint

- 1) From MFD **Home**, touch **Waypoint Info** > **User Waypoint**.
- 2) Touch the selected user waypoint button to display the keypad.
- 3) Use the keypad to enter the user waypoint name.
- 4) Touch the **Enter** Button to accept the name and display the user waypoint information on the Touchscreen Controller.
- 5) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the USER WPT INFORMATION Display, if necessary.

Finding And Selecting A User Waypoint For Review By Facility Name Or City Name

- 1) From MFD **Home**, touch **Waypoint Info** > **User Waypoint**.
- 2) Touch the selected user waypoint button to display the keypad.
- 3) Touch the **Find** Button to display the Find Waypoint Screen.
- 4) Touch the **Search** Tab to display the **Search By** Button.
- 5) If necessary, touch the **Search By** Button to choose Search by City or Search by Facility.
- 6) Touch the **Facility Name** Button or the **City Name** Button to display the keypad.
- 7) Use the keypad to enter the name.
- 8) Touch the **Enter** Button to accept the entry and display the search results.

- 9) Touch a user waypoint button to display the user waypoint information on the Touchscreen Controller.
- 10) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the USER WPT INFORMATION Display, if necessary.

Finding And Selecting A User Waypoint By Category (Recent, Nearest, Flight Plan, Or Favorites)

- 1) From MFD **Home**, touch **Waypoint Info** > **User Waypoint**.
- 2) Touch the selected user waypoint button to display the keypad.
- 3) Touch the **Find** Button to display the Find Waypoint Screen.
- 4) Touch the **Recent**, **Nearest**, **Flight Plan**, or **Favorites** Tab to display a list of user waypoints in the selected category.
- 5) Touch a user waypoint button to display the user waypoint information on the Touchscreen Controller.
- 6) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the USER WPT INFORMATION Display, if necessary.

Viewing Information For A Nearest User Waypoint

- 1) From MFD **Home**, touch **Nearest** > **User**.
- 2) Touch a nearest user waypoint button to display the Waypoint Options Window.
- 3) Touch the **Show on Map** Button to display the Nearest User Display, if necessary.
- 4) Touch the **User Waypoint Info** Button to display the User Waypoint Information Screen.

Creating User Waypoints From The User Waypoint Information Screen

- 1) From MFD **Home**, touch **Waypoint Info** > **Create Waypoint**. The current aircraft position is the default location of the new waypoint.
- 2) Touch the user waypoint name button to display the keypad.
- 3) Use the keypad and the **Enter** Button to select a user waypoint name (up to six characters).
- 4) If desired, define the type and location of the waypoint in one of the following ways:

- a) Touch the **Type** Button to display the User Waypoint Type Window.
- b) Touch the **RAD/DIS** Button to select the bearing/distance from a waypoint type.
- c) Touch the **REF** Button to display the keypad.
- d) Use the keypad and the **Enter** Button, or the Find function, to select the waypoint.
- e) Touch the **RAD** Button to display the keypad.
- f) Use the keypad and the **Enter** Button to select the radial.
- g) Touch the **DIS** Button to display the keypad.
- h) Use the keypad and the **Enter** Button to select the distance.

Or:

- a) Touch the **Type** Button to display the User Waypoint Type Window.
- b) Touch the **RAD/RAD** Button to select the bearings from two waypoints type.
- c) Touch the **REF1** Button to display the keypad.
- d) Use the keypad and the **Enter** Button, or the Find function, to select the waypoint.
- e) Touch the **RAD1** Button to display the keypad.
- f) Use the keypad and the **Enter** Button to select the radial.
- g) Repeat steps c – f for the second reference waypoint and radial.

Or:

- a) Touch the **Type** Button to display the User Waypoint Type Window.
- b) Touch the **LAT/LON** Button to select the latitude/longitude type.
- c) Touch the **LAT/LON** Button to display the keypad.
- d) Use the keypad and the **Enter** Button to select the latitude and longitude.

5) If desired, change the waypoint comment.

- a) Touch the **Comment** Button to display the keypad.
- b) Use the keypad and the **Enter** Button to select the comment.

6) If desired, touch the **Temporary Button to change the waypoint storage method. When the annunciator on the button is green, the waypoint is only stored until the next power cycle. When the annunciator is gray, the waypoint is stored until manually erased.**

- 7) Touch the **Create** Button to accept the new user waypoint. If RAD/RAD was used to define the waypoint, and the radials do not intersect, a message 'The radials entered do not intersect' will be displayed. Touch the **OK** Button to return to the Create User Waypoint Screen.

Creating User Waypoints From Map Pages

- 1) Press the lower knob on the Touchscreen Controller to activate the panning function and display the Map Pointer Control Screen on the Touchscreen Controller.
- 2) Use the upper knob on the Touchscreen Controller or the **Touchpad** to pan to the map location of the desired user waypoint.
- 3) Touch the **Create WPT** Button. The Create User Waypoint Screen is displayed with the captured position.
- 4) Touch the user waypoint name button to display the keypad.
- 5) Use the keypad and the **Enter** Button to select a user waypoint name (up to six characters).
- 6) If desired, change the waypoint comment. The comment defaults to the abbreviated latitude/longitude of the user waypoint.
 - a) Touch the **Comment** Button to display the keypad.
 - b) Use the keypad and the **Enter** Button to select the comment.
- 7) Press the **Create** Button to create the new waypoint.
- 8) Press either knob on the Touchscreen Controller to deactivate the panning function and return to the previous display on the Touchscreen Controller.

Editing A User Waypoint Comment

- 1) From MFD **Home**, touch **Waypoint Info** > **User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.
- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Edit** Button to display the Edit User Waypoint Screen.
- 5) Touch the **Comment** Button to display the keypad.

- 6) Use the keypad and the **Enter** Button to select a user waypoint comment (up to 25 characters).
- 7) Touch the **Save** Button to accept the new comment.
- 8) Touch the **OK** Button in response to the question "Are you sure you want to modify this waypoint?"

Editing A User Waypoint Name

- 1) From MFD **Home**, touch **Waypoint Info > User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.
- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Edit** Button to display the Edit User Waypoint Screen.
- 5) Touch the user waypoint name button to display the keypad.
- 6) Use the keypad and the **Enter** Button to select a user waypoint name (up to six characters).
- 7) Touch the **Save** Button to accept the new name.
- 8) Touch the **OK** Button in response to the question "Are you sure you want to modify this waypoint?"

Editing A User Waypoint Type And Location

- 1) From MFD **Home**, touch **Waypoint Info > User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.
- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Edit** Button to display the Edit User Waypoint Screen.
- 5) Touch the **Type** Button to display the User Waypoint Type Window.
- 6) Touch the **RAD/DIS** Button, the **RAD/RAD** Button, or the **LAT/LON** Button to select the waypoint type.
- 7) Touch the **REF** Button, the **RAD** Button, the **DIS** Button, or the **LAT/LON** Button, as required, to bring up the keypad.

- 8) Use the keypad and the **Enter** Button to select the user waypoint location.
- 9) Touch the **Save** Button to accept the new type and location.
- 10) Touch the **OK** Button in response to the question "Are you sure you want to modify this waypoint?".

Changing The Location Of An Existing User Waypoint To The Aircraft Present Position

- 1) From MFD **Home**, touch **Waypoint Info > User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.
- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Edit** Button to display the Edit User Waypoint Screen.
- 5) Touch the **Type** Button to display the User Waypoint Type Window.
- 6) Touch the **P. POS** Button to select the aircraft present position as the location.
- 7) Touch the **Save** Button to accept the new name.
- 8) Touch the **OK** Button in response to the question "Are you sure you want to modify this waypoint?".

Deleting A Single User Waypoint

- 1) From MFD **Home**, touch **Waypoint Info > User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.
- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Delete** Button.
- 5) Touch the **OK** Button in response to the question "Would you like to delete the user waypoint XXXXXX?".

Deleting All User Waypoints

- 1) From MFD **Home**, touch **Waypoint Info > User Waypoint**.
- 2) If necessary, touch the **WPT List** Tab to display the list of user waypoints, and touch the desired user waypoint selection button.

- 3) Touch the **Waypoint Options** Button to display the Waypoint Options Window.
- 4) Touch the **Delete All** Button.
- 5) Touch the **OK** Button in response to the question "Would you like to delete all user waypoints?".

CREATING AN ACTIVE OR STANDBY FLIGHT PLAN

Creating A Standby Flight Plan

- 1) For the active flight plan: From the MFD **Home** Screen, touch **Flight Plan**.
For the standby flight plan: From the MFD **Home** Screen, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Touch the **Add Origin** Button to display the keypad.
- 3) Select the identifier of the origin waypoint.
Use the keypad and the **Enter** Button to select a waypoint Identifier.
Or:
Use the right Knobs to select a waypoint identifier.
Or:
 - a) Touch the **Find** Button to display the Find Waypoint Screen.
 - b) Touch the **Nearest, Recent, Flight Plan, or Favorites** Tab and select the waypoint from the list of waypoints.**Or:**
 - a) Touch the **Find** Button to display the Find Waypoint Screen.
 - b) Touch the Search Tab to display the **Search By** Button.
 - c) If necessary, touch the **Search By** Button to choose Search by City or Search by Facility.
 - d) Touch the **Facility Name** Button or the **City Name** Button to display the keypad.
 - e) Use the keypad and the **Enter** Button to accept the entry and display the search results.
 - f) Touch a waypoint selection button to choose the waypoint.
- 4) If needed, touch the **Origin** Button to display the Select Runway Screen. Touch a Runway Selection Button to select the departure runway and return to the Active Flight Plan Display

- 5) Touch the **Add Destination** Button to display the keypad.
- 6) Select the identifier of the destination waypoint using one of the step 3 procedures.
- 7) If needed, touch the **Destination** Button to display the Destination Options Screen. Touch the **Select Arrival Runway** Button to display the Select Runway Screen. Touch a runway selection button to select the destination runway and return to the Active Flight Plan Screen.
- 8) Touch the **Add Enroute Waypoint** Button to display the keypad.
- 9) Select the identifier of the enroute waypoint using one of the step 3 procedures.
- 10) Repeat step numbers 8 and 9 to enter each additional enroute waypoint.
- 11) If you are finished adding enroute waypoints, touch the **Done** Button to remove the **Add Enroute Waypoint** Button and the **Done** Button from the Active Flight Plan Screen.
- 12) If needed, touch the **Origin** Options Button to display the Origin Options Screen to select a new origin airport, departure runway, departure procedure or to remove the origin airport.
- 13) If needed, touch the **Destination** Options Button to display the **Destination** Options Screen to select a new destination airport, arrival runway, arrival procedure, approach procedure, or to remove the destination airport.

Creating A Stored Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan > Flight Plan Options**
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch the **Create New Catalog Flight Plan** Button to display the Edit Stored Flight Plan Screen.
- 4) Touch the **Add Origin** Button to display the keypad.
- 5) Select the identifier of the origin waypoint.
Use the keypad and the **Enter** Button to select a waypoint Identifier.
Or:
Use the right Knobs to select a waypoint identifier.

Or:

- a) Touch the **Find** Button to display the Find Waypoint Screen.
- b) Touch the **Nearest, Recent, Flight Plan, or Favorites** Tab and select the waypoint from the list of waypoints.

Or:

- a) Touch the **Find** Button to display the Find Waypoint Screen.
 - b) Touch the Search Tab to display the **Search By** Button.
 - c) If necessary, touch the **Search By** Button to choose Search by City or Search by Facility.
 - d) Touch the **Facility Name** Button or the **City Name** Button to display the keypad.
 - e) Use the keypad and the **Enter** Button to accept the entry and display the search results.
 - f) Touch a waypoint selection button to choose the waypoint.
- 6) If needed, touch the **Origin** Button to display the Select Runway Screen. Touch a Runway Selection Button to select the departure runway and return to the Active Flight Plan Display
 - 7) Touch the **Add Destination** Button to display the keypad.
 - 8) Select the identifier of the destination waypoint using one of the step 3 procedures.
 - 9) If needed, touch the **Destination** Button to display the Destination Options Screen. Touch the **Select Arrival Runway** Button to display the Select Runway Screen. Touch a runway selection button to select the destination runway and return to the Active Flight Plan Display.
 - 10) Touch the **Add Enroute Waypoint** Button to display the keypad.
 - 11) Select the identifier of the enroute waypoint using one of the step 5 procedures.
 - 12) Repeat step numbers 9 and 10 to enter each additional enroute waypoint.
 - 13) If you are finished adding enroute waypoints, touch the **Done** Button to remove the **Add Enroute Waypoint** Button and the **Done** Button from the Active Flight Plan Screen.

- 14) If needed, touch the **Origin** Options Button to display the Origin Options Screen to select a new origin airport, departure runway, departure procedure or to remove the origin airport.
- 15) If needed, touch the **Destination** Options Button to display the **Destination** Options Screen to select a new destination airport, arrival runway, arrival procedure, approach procedure, or to remove the destination airport.

IMPORT A FLIGHT PLAN FROM AN SD CARD



NOTE: If the imported flight plan contains a waypoint with a name that duplicates the name of a waypoint already stored on the system, the system compares the coordinates of the imported waypoint with those of the existing waypoint. If the coordinates are different, the imported waypoint is automatically renamed by adding characters to the end of the name.

- 1) Insert the SD card containing the flight plan in the top card slot on the MFD.
- 2) From MFD **Home**, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog > Create New Catalog Flight Plan > Flight Plan Options**.
- 3) Touch the **Import** Button to display the Import Flight Plan Screen.
- 4) Touch a flight plan selection button to display the flight plan information and activate the **Import** Button.
- 5) Touch the **Import** Button.
- 6) Touch the **OK** Button to return to the Edit Stored Flight Plan Screen.

EXPORTING A STORED FLIGHT PLAN TO AN SD CARD

- 1) Insert the SD card for storing the flight plan in the top card slot on the MFD.
- 2) From MFD **Home**, touch **Flight Plan > Flight Plan Options**.
- 3) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 4) Touch a flight plan selection button to display the Catalog Options Window.
- 5) Touch the **Export** Button to display the Export Flight Plan Screen.
- 6) Touch the **File Name:** Button to rename the exported flight plan using the keypad or right knobs, if necessary.

- 7) Touch the **Export** Button.
- 8) Touch the **OK** Button in response to the “Flight Plan Successfully Exported.” prompt to return to the Flight Plan Options Screen.

INSERT A WAYPOINT IN AN ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan > Standby Flight Plan**.
- 2) Touch on a waypoint to display the Waypoint Options Window.
- 3) Touch the **Insert Before** Button or the **Insert After** Button to select where the new waypoint will be placed in relation to the selected waypoint. The keypad is displayed.
- 4) Use the keypad, right knob, or the Find function to select the new waypoint.
- 5) Touch the **Enter** Button to accept the waypoint and place it in the flight plan.

INSERT A WAYPOINT IN A STORED FLIGHT PLAN

- 1) From MFD **Home**, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch a flight plan selection button to display the Catalog Options Window.
- 4) Touch the **Edit** Button to display the Edit Stored Flight Plan Screen.
- 5) Touch a waypoint options button to display the Waypoint Options Window.
- 6) Touch the **Insert Before** Button or the **Insert After** Button to select where the new waypoint will be placed in relation to the selected waypoint. The keypad is displayed.
- 7) Use the keypad, right knobs, or the Find function to select the new waypoint.
- 8) Touch the **Enter** Button to accept the waypoint and place it in the flight plan.

INSERT A WAYPOINT IN AN ACTIVE OR STANDBY FLIGHT PLAN USING THE MAP POINTER

- 1) For the active flight plan: Go to step 2.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Press the lower knob on the Touchscreen Controller to the display Map Pointer Control Screen on the Touchscreen Controller, and to activate the map pointer on the Navigation Map Display. Use the upper knob on the Touchscreen Controller or the **Touchpad** to move the pointer to the map location of the desired waypoint. When the pointer highlights a map location that can be added to the flight plan, the **Insert in FPL** Button is activated.
- 3) Touch the **Insert In Flight Plan** Button. The Insert Before Waypoint Screen is displayed.
- 4) Touch the waypoint selection button to select where to insert the new waypoint. The waypoint is inserted into the flight plan before the selected waypoint, and the Touchscreen Controller returns to the Map Pointer Options Screen. Press the either knob on the Touchscreen Controller to deactivate the map pointer and return to the previous screen.

INSERT AN AIRWAY IN AN ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Scroll the list if necessary and touch a waypoint options button to display the Waypoint Options Window.
- 3) Touch the **Load Airway** Button to display the Airway Selection Screen.
- 4) Touch the **Sort A->Z** Button to select/deselect alphabetical sorting of the airway waypoints.
- 5) Scroll the list if necessary and touch an airway selection button to select the airway and display the Select Exit Window (if Sort A->Z is selected, the exit points are displayed in alphabetical order, not the order they appear in the airway).

- 6) Scroll the list if necessary and touch an airway exit point selection button to select the airway exit point and display the Airway Waypoint Sequence.
- 7) Touch the **Load Airway** Button to insert the airway into the active or standby flight plan.

INSERT AN AIRWAY IN A STORED FLIGHT PLAN

- 1) From MFD **Home**, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch a flight plan selection button to display the Catalog Options Window.
- 4) Touch the **Edit** Button to display the Edit Stored Flight Plan Screen.
- 5) Scroll the list if necessary and touch a waypoint options button to display the Waypoint Options Window.
- 6) Touch the **Load Airway** Button to display the Airway Selection Screen.
- 7) Scroll the list if necessary and touch an airway selection button to select the airway and display the Select Exit Window.
- 8) Scroll the list if necessary and touch an airway exit point selection button to select the airway exit point and display the Airway Waypoint Sequence.
- 9) Touch the **Load Airway** Button to insert the airway into the stored flight plan.

CHANGING THE ACTIVE OR STANDBY FLIGHT PLAN COMMENT

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan > Flight Plan Options**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan > Standby Flight Plan > Flight Plan Options**.
- 2) Touch the **Rename** Button to display the keypad.
- 3) Use the keypad to select the comment.
- 4) Touch the **Enter** Button to accept the comment, and return to the Flight Plan Options Screen.

CHANGING A STORED FLIGHT PLAN COMMENT

- 1) From MFD **Home**, touch **Flight Plan** > **Flight Plan Options**.
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Scroll the list if necessary and touch a stored flight plan button to display the Catalog Options Window.
- 4) Touch the **Rename** Button to display the keypad.
- 5) Use the keypad to select the comment.
- 6) Touch the **Enter** Button to accept the comment, and return to the Flight Plan Catalog Screen.

INSERTING AN ALONG TRACK OFFSET WAYPOINT INTO THE ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Touch a waypoint options button to display the Waypoint Options Screen.
- 3) Touch the **Along Track Waypoint** Button to bring up the Along Track Waypoint Offset Screen.
- 4) Use the keypad to select the distance in the range of 1 to 999 nm (limited by leg distances).
- 5) Touch the **(Before)** - Button or the **(After)** - Button to select the offset waypoint direction.
- 6) Touch the **Enter** Button to insert the offset waypoint into the flight plan.

ADDING AN ALTITUDE CONSTRAINT AT AN ALONG TRACK OFFSET WAYPOINT

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Touch an Along Track Offset Waypoint Altitude Constraint Button to display the VNAV Altitude Screen.

- 3) Use the keypad to select the altitude.
- 4) Touch the **Flight Level** Button or the **MSL** Button to select the altitude mode.
- 5) Touch the **Enter** Button to add the altitude constraint to the flight plan.

ACTIVATING PARALLEL TRACK

- 1) From MFD **Home**, touch **Flight Plan** > **Flight Plan Options** > **Parallel Track**.
- 2) Touch the **Left** Button or the **Right** Button to choose the offset direction.
- 3) Touch the **Offset Distance** Button to display the keypad.
- 4) Use the keypad to select the distance.
- 5) Touch the **Enter** Button to accept the distance, and return to the Parallel Track Screen.
- 6) Touch the **Activate Parallel Track** Button to activate the parallel track function.

INVERTING AND ACTIVATING A STORED FLIGHT PLAN

- 1) From MFD **Home**, touch **Flight Plan** > **Flight Plan Options**.
- 2) Touch the **Flight Plan Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Scroll the list if necessary and touch a flight plan selection button to display the Catalog Options Window.
- 4) Touch the **Invert and Activate** Button.
- 5) Touch the **OK** Button in response to "Invert and Activate Selected Flight Plan and Replace Current Active Route?". The stored flight plan is inverted (all procedures are removed) and becomes the active flight plan. The stored flight plan is not modified. To cancel the request, touch the **Cancel** Button.

COLLAPSING/EXPANDING ALL AIRWAYS IN THE ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.

- 2) Scroll the list if necessary and touch an airway selection button to display the Airway Options Window.
- 3) Touch the **Collapse All** Button or the **Expand All** Button to collapse/expand all airways and return to the Active Flight Plan Screen.

COLLAPSING/EXPANDING ONE AIRWAY IN THE ACTIVE OR STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Scroll the list if necessary and touch an airway selection button to display the Airway Options Window.
- 3) Touch the **Collapse Airway** Button or the **Expand Airway** Button to collapse/expand the airway and return to the Active Flight Plan Screen.

DETERMINING THE CLOSEST POINT ALONG THE ACTIVE OR STANDBY FLIGHT PLAN TO A SELECTED WAYPOINT

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Touch the **Flight Plan Options** Button to display the Flight Plan Options Screen.
- 3) Touch the **Closest Point of Flight Plan** Button to display the Closest Point of Flight Plan Screen.
- 4) Touch the **From** Waypoint Button to display the keypad.
- 5) Use the keypad and the **Enter** Button to select the "From" waypoint.
- 6) Touch the **Insert Point into Flight Plan** Button to add the calculated waypoint into the flight plan. The name for the new waypoint is derived from the identifier of the From waypoint.

USER-DEFINED HOLDING PATTERNS



NOTE: System navigation utilities may not reliably calculate range and bearing information when the aircraft is operating north of 80° North latitude or south of 80° South latitude. This may result in the system displaying small gaps in racetrack holding pattern depictions.

Creating A User-Defined Hold At An Active Flight Plan Waypoint

- 1) From the MFD **Home** Screen, touch **Flight Plan**.
- 2) Scroll the list, if necessary, touch the waypoint at which to define the holding pattern. The Waypoint Options Window is displayed.
- 3) Touch the **Hold at Waypoint** Button. The Hold at Waypoint Window is displayed.
- 4) Touch the **Turn** Button, choose between **Right** or **Left** turn direction.
- 5) Touch the Course Direction Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.
- 6) Touch the Hold Entry Course Button to display the keypad. Use the keypad and the **Enter** Button to select the entry angle.
- 7) Touch the Leg Length Mode Button, and touch the **Distance** Button or the **Time** Button to select the length mode.
- 8) Touch the **Leg Time** Button or the **Leg Distance** Button to display the keypad. Use the keypad and the **Enter** Button to select the length of the leg.
- 9) Touch the **Expect Further Clearance** Button to display the keypad. Use the keypad and the **Enter** Button to select the time for a reminder.
- 10) Touch the **Create** Button to add the hold into the flight plan.

Creating A User-Defined Hold At The Aircraft Present Position

- 1) From MFD **Home**, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Hold at P.POS** Button. The Hold at Waypoint Screen is displayed.
- 3) Touch the **Turn** Button, and touch the **Right** Button or the **Left** Button to select the turn direction.
- 4) Touch the Course Direction Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.

- 5) Touch the Inbound/Outbound **Course** Button to display the keypad. Use the keypad and the **Enter** Button to select the inbound or outbound course.
- 6) Touch the Leg Length Mode Button, and touch the **Distance** Button or the **Time** Button to select the length mode.
- 7) Touch the **Leg Time** Button or the **Leg Distance** Button to display the keypad. Use the keypad and the **Enter** Button to select the length of the leg.
- 8) Touch the **Expect Further Clearance** Button to display the keypad. Use the keypad and the **Enter** Button to select the time for a reminder.
- 9) Touch the **Create** Button to create an Offroute Direct-to hold waypoint at the aircraft present position.
- 10) If desired, to enter the hold into the flight plan, touch the PPOS-H waypoint options button to display the Direct-To Screen.
- 11) Touch the **Insert in Flight Plan** Button. The Insert  PPOS-H Before? Screen is displayed.
- 12) Touch the desired waypoint selection button, and the hold is inserted in the flight plan before the selected waypoint.

Creating A User-Defined Hold At A Direct-To Waypoint

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Touch the **Direct-To** Button and set up the Direct To waypoint as desired.
- 3) Touch the **Hold** Button. The Direct To Hold Screen is displayed.
- 4) Touch the **Turn** Button, and touch the **Right** Button or the **Left** Button to select the turn direction.
- 5) Touch the Course Direction Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.
- 6) Touch the Inbound/Outbound **Course** Button to display the keypad. Use the keypad and the **Enter** Button to select the inbound or outbound course.
- 7) Touch the Leg Length Mode Button, and touch the **Distance** Button or the **Time** Button to select the length mode.
- 8) Touch the **Leg Time** Button or the **Leg Distance** Button to display the keypad. Use the keypad and the **Enter** Button to select the length of the leg.

- 9) Touch the **Expect Further Clearance** Button to display the keypad. Use the keypad and the **Enter** Button to select the time for a reminder.
- 10) Touch the **Enter** Button to return to the Direct To Screen.
- 11) Touch the **Activate**  Button to activate the Direct-To and add the hold into the flight plan.

Removing A User-Defined Hold At An Active Flight Plan Waypoint Or At A Direct-To Waypoint (Hold Not Active)

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Scroll the list, if necessary, and touch the Hold waypoint selection button. The Waypoint Options Window is displayed.
- 3) Touch the **Remove Hold** Button.
- 4) Touch the **OK** Button in response to "Remove Holding Pattern?" The holding pattern is removed. To cancel the request, touch the **Cancel** Button.

Exiting A User-Defined Hold At An Active Flight Plan Waypoint Or At A Direct-To Waypoint (Hold Active)

- 1) From MFD **Home**, touch **Flight Plan**
- 2) Scroll the list, if necessary, and touch the Hold waypoint selection button. The Waypoint Options Window is displayed.
- 3) Touch the **Exit Hold** Button.
- 4) Touch the **OK** Button in response to "Exit Hold at <identifier>?" The holding pattern will be exited at the hold waypoint. To cancel the request, touch the **Cancel** Button.



NOTE: The Remove Hold Button on the Active Flight Plan Waypoint Options Window, and the Cancel Hold Button on the Direct To Hold Screen, immediately remove the holding pattern from the active flight plan, provides guidance to the active leg, and resumes automatic waypoint sequencing. Using the Exit Hold Button on the Active Flight Plan Waypoint Options Window, or the SUSP Button on the PFD Touchscreen Controller will follow the holding pattern to the inbound course and resume automatic waypoint sequencing.

Editing A User-Defined Hold

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan**.
- 2) Scroll the list, if necessary, and touch the Hold waypoint selection button. The Waypoint Options Window is displayed.
- 3) Touch the **Edit Hold** Button. The Hold at Waypoint Screen is displayed.
- 4) Touch the **Turn** Button, and touch the **Right** Button or the **Left** Button to select the turn direction.
- 5) Touch the Course Direction Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.
- 6) Touch the Inbound/Outbound **Course** Button to display the keypad. Use the keypad and the **Enter** Button to select the inbound or outbound course.
- 7) Touch the Leg Length Mode Button, and touch the **Distance** Button or the **Time** Button to select the length mode.
- 8) Touch the **Leg Time** Button or the **Leg Distance** Button to display the keypad. Use the keypad and the **Enter** Button to select the length of the leg.
- 9) Touch the **Expect Further Clearance** Button to display the keypad. Use the keypad and the **Enter** Button to select the time for a reminder. A system message (HOLD EXPIRED Holding EFC time expired.) will be triggered at the selected time.
- 10) Touch the **Save** Button to add the hold into the flight plan.

Removing A User-Defined Hold At The Aircraft Present Position

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Scroll the list, if necessary, and touch the PPOS-H waypoint options button, or touch the **Direct-To** Button. The Direct To Window is displayed.
- 3) Touch the **Cancel PPOS-H** Button.
- 4) Touch the **OK** Button in response to "Cancel D-> PPOS-H?". The holding pattern is removed. To cancel the request, touch the **Cancel** Button.

REMOVING FLIGHT PLAN ITEMS

Some waypoints in the final approach segment (such as the FAF or MAP) can not be removed individually. Attempting to remove a waypoint that is not allowed results in a window displaying 'Invalid flight plan modification.'

Removing A Waypoint From The Active Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan**.
- 2) Scroll the list if necessary and touch on a waypoint to display the Waypoint Options Window.
- 3) Touch the **Remove Waypoint** Button.
- 4) Touch the **OK** Button in response to "Remove <waypoint name>?". The waypoint is removed. To cancel the request, touch the **Cancel** Button.

Removing An Airway From The Active Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan**.
- 2) Scroll the list if necessary and touch on the desired airway to display the Airway Options Window.
- 3) Touch the **Remove Airway** Button.
- 4) Touch the **OK** Button in response to "Remove Airway -<airway name> from flight plan?". The airway is removed. To cancel the request, touch the **Cancel** Button.

Removing A Procedure From The Active Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan**.
- 2) Scroll the list if necessary and touch a departure, arrival, or approach selection button to display the Departure, Arrival, or Approach Options Window.
- 3) Touch the **Remove Departure** Button, the **Remove Arrival** Button, or the **Remove Approach** Button.
- 4) Touch the **Yes** Button in response to "Remove <procedure> -<procedure name> from flight plan?". The procedure is removed (the departure airport remains when removing a departure). To cancel, touch the **No** Button.

Removing A Waypoint From A Stored Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.

- 3) Scroll the list if necessary and touch on a flight plan to display the Catalog Options Window.
- 4) Touch the **Edit** Button.
- 5) Scroll the list if necessary and touch on a waypoint to display the Waypoint Options Window.
- 6) Touch the **Remove Waypoint** Button.
- 7) Touch the **Yes** Button in response to "Remove <waypoint name>?" The waypoint is removed. To cancel the request, touch the **No** Button.

Removing An Airway From A Stored Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Scroll the list if necessary and touch on a flight plan to display the Catalog Options Window.
- 4) Touch the **Edit** Button.
- 5) Scroll the list if necessary and touch on an airway to display the Airway Options Window.
- 6) Touch the **Remove Airway** Button.
- 7) Touch the **Yes** Button in response to "Remove <airway name>?" The airway is removed, but the starting and ending waypoints remain in the flight plan. To cancel the request, touch the **No** Button.

Removing A Procedure From A Stored Flight Plan

- 1) From the MFD **Home** Screen, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Scroll the list if necessary and touch on a flight plan to display the Catalog Options Window.
- 4) Touch the **Edit** Button.
- 5) Scroll the list if necessary and touch a departure, arrival, or approach selection button to display the Departure, Arrival, or Approach Options Window.
- 6) Touch the **Remove Departure** Button, the **Remove Arrival** Button, or the **Remove Approach** Button.

- 7) Touch the **Yes** Button in response to "Remove <procedure> -<procedure name> from flight plan?" The procedure is removed (the departure airport remains when removing a departure). To cancel the request, touch the **No** Button.

INVERT AND ACTIVATE A STORED FLIGHT PLAN

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Scroll the list if necessary and touch on a flight plan to display the Catalog Options Window.
- 4) Touch the **Invert and Activate** Button.
- 5) Touch the **OK** Button in response to "Invert and Activate Selected Flight Plan and Replace Current Active Route?" The stored flight is inverted and becomes the active flight plan. The stored flight plan is not modified. To cancel the request, touch the **Cancel** Button.

COPY A STORED FLIGHT PLAN

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch a stored flight plan button to display the Catalog Options Window.
- 4) Touch the **Copy** Button.
- 5) Touch the **OK** Button in response to "Copy Flight Plan <flight plan name>?" The copied flight plan is placed at the end of the list of stored flight plans. To cancel the request, touch the **Cancel** Button.

DELETE A STORED FLIGHT PLAN

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the **Catalog** Button to display the Flight Plan Catalog Screen.
- 3) Touch a stored flight plan button to display the Catalog Options Window.
- 4) Touch the **Delete** Button.
- 5) Touch the **OK** Button in response to "Delete Flight Plan <flight plan name>?". The flight plan is deleted, and any flight plans following it in the list are shifted up. To cancel the request, touch the **Cancel** Button.

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PROCEDURES

VIEWING AVAILABLE PROCEDURES AT AN AIRPORT

- 1) From MFD **Home**, touch **Waypoint Info > Airport**.
- 2) If necessary, touch the Airport Selection Button to display the keypad and use it to select the airport.
- 3) Touch the **Proc** Tab to display the Airport Procedures Screen.
- 4) Scroll the list if necessary and touch a procedure selection button. The procedure selection screen is displayed on the Touchscreen Controller for the selected procedure.
- 5) Touch the **Preview** Button, then the **Show on Map** Button to show the procedure on the navigation map or touch the **Show Chart** Button to show the chart instead of the navigation map.
- 6) Touch the **Back** Button to return to the Airport Procedures Screen to view another procedure.
- 7) Repeat steps 4 through 6 as necessary.

LOADING A PROCEDURE INTO THE ACTIVE FLIGHT PLAN FROM THE AIRPORT INFORMATION SCREEN

- 1) From MFD **Home**, touch **Waypoint Info > Airport**.
- 2) If necessary, touch the Airport Selection Button to display the keypad and use it to select the airport.
- 3) Touch the **Proc** Tab to display the Airport Procedures Screen.
- 4) Scroll the list, if necessary, and touch a procedure selection button. The procedure selection screen is displayed on the Touchscreen Controller for the selected procedure.
- 5) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the procedure on the navigation map or touch the **Show Chart** Button to show the procedure chart instead of the navigation map.
- 6) Select a different procedure, if desired.
- 7) Touch the **Load** Button to insert the procedure into the active flight plan.

LOADING A PROCEDURE INTO THE ACTIVE FLIGHT PLAN FROM THE NEAREST AIRPORT SCREEN

- 1) From MFD **Home**, touch **Nearest > Airport**.
- 2) If necessary, scroll the list to find the airport and touch the airport selection button to display the Waypoint Options Window for the selected airport. If the airport is not listed, touch any airport selection button to display the Waypoint Options Window.
- 3) Touch the **Airport Info** Button to display the Airport Information Screen. If in the previous step, the airport was not listed, touch the airport button and use the keypad to select the destination airport.
- 4) Touch the **Proc** Tab to display the Airport Procedures Screen.
- 5) Scroll the list, if necessary, and touch a procedure selection button. The procedure selection screen is displayed on the Touchscreen Controller for the selected procedure.
- 6) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the procedure on the navigation map or touch the **Show Chart** Button to show the procedure chart instead of the navigation map.
- 7) Select a different procedure, if desired.
- 8) Touch the **Load** Button to insert the procedure into the active flight plan.

LOADING A DEPARTURE PROCEDURE INTO THE ACTIVE/STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **PROC**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan > Standby Flight Plan > PROC**.
- 2) Touch the **Departure** Button to display the Departure Selection Screen.
- 3) If necessary, touch the **Airport** Button to display the keypad and use it to select the origin airport.
- 4) Touch the **Enter** Button to accept the origin airport.
- 5) If necessary, touch the **Departure** Button to display the Select Departure Screen with a list of available departures.
- 6) Scroll the list if necessary and touch a departure selection button to select the departure.

- 7) If necessary, touch the **Transition** Button to display the Select Transition Screen with a list of available transitions.
- 8) Scroll the list if necessary and touch a transition selection button to select the transition.
- 9) If necessary, touch the **Runway** Button to display the Select Runway Screen with a list of available runways.
- 10) Scroll the list if necessary and touch a runway selection button to select the runway and return to the Departure Selection Screen.
- 11) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the departure on the navigation map or touch the **Show Chart** Button to show the departure chart instead of the navigation map.
- 12) Touch the **Load** Button to insert the departure into the active/standby flight plan.

LOADING AN ARRIVAL PROCEDURE INTO THE ACTIVE/STANDBY FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **PROC**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan** > **PROC**.
- 2) Touch the **Arrival** Button to display the Arrival Selection Screen.
- 3) If necessary, touch the **Airport** Button to display the keypad and use it to select the destination airport.
- 4) Touch the **Enter** Button to accept the destination airport.
- 5) If necessary, touch the **Arrival** Button to display the Select Arrival Screen with a list of available arrivals.
- 6) Scroll the list if necessary and touch an arrival selection button to select the arrival.
- 7) If necessary, touch the **Transition** Button to display the Select Transition Screen with a list of available transitions.
- 8) Scroll the list if necessary and touch a transition selection button to select the transition.
- 9) If necessary, touch the **Runway** Button to display the Select Runway Screen with a list of available runways.

- 10) Scroll the list if necessary and touch a runway selection button to select the runway and return to the Arrival Selection Screen.
- 11) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the arrival on the navigation map or touch the **Show Chart** Button to show the arrival chart instead of the navigation map.
- 12) Touch the **Load** Button to insert the arrival into the flight plan.

LOAD AND/OR ACTIVATE AN APPROACH PROCEDURE INTO THE ACTIVE/ STANDBY FLIGHT PLAN



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.



NOTE: After an approach procedure has been loaded into the flight plan, any altitude or speed constraint programmed at the airport reference point (on the flight plan just ahead of the approach procedure) will be removed if the approach procedure is changed or removed.

- 1) For the active flight plan: From MFD **Home**, touch **PROC**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan** > **PROC**.
- 2) Touch the **Approach** Button to display the Approach Selection Screen.
- 3) Select the airport and approach:
 - a) If necessary, touch the **Airport** Button to display the keypad and use it to select the approach airport.
 - b) Touch the **Enter** Button to accept the approach airport.
 - c) If necessary, touch the **Approach** Button to display the Select Approach Screen with a list of available approaches.
 - d) Scroll the list if necessary and touch an approach selection button to select the approach.

Or:

- a) If the **SBAS** Button is available, touch the **SBAS** Button to display the keypad and use it to select the SBAS channel number (The SBAS channel button is only available when an RNAV, GPS, or no approach is selected).

If the **SBAS** Button is not available, touch the **Approach** Button to display the Select Approach Screen, scroll to the bottom of the list, touch the **Select by SBAS Channel** Button to display the keypad, and use it to select the SBAS channel number.

- b) Touch the **Enter** Button to accept the SBAS channel and return to the Approach Selection Screen with the airport and approach selected.
- 4) If necessary, touch the **Transition** Button to display the Select Transition Screen with a list of available transitions.
- 5) Scroll the list if necessary and touch a transition selection button to select the transition.
- 6) To set the minimums, touch the **Minimums** Button to display the Minimums Screen. If the minimums were Off, then Baro is automatically selected.
 - a) If Baro is desired, use the keypad to select the barometric minimum altitude.
 - b) Touch the **Enter** Button to accept the barometric minimum altitude and return to the Approach Selection Screen.

Or:

- a) If a radio altitude minimum is desired, touch the **Minimums** Button to display the Minimums Source Window.
- b) Touch the **Radio Alt** Button to select radio altitude minimums and return to the Minimums Screen.
- c) Use the keypad to select the minimums altitude.
- d) Touch the **Enter** Button to accept the radio altitude minimums and return to the Approach Selection Screen.

Or:

- a) If temperature compensated minimum is desired, touch the **Minimums** Button to display the Minimums Source Window.
- b) Touch the **Temp Comp** Button to select temperature compensated minimums and return to the Minimums Screen.
- c) Use the numeric keypad to select the destination temperature.

- d) Touch the **Enter** Button to accept the destination temperature and return to the Minimums Screen.
 - e) Use the keypad to select the minimums altitude.
 - f) Touch the **Enter** Button to accept the temperature compensated minimums and return to the Approach Selection Screen.
- 7) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the approach on the navigation map or touch the **Show Chart** Button to show the approach chart instead of the navigation map.
 - 8) Touch the **Load** Button to insert the approach into the flight plan.



NOTE: When GPS is not approved for the selected final approach course, the message 'NOT APPROVED FOR GPS' is displayed. GPS provides guidance to the approach, but the HSI must to be switched to a NAV receiver to fly the final course of the approach.

ACTIVATE A PREVIOUSLY LOADED APPROACH

- 1) From MFD **Home**, touch **PROC**.
- 2) Touch the **Activate Approach** Button to activate the approach.

Or:

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Touch the Approach Header Button to display the Approach Options Window.
- 3) Touch the **Activate Approach** Button to activate the approach.

ACTIVATE A PREVIOUSLY LOADED APPROACH WITH VECTORS TO FINAL APPROACH FIX

- 1) From MFD **Home**, touch **PROC**.
- 2) Touch the **Activate Vectors To Final** Button to activate vectors to final.

Or:

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Touch the Approach Header Button to display the Approach Options Window.
- 3) Touch the **Activate Vectors To Final** Button to activate vectors to final.

ACTIVATE A MISSED APPROACH IN THE ACTIVE FLIGHT PLAN

Press the GA Button. The system begins automatic sequencing through the missed approach waypoints to the MAHP. See the AFCS section for more details.

Or:

- 1) From MFD **Home**, touch **PROC**.
- 2) Touch the **Activate Missed Approach** Button to activate the missed approach (only on RNAV approaches). The system begins automatic sequencing through the missed approach waypoints to the MAHP.

Or:

- 1) From MFD **Home**, touch **Flight Plan**.
- 2) Touch the Approach Header Button to display the Approach Options Window.
- 3) Touch the **Activate Missed Approach** Button to activate the missed approach (only on RNAV approaches). The system begins automatic sequencing through the missed approach waypoints to the MAHP.

REMOVING A PROCEDURE FROM THE ACTIVE FLIGHT PLAN

- 1) For the active flight plan: From MFD **Home**, touch **PROC**.
For the standby flight plan: From MFD **Home**, touch **Flight Plan** > **Standby Flight Plan** > **PROC**.
- 2) Touch the **Departure**, **Arrival**, or **Approach** Button as appropriate.
- 3) Touch the **Remove** Button.
- 4) Touch the **OK** Button. The approach is removed from the active flight plan. To cancel the request, touch the **Cancel** Button.

TEMPERATURE COMPENSATED ALTITUDE

A temperature compensated altitude can be computed and used at the FAF of a loaded approach. A temperature compensated altitude is displayed with an icon.

Enabling/Disabling Temperature Compensated Waypoint Altitude

- 1) For the active flight plan: From MFD **Home**, touch **Flight Plan > Flight Plan Options**.

For the standby flight plan: From MFD **Home**, touch **Flight Plan > Standby Flight Plan > Flight Plan Options**.

- 2) Touch the **APPR WPT TEMP COMP** Button to display the Temp Compensation Screen.
- 3) Touch the **Temp Compensation** Annunciator Button to enable/disable temperature compensation.
- 4) Touch the **Temp at Dest** Button to display the numeric keypad. Use the keypad and the **Enter** Button to select the temperature at the destination. The compensated altitudes are computed and shown in the flight plan.

HAZARD AVOIDANCE

CUSTOMIZING THE HAZARD DISPLAYS ON THE NAVIGATION MAP

Enabling/disabling weather product information on the Inset Navigation Map and HSI Map:

- 1) From PFD Home, touch **PFD Map Settings**.
- 2) If necessary, touch either the **HSI Map** or **Inset Map** buttons in order to allow selection of the buttons in the Overlays Tab.
- 3) Touch the **Weather Legend** Button.

Or:

- 1) With the PFD Inset Map or HSI Map shown, press the **PFD Map Settings** Softkey.
- 2) Press the **Weather Legend** Softkey.

Setting up and customizing the Weather Products on Map Displays:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Map > Map Settings**.
- 2) If necessary, touch the **Sensor** Tab.
- 3) Scroll through the list to view the available weather products.
- 4) Touch a weather product annunciator button to enable/disable the selected weather product. Button annunciator is green when a weather product is enabled, or gray when disabled.
- 5) If necessary, touch a range button next to the corresponding weather product, then touch to select the maximum map range at which the system will display the selected weather product.

Selecting a terrain display range on the navigation map:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Map > Map Settings**.
- 2) If necessary, touch the **Sensor** Tab.
- 3) Touch the **Terrain** Button to enable/disable the Relative Terrain. Relative Terrain is enabled when the button annunciator is green, disabled when gray.

- 4) Touch the **Settings** Button to display the Relative Terrain Settings. Then touch the **Map Settings** button to display the Map Terrain Range Setting.
- 5) Touch on the **Terrain** Button, scroll through the list and touch a range button to select the maximum map range at which the system shows terrain data.

Selecting an obstacle display range on the navigation map:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Map > Map Settings**.
- 2) If necessary, touch the **Land** Tab.
- 3) Touch the **Obstacle Data** Button to enable/disable the Obstacle Data. Obstacle Data is enabled when the button annunciator is green, disabled when gray.
- 4) Touch the current range button (10 NM is selected by default) to display the Map Obstacle Range.
- 5) Scroll through the list and touch a range button to select the maximum map range at which the system shows obstacle data.

Customizing the obstacle selection on Map Displays:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Map > Map Settings**.
- 2) If necessary, touch the **Land** Tab.
- 3) Scroll through the list to view the available obstacle selections.
- 4) Touch an obstacle selection annunciator button to enable/disable the selected weather product. Button annunciator is green when an obstacle is enabled for viewing, or gray when disabled for viewing.
- 5) If necessary, touch a range button next to the corresponding obstacle selection, then touch to select the maximum map range at which the system will display the selected obstacle selection.

SIRIUSXM WEATHER (OPTIONAL)



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

Setting up and customizing the SiriusXM Weather Products on navigation maps:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Map > Map Settings**.
- 2) If necessary, touch the **Sensor** Tab.
- 3) Touch the desired weather product button to enable or disable weather product data.
- 4) Touch the weather product Data Range Button to display the map range window.
- 5) Scroll though the list and touch a range button to select the maximum map range at which the system shows data for the selected weather product.

Displaying SiriusXM Weather data on the Weather Pane:

- 1) From **Home**, touch the **Weather** Button. Button is highlighted and becomes **Weather Selection** Button. Selected display pane shows a weather pane. If a weather pane other than 'SiriusXM Weather' is shown (such as 'Weather Radar' in the pane title), continue with the procedure to view the SiriusXM Weather Pane.
- 2) Touch the **Weather Selection** Button. The Weather Selection Screen appears.
- 3) Touch the **SiriusXM Weather** Button. Button is highlighted and becomes **SiriusXM Settings** Button. The system shows the SiriusXM Weather Pane.
- 4) If necessary, touch the **SiriusXM Settings** Button to access controls for the SiriusXM Weather Pane.

Displaying Time-Lapse NEXRAD Animation on the SiriusXM Weather Pane:

- 1) From the Home Screen, touch **Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings**.
- 2) If necessary, touch the **NEXRAD** Button in the Background Window to enable the display of NEXRAD.
- 3) Touch the **NEXRAD Settings** Button.
- 4) Touch the **Animation** Button to enable/disable the animation.
- 5) When finished, touch **Back** or **Home**.

SiriusXM Weather Products and Symbols

SiriusXM Weather Product	Symbol	Expiration Time (Minutes)	Broadcast Rate (Minutes)
Next-generation Radar (NEXRAD)		30	5 (U.S.) 10 (Canada)
Cloud Tops		60	30
Echo Tops		30	7.5
SiriusXM Lightning		30	5
Storm Cell Movement		30	12
SIGMETs		60	12
AIRMETs		60	12
METARs		90	12
City Forecast		90	12
Surface Analysis		60	12
Freezing Levels		120	12
Winds Aloft		90	12
County Warnings		60	5
Cyclone (Hurricane) Warnings		60	12

SiriusXM Weather Product	Symbol	Expiration Time (Minutes)	Broadcast Rate (Minutes)
Icing Potential (CIP and SLD)		90	22
Pilot Weather Report (PIREPs)		90	12
Air Report (AIREPs)		90	12
Turbulence		180	12
No Radar Coverage	no product symbol	30	5
Temporary Flight Restrictions (TFRs)	no product symbol	60	12
Terminal Aerodrome Reports (TAFs)	no product symbol	60	12

GARMIN 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.



NOTE: The availability of specific Garmin Connex Weather products varies by region and by subscription type. For Garmin Connex weather product coverage information, refer to <http://fly.garmin.com/fly-garmin/connex/worldwide-weather/>.

Viewing the Connex Weather Pane:

From MFD **Home**, touch **Weather > Weather Selection > Connex Weather**.

Defining Weather Data Request Coverage Area:

- 1) From MFD **Home**, touch **Weather > Weather Selection > Connex Weather > Connex Settings**.
- 2) Touch the **Define Coverage** Button.
- 3) To change the diameter and route width of the weather data request coverage area, touch the **Diameter/Width** Button. Scroll as needed and touch the desired distance button in the pop-up window.
- 4) To include/remove the present position in the weather data request, touch the **P.POS** Button.
- 5) To include/remove the destination of the active flight plan in the weather data request, touch the **Destination** Button.
- 6) To include/remove any portion of the active flight plan route in the weather data request, touch the **Flight Plan** Button.
- 7) To change distance of the flight plan to be used in the data request, touch the Flight Plan Distance Button. Scroll as needed and touch the desired distance of the flight plan to be used ('Remaining FPL' uses the remainder of the flight plan, or select a specified look-ahead distance from the list.)
- 8) To include/remove a specific waypoint to be used in the weather data request, touch the **Waypoint** Button.
 - a) Touch the waypoint entry Button (to the right of the **Waypoint** Button.)
 - b) Use Touchscreen Controller keypad or knobs to enter a waypoint to include in the weather data request, then touch the **Enter** Button or press the small knob.
- 9) When finished, touch the **Back** Button to return to the Connex Weather Settings Screen, or touch **Home**.

Sending/Cancelling an Immediate Weather Data Request:

- 1) From MFD **Home**, touch **Weather > Weather Selection > Connex Weather > Connex Settings**.
- 2) Touch the **Send Immediate Request** Button. The system contacts Garmin Connex services and displays the status in the Data Request Window. System displays 'Completed' when finished.
- 3) If desired, touch the **Cancel Immediate Request** Button while a request is occurring. Data Request Window displays 'Cancelled'.

Enabling/disabling automatic Garmin Connex Data Requests:

- 1) From MFD **Home**, touch **Weather > Weather Selection > Connex Weather > Connex Settings**.
- 2) Touch the **Auto Request** Button.
- 3) From the pop-up window, touch an Auto Update Request Rate Button to select the desired weather request update interval in minutes or touch the **Off** Button to disable automatic Connex Data Requests.

Displaying Connex information (navigation map displays)

- 1) From MFD **Home**, Touch **Map > Map Settings**.
- 2) If necessary touch the **Sensor** Tab
- 3) Scroll if needed and touch the **Connex Radar** Button

Displaying Connex information (Connex Weather Display)

- 1) From MFD **Home**, touch **Weather > Weather Selection > Connex Weather > Connex Settings**.
- 2) Touch the **Radar** Button in the Overlays Window.

Garmin Connex Weather Products and Symbols

Garmin Connex Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Connex Radar		30	U.S.: 3* Canada: 3*† Europe: 15 Australia: 15^
Cloud Tops		60	30

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Garmin Connex Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Connex Lightning		30	Continuous
SIGMETs/AIRMETs		60	Continuous
Meteorological Aerodrome Report (METARs)		90	Continuous
Winds Aloft		90	Continuous
Pilot Weather Reports (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.

† Canadian radar precipitation data provided by Environment Canada.

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

Garmin Connex Weather Status Messages

If the system cannot complete a weather data request, one or more messages will appear in the Data Request Window.

Weather Request Status Message	Description
Auto requests inhibited	The system has disabled automatic weather data requests due to excessive errors. Automatic weather data requests have stopped.
Send manual request to reset.	Send a manual weather data request to resume automatic updates.

Weather Request Status Message	Description
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.
Connex Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.
Connex Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GIA is off-line.
Connex Comm Error [5]	The Iridium or Garmin Connex services are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
Connex Comm Error [6]	A communications error has occurred. If this error persists, the system should be serviced.
Connex Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the Connex Data Request.
Connex Comm Error [8]	A server error has occurred or invalid data received.
Connex Login Invalid	There is a problem with the Garmin Connex registration. In the United States, contact Garmin Connex services at 1-866-739-5687. Outside the United States, call 913-397-8200, wait for the operator, and request extension 1135.
Connex Server Temporarily Inop	The Garmin Connex weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
Connex Server Inop	The Garmin Connex weather data server will be out of service for at least 30 minutes.
Invalid Coverage Area	The Connex Data Request does not sufficiently define a coverage area on which to retrieve weather data. Verify the selections in the Connex Weather Coverage Window, then issue another Connex Data Request.
No Connex Subscription	The system is not currently subscribed to the Garmin Connex Weather service, or the access code is incorrect. Verify the access code. In the United States, contact Garmin Connex services at 1-866-739-5687. Outside the United States, call 913-397-8200, wait for the operator, and request extension 1135.

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Weather Request Status Message	Description
Reduce Request Area	The weather data request area exceeds size limits. Reduce weather coverage area and re-send data request.
Request Cancelled	The user has cancelled a weather data request.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.
Transfer Preempted	The data link is busy. Retry request later.
Transfer Preempted	The data link is busy. Retry request later.

STORMSCOPE LIGHTNING (OPTIONAL)



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



NOTE: The Stormscope lightning map overlay cannot be displayed simultaneously with data link lightning overlays on the same map.

The optional Stormscope lightning detection system displays lightning cell and strike information on the Stormscope Pane and navigation maps using the symbology shown in the table below.

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	

Displaying the Stormscope Pane:

From Home, touch **Weather > Weather Selection > Stormscope**.

The lower knob on the Touchscreen Controller controls the map range shown on the Stormscope Pane. Turn the lower knob clockwise to increase the map range shown, or counter-clockwise to decrease the map range. Map ranges of 25 nm to 200 nm are available.

Selecting a Stormscope Operating Mode on the Stormscope Pane:

- 1) From MFD **Home**, touch **Weather > Weather Selection > Stormscope > Stormscope Settings**.
- 2) Touch either the **Cell** Button or the **Strike** Button. Button annunciator is green for currently selected mode.

AIRBORNE COLOR WEATHER RADAR

When evaluating various target returns on the weather radar display, the colors denote precipitation intensity and rates shown in the table.

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

Showing Weather Radar Data on the Weather Radar Display:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) If necessary, touch the **Radar On** Button to enable (green annunciator) weather radar controls for the selected Weather Radar Pane. If the **Radar On** Button was previously disabled (gray annunciator), enabling the **Radar On** Button causes all weather radar displays to enter Standby Mode.
- 3) Touch the **Display Mode** Button.
- 4) Touch the **Weather** Button. If the aircraft is airborne, a 'WEATHER' annunciation appears in the upper-left of the Weather Radar Pane.

- 5) If the aircraft is on the ground, the Touchscreen Controller displays a prompt to confirm radar activation. Touch the **OK** Button to begin transmitting, or touch the **Cancel** Button to return to the Weather Radar Settings screen, and the radar remains in Standby Mode.
- 6) Turn the lower knob to select the desired map range.
- 7) The system displays a horizontal scan. To change to a vertical scan, refer to the following procedure, "Vertically scanning a storm cell."

Vertically scanning a storm cell:



NOTE: *Vertical scanning of a storm cell should be done with the aircraft wings level to avoid constant adjustment of the Bearing Line.*

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) While on a Horizontal Scan view, touch the **Bearing Line** Button if necessary to show the Bearing Line on the Weather Radar Pane.
- 3) Press the upper knob. This enables the upper knob to set the Bearing Line position and displays a bearing and tilt legend.
- 4) Move the large upper knob left or right to place the Bearing Line on the desired storm cell or other area to be vertically scanned.
- 5) Touch the **Scan** Button.
- 6) Touch the **Vertical** Button. The Weather Radar Pane shows a vertical scan.
- 7) Turn the large upper knob to move the bearing line a few degrees left or right. When finished, push the knob to disable bearing line adjustment.
- 8) Turn the lower knob to adjust the map range as needed.
- 9) To select a new area to be vertically scanned, return to the Horizontal scan mode.
 - a) Touch the **Scan** Button.
 - b) Touch the **Horizontal** Button.
 - c) Return to Step 2 of this procedure.

Adjusting antenna tilt on the Weather Radar Display in Horizontal Scan Mode:

- 1) Push the upper knob to activate the tilt adjustment function. The Weather Radar displays a bearing and tilt knob legend.

- 2) Turn the small upper knob to adjust the antenna tilt angle.
- 3) When finished, push the upper knob to disable the tilt adjustment function and remove the legend.

Enabling/Disabling Altitude Compensated Tilt (ACT) on the Weather Radar Pane:

- 1) If necessary, refer to the previous procedures to initially set the antenna tilt angle to the desired setting.
- 2) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 3) Touch the **Altitude Comp Tilt** Button. The Radar Status indicator shows 'ALTITUDE COMP TILT ON'.

Adjusting gain on the Weather Radar Pane:



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

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) If the **Calibrated Gain** button annunciator is green (enabled), touch the **Calibrated Gain** Button to disable Calibrated Gain. **Calibrated Gain** Button annunciator is gray when disabled.
- 3) Touch and slide the Gain slider.

Or:

Touch the + pointer to increase gain, or - pointer to decrease gain. Each touch increases or decreases the gain by one increment. A gray bar across the slider bar serves as a reference to the calibrated gain setting position.

- 4) To return to the calibrated gain setting, touch the **Calibrated Gain** Button.

Enabling/disabling Sector Scan on the Weather Radar Pane:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) While in Horizontal Scan Mode, touch the **Bearing Line** Button if necessary to show the Bearing Line on the Weather Radar Pane.

- 3) Press the upper knob to enable bearing pointer adjustment.
- 4) Move the large upper knob left or right to place the Bearing Line in the desired position. The location of the Bearing Line will become the center point of the Sector Scan.
- 5) Touch the **Sector Scan** Button.
- 6) Touch a button to select a 20°, 40°, 60°, or touch the **FULL** Button to resume a 90° degree scan.
- 7) If desired, readjust the Bearing Line as discussed previously to change the center of the Sector Scan.
- 8) Press the upper knob again to remove the bearing selection function.

Enabling/Disabling antenna stabilization on the Weather Radar Pane:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) To activate or deactivate the antenna stabilization, touch the **Stabilizer** Button. Antenna stabilization is enabled when button annunciator is green; stabilization is disabled when button annunciator is gray. The system indicates the current stabilization condition in the upper right of the Weather Radar Pane.

Enabling/Disabling WATCH display feature:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) To enable or disable the WATCH feature, touch the **WX Watch** Button. WATCH is enabled when button annunciator is green; WATCH is disabled when button annunciator is gray.

Enabling/Disabling Weather Alert:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) To enable or disable the Weather Alert feature, touch the **WX Alert Button**. Alert is enabled when button annunciator is green; alert is disabled when annunciator is gray.

Ground Mapping

When the weather radar system is in the Weather or Ground Map mode, the system automatically places the radar in Standby mode on landing.

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

Operation in Ground Map Mode:

- 1) From MFD **Home**, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings**.
- 2) Touch the **Display Mode** Button.
- 3) Touch the **Ground** Button to place the radar in Ground Map mode.
- 4) Press the upper knob to activate the antenna tilt selection function.
- 5) Turn the small upper knob to select the desired antenna tilt angle.
- 6) When ground returns are shown at the desired distance, press the upper knob to disable the tilt adjustment function.

VERTICAL SITUATION DISPLAY



NOTE: Only one inset window may be shown per display pane. If another inset window is selected, it replaces the previously selected inset window.

Enabling/Disabling VSD Inset Window:

- 1) From MFD **Home**, touch **Map > Map Settings**.
- 2) If necessary, touch the Inset Window Tab.
- 3) Touch the **VERT Situation Display** Button to enable/disable the VSD Inset Window.

Changing the Vertical Situation Display Mode:

- 1) From Home, touch **Map > Map Settings**.
- 2) Touch the Inset Window Tab
- 3) Touch the VERT Situation Display **Settings** Button.
- 4) Touch the **Mode** Button.
- 5) Touch one of the following buttons to select a mode:
 - **Auto:** VSD shows terrain along the active flight plan route, or current track if there is no active flight plan.
 - **Flight Plan:** VSD shows terrain along the active flight plan route. VSD is unavailable if there is no active flight plan.
 - **Track:** VSD shows terrain along the current track.
- 6) When finished, touch **Back** or **Home**.

Enabling/disabling the Track Mode Boundary:

- 1) From Home, touch **Map > Map Settings**.
- 2) If necessary, touch the Inset Window Tab.
- 3) Touch the VERT Situation Display **Settings** Button.
- 4) If the **Track Mode Boundary** Button is subdued, it will be necessary to change the Mode to either Auto or Track before continuing to the next step; refer to the procedure 'Changing the VSD Mode' for more information.
- 5) Touch the **Track Mode Boundary** Button to enable/disable the display of the boundary on the Navigation Map Pane.
- 5) Touch the Profile Boundary Range button.
- 6) Scroll as needed and touch a button for the desired maximum Navigation Map Pane range for the system to display the Profile Boundary (above this selection, the system will remove the Profile Boundary from the pane.)
- 7) When finished, touch **Back** or **Home**.

TERRAIN SVT



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



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



NOTE: If the TAWS-B option is installed, it will take precedence over Terrain SVT.

Showing the Terrain SVT Pane:

From MFD **Home**, touch the **Terrain SVT** Button.

On-Ground Legend



In-Air Legend



Terrain SVT Relative Terrain Legends

Inhibiting/enabling Terrain SVT alerting:

- 1) From **Home**, touch **Terrain SVT** > **Terrain SVT Settings**.

Or:

- a) From MFD **Home**, touch **Map** > **Map Settings**.
- b) If necessary, touch the **Sensor Tab**.
- c) Touch the **Terrain Settings** Button.

Or:

- a) From **PFD Home**, touch **Inset Map Settings**.
- b) If necessary, touch the **HSI Map** or **Inset Map** button to enable the **Overlays** buttons.
- c) Touch the **Terrain Settings** Button.

- 2) Touch the **Terrain Inhibit** Button. When the annunciator on the button is green, Terrain SVT alerting is inhibited. When the annunciator is gray, Terrain SVT alerting is enabled.

TERRAIN AWARENESS & WARNING SYSTEM (TAWS-B) DISPLAY



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



NOTE: Government agencies provide data for the TAWS databases. Garmin accurately processes and cross-validates the data but cannot guarantee the accuracy and completeness of the data.



NOTE: Terrain or obstacle information is not available if the aircraft is outside of the installed terrain or obstacle database coverage area.

Displaying terrain on the TAWS Display:

From the MFD **Home** Screen, touch **TAWS**.

Enabling/disabling terrain information on the Navigation Map Display:

- 1) From the MFD **Home** Screen, touch **Map > Map Settings**.
- 2) If necessary, touch the **Sensor** Tab.
- 3) Touch the **Terrain** Button to select Relative or Absolute Terrain.

TAWS On-Ground Legend



TAWS In-Air Legend



TAWS Relative Terrain Legends

Enabling/disabling aviation data on the TAWS Pane:

- 1) From MFD **Home**, touch **TAWS > TAWS Settings**.
- 2) Touch the **Show Aviation Data** Button to display/remove aviation data (airports, VORs, NDBs, Intersections) on the TAWS Pane.

Inhibiting/enabling TAWS-B FLTA and PDA alerting:

- 1) From MFD **Home**, touch **TAWS > TAWS Settings**.
- 2) Touch the **TAWS Inhibit** Button. When the annunciator on the button is green, TAWS-B alerting is inhibited. When the button annunciator is gray, TAWS-B alerting is enabled.

Or:

- 1) From MFD **Home**, touch **Map > Map Settings**.
- 2) If necessary, touch the Sensor Tab.
- 3) Touch the Terrain **Settings** Button.
- 4) Touch the **TAWS Inhibit** Button. TAWS-B alerting is inhibited when the button annunciator is green, enabled when gray.

Or:

- 1) From **PFD Home**, touch **PFD Map Settings**.
- 2) Touch the Terrain **Settings** Button in the Overlays Window.
- 3) Touch the **TAWS Inhibit** Button.

Inhibiting TAWS-B alerting while an alert is occurring:

- 1) Touch the **Inhibit TAWS** Button on the Terrain Alert pop-up window on the Touchscreen Controller.
- 2) Touch the **OK** Button to confirm and inhibit TAWS or touch the **Cancel** Button to return to the previous screen or Terrain Alert pop-up window

TRAFFIC INFORMATION SERVICE (TIS)



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



NOTE: TIS is available only when the aircraft is within the service volume of a TIS-capable terminal radar site. Aircraft without an operating transponder are invisible to Traffic Advisory Systems (TAS), Traffic Alert and Collision Avoidance Systems (TCAS), and to TIS. Aircraft without altitude reporting capability are shown without altitude separation data or climb descent indication.



NOTE: TIS is disabled if another traffic system is installed.

TIS Symbol	Description
	Other Traffic
	Traffic Advisory (TA)
	Traffic Advisory Off Scale

TIS Traffic Symbols

Selecting a TIS mode:

- 1) From MFD **Home**, touch **Traffic > Traffic Settings**.
Or:
 - a) From MFD **Home**, touch **Map > Map Settings**.
 - b) If necessary, touch the Sensor Tab.
 - c) Touch the Traffic **Settings** Button.
- Or:**

- a) From **PFD Home**, touch **PFD Map Settings**.
- b) Touch the Traffic **Settings** Button.

2) Touch the **Operate** or **Standby** Button.

Enabling/disabling the display traffic information the Navigation Map Pane:

- 1) From MFD **Home**, touch **Map > Map Settings**.
- 2) If necessary, touch the Sensor Tab.
- 3) Touch the **Traffic** Button to enable/disable the display of traffic.

Customizing traffic display on the navigation maps:

- 1) From MFD **Home**, touch **Map > Map Settings**.
- 2) If necessary, touch the Sensor Tab.
- 2) Touch the Traffic **Settings** Button.
- 3) Touch the **Map Settings** Button.
- 4) Touch the **Labels** button to enable/disable the display of traffic labels on navigation maps.
- 5) To change the map maximum navigation map range to show traffic symbols, touch the **Symbols** Button, then scroll as needed and touch a button for the desired range.
- 6) To change the map maximum navigation map range to show traffic labels, touch the **Labels** Button, then scroll as needed and touch a button for the desired range.

Or:

- 1) From PFD Home, touch **Inset Map Settings**.
- 2) In the Overlays Tab, touch the Traffic **Settings** Button.
- 3) Touch the **Map Settings** Button.
- 4) Touch the **Labels** button to enable/disable the display of traffic labels on navigation maps.
- 5) To change the map maximum navigation map range to show traffic symbols, touch the **Symbols** Button, then scroll as needed and touch a button for the desired range.
- 6) To change the map maximum navigation map range to show traffic labels, touch the **Labels** Button, then scroll as needed and touch a button for the desired range.

Muting the “TIS Not Available” voice alert:

- 1) From **Home**, touch **Traffic > Traffic Settings**.
- 2) Touch the **Mute “Traffic Not Available”** Button. ‘TNA MUTE ON’ appears in the upper right corner of the Traffic Map.

Or:

- 1) From **Home**, touch **Map > Map Settings**.
- 2) If necessary, touch the Sensor Tab.
- 3) Touch the Traffic **Settings** Button.
- 4) Touch the **Mute “Traffic Not Available”** Button. ‘TNA MUTE ON’ appears in the upper right corner of the Traffic Map.

Or:

- 1) From PFD Home, touch **Inset Map Settings**.
- 2) Scroll in the Overlays Tab and touch the Traffic **Settings** Button.
- 3) Touch the **Mute “Traffic Not Available”** Button. ‘TNA MUTE ON’ appears in the upper right corner of the Traffic Map.

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 information within range of the aircraft. Due to lack of equipment, poor signal reception, and/or inaccurate information from other aircraft, traffic may be present but not represented on the display.

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

Traffic Symbol Description

Displaying the Traffic Map Pane:

From Home on the Touchscreen Controller, touch the **Traffic** Button.

Or:

If the PFD is in Split Mode, press the **Traffic** Softkey.

Changing the altitude mode:

- 1) From Home, touch **Traffic > Traffic Settings**.

Or:

- a) From **MFD Home**, touch **Map > Map Settings**.
- b) If necessary, touch the Sensor Tab.
- c) Touch the Traffic **Settings** Button.

Or:

- a) From **PFD Home**, touch the **PFD Map Settings** Button.
- b) Touch the Traffic **Settings** Button in the Overlays Window.

Flight Instruments
EAS
Nav/Com/XPDR/Audio
AFCS
GPS Nav
Flight Planning
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2) Touch one of the following buttons:

- **Unrestricted:** All traffic is displayed from 9900 feet above and 9900 feet below the aircraft.
- **Above:** Displays non-threat and proximity traffic from 9900 feet above the aircraft to 2700 feet below the aircraft. Typically used during climb phase of flight.
- **Normal:** Displays non-threat and proximity traffic from 2700 feet above the aircraft to 2700 feet below the aircraft. Typically used during enroute phase of flight.
- **Below:** Displays non-threat and proximity traffic from 2700 feet above the aircraft to 9900 feet below the aircraft. Typically used during descent phase of flight.

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ADDITIONAL FEATURES

TERMINAL PROCEDURE CHARTS



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

SafeTaxi®

SafeTaxi is an enhanced feature that gives greater map detail when viewing airports at close range on the Navigation Map or the Inset Map on the PFD. When viewing at ranges close enough to show the airport detail, the map reveals taxiways with identifying letters/numbers, airport Hot Spots, and airport landmarks including ramps, buildings, control towers, and other prominent features. Resolution is greater at lower map ranges. When the aircraft's current position is within the SafeTaxi view, the airplane symbol on the airport provides enhanced position awareness. To view the full capability of the SafeTaxi feature, 'Airports' must be enabled in the Map Settings menu on the Touchscreen Controller.

Designated Hot Spots are recognized at airports with many intersecting taxiways and runways, and/or complex ramp areas. Airport Hot Spots are outlined to caution pilots of areas on an airport surface where positional awareness confusion or runway incursions happen most often. Hot Spots are defined with a magenta circle or outline around the region of possible confusion.

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.

Enabling/Disabling SafeTaxi:

- 1) From the MFD **Home** Screen, touch **Map > Map Settings**.
- 2) If not already selected, touch the **Aviation** Tab.
- 3) If necessary, scroll to display the **SafeTaxi** Annunciator Button.
- 4) Touch the **SafeTaxi** Button to enable or disable the display of SafeTaxi on the Navigation and Inset maps. A green annunciator on the button indicates SafeTaxi is enabled.

Configuring SafeTaxi range:

- 1) From the MFD **Home** Screen, touch **Map > Map Settings**.
- 2) If not already selected, touch the **Aviation** Tab.
- 3) If necessary, scroll to display the **SafeTaxi** Range Button.
- 4) Touch the SafeTaxi Range Button. A selection of ranges is displayed.
- 5) Touch the desired range.

Viewing SafeTaxi database information:

- 1) From the **Home** Screen, touch **Utilities > Setup > Avionics Status**.
- 2) If not already selected, touch the **Database** Tab.
- 3) Touch the desired button (**PFD1 or MFD1**).
- 4) Scroll to view the SafeTaxi database information.

ChartView (optional)

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

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.

Selecting Charts using the Charts Screen:

- 1) From the MFD **Home** Screen, touch **Charts**.
- 2) The airport for which charts will be displayed is shown at the top of the Charts Screen. Touch the Airport Button to enter another airport.
- 3) Touch the **Info** Tab to display the airport information selection buttons for the selected airport.
 - **Departure** Tab to display a list of possible departures for the selected airport.
 - **Arrival** Tab to display a list of possible arrivals for the selected airport.
 - **Approach** Tab to display a list of possible approaches for the selected airport.
- 4) Touch the desired information button in any of these lists to display the applicable chart on the selected Display Pane.

- 5) Touch the **Charts Options** Button to select the desired display option for the selected chart.
- 6) Touch **All** to display the complete Airport Diagram. **Fit Width** displays the full width of the Airport Diagram. **Plan** displays only the diagram portion of the chart. **Minimums** displays only the approach minimums on an approach chart. **Profile** displays only the descent profile on the approach chart. **Header** displays the chart header. Only appropriate views are available for the selected chart.
- 7) Touch **Back** to return to the Charts Screen.

Zoom-in, zoom-out, pan, and rotate the displayed chart:

- 1) From the **Home** Screen, touch **Charts**.
- 2) Select the desired chart for display in the selected pane.
- 3) Push the Lower Knob. The Charts Pan/Zoom Control screen is displayed on the Touchscreen Controller.
- 4) Turn the lower knob, or use the pinch-and-zoom feature on the Touchpad to adjust the chart zoom.
- 5) Move a finger along the Touchpad, or turn the upper knobs to pan the displayed chart.
- 6) Touch the **Rotate** Buttons to rotate the chart clockwise or counter-clockwise, as indicated on the button. Each touch of the button rotates the chart 90 degrees in the designated direction.

Selecting Airport Diagrams from the Nearest Airports Screen:

- 1) From the **Home** Screen, touch **Nearest > Airport**.
- 2) Touch the desired airport button. KCOS is selected in this example. The **Waypoint Options** buttons are displayed.
- 3) Touch the **Airport Chart** Button. The **Info** Tab selections are displayed on the Touchscreen Controller and the Airport Diagram is displayed on the selected Display Pane.

Selecting Day, Night, or Auto View:

- 1) From the MFD **Home** Screen, touch **Charts > Charts Options**.
- 2) Touch the **Light Mode** Button.
- 3) Touch the **Day**, **Night**, or **Auto** button. The selection is annunciated on the **Light Mode** Button. When **Auto** is selected, the display will change to the appropriate day or night setting, dependent on ambient lighting.

- 4) Touch the **Threshold** button. The Auto Light Mode Threshold window is displayed.
- 5) Move the slider left or right to set the desired threshold. Setting the Threshold Level percentage to the same percentage shown as the Current MFD Backlight Level will cause the Day/Night view to switch at the current backlight setting. Adjusting the Threshold Level setting larger than the Current MFD Backlight Level will cause the display to remain in Night Mode longer. Adjusting the Threshold Level setting smaller than the Current MFD Backlight Level will cause the display to change to Day Mode sooner.

Viewing ChartView database information:

- 1) From the MFD **Home** Screen, touch **Utilities > Setup > Avionics Status**.
- 2) Touch the **Database** Tab.
- 3) Touch the button corresponding to the display (**MFD1**, **PFD1**, **PFD2**, **GTC1**, or **GTC2**) for which the database information will be viewed.
- 4) Scroll to display the ChartView database information

FliteCharts®

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

The geo-referenced aircraft position is indicated by an aircraft symbol displayed on the chart when the current position is within the boundaries of the chart. An aircraft symbol may be displayed within an off-scale area depicted on some 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.

Selecting Charts using the Charts Screen:

- 1) From the MFD **Home** Screen, touch **Charts**.
- 2) The airport for which charts will be displayed is shown at the top of the Charts Screen. Touch the Airport Button to enter another airport.

- 3) Touch the **Info** Tab to display the airport information selection buttons for the selected airport.
 - **Departure** Tab to display a list of possible departures for the selected airport.
 - **Arrival** Tab to display a list of possible arrivals for the selected airport.
 - **Approach** Tab to display a list of possible approaches for the selected airport.
- 4) Touch the desired information button in any of these lists to display the applicable chart on the selected Display Pane.
- 5) Touch the **Charts Options** Button to display the viewing options available for the selected chart.
- 6) Touch **Fit Width** to display the full width of the chart.
- 7) Touch **Back** to return to the Charts Screen.

Selecting Airport Diagrams from the Nearest Airports Screen:

- 1) From the MFD **Home** Screen, touch **Nearest > Airport**.
- 2) Touch the desired airport button. The **Waypoint Options** buttons are now displayed.
- 3) Touch the **Airport Chart** Button. The **Info** Tab selections are displayed on the Touchscreen Controller and the Airport Diagram is displayed on the selected Display Pane.

Selecting Day, Night, or Auto View:

- 1) From the MFD **Home** Screen, touch **Charts > Charts Options**.
- 2) Touch the **Light Mode** Button.
- 3) Touch the **Day**, **Night**, or **Auto** button. The selection is annunciated on the **Light Mode** Button. When **Auto** is selected, the display will change to the appropriate day or night setting, dependent on ambient lighting.
- 4) Touch the **Threshold** button. The Auto Light Mode Threshold window is displayed.
- 5) Move the slider left or right to set the desired threshold. Setting the Threshold Level percentage to the same percentage shown as the Current MFD Backlight Level will cause the Day/Night view to switch at the current backlight setting. Adjusting the Threshold Level setting larger than the Current MFD Backlight Level will cause the display to remain in Night Mode longer. Adjusting the Threshold Level setting smaller than the Current MFD Backlight Level will cause the display to change to Day Mode sooner.

Viewing FliteCharts database information:

- 1) From the MFD **Home** Screen, touch **Utilities > Setup > Avionics Status**.
- 2) Touch the **Database** Tab.
- 3) Touch the button corresponding to the display (**MFD1, PFD1, PFD2, GTC1, or GTC2**) for which the database information will be viewed.
- 4) Scroll to display the FliteCharts database information.

AIRPORT DIRECTORY

The Aircraft Owners and Pilots Association (AOPA) and AC-U-KWIK Airport Directory databases offer detailed information regarding services, hours of operation, lodging options, and more for various airports. This information is viewed on the Airport Directory Info Screen.

The Airport Directory databases are revised every 56 days. The Airport Directory is always available for use after the expiration date.

Selecting the Airport Directory Info Screen:

- 1) From the MFD **Home** Screen, touch **Nearest > Airports**.
- 2) A list of the nearest airports to the aircraft present position is displayed, beginning with the closest. Touch the desired airport, in this case KCOS. The **Waypoint Options** buttons are displayed.
- 3) Touch the **Airport Info** Button to display the Airport Directory Info Screen.
- 4) Touch the **APT DIR** Tab to display the Airport Directory information for the selected airport.

Viewing Airport Directory database information:

- 1) From the MFD **Home** Screen, touch **Utilities > Setup > Avionics Status**.
- 2) Touch the **Database** Tab.
- 3) Touch the button corresponding to the display (**MFD1, PFD1, PFD2, GTC1, or GTC2**) for which the database information will be viewed.
- 4) Scroll to display the Airport Directory database information.

SATELLITE TELEPHONE (OPTIONAL)

Contacts

Creating a new contact:

- 1) From the MFD **Home** Screen, touch **Services > Contacts**.
- 2) The Contacts Screen is displayed.
- 3) Touch **Create New**.
- 4) Touch **Name**, shown in. The Contact Name entry screen is displayed.
- 5) Enter the name of the new contact.
- 6) Touch **Enter**.
- 7) If desired, touch the **Favorite** Button to designate the new contact as a favorite. A green annunciator indicates the contact is now designated as a favorite.
- 8) Touch **Telephone Number**. The Telephone Number entry screen is displayed.
- 9) Enter the telephone number of the new contact.
- 10) Touch **Enter**.
- 11) Touch **Email Address**. The Email Address entry screen is displayed.
- 12) Enter the email address of the new contact.
- 13) Touch **Enter**.
- 14) Touch **Create**. The new contact is created and appears in the list of contacts. The star symbol displayed on the right side of the contact button indicates this contact is designated as a favorite.

Telephone Communication (Optional)

Viewing the Telephone Status

- 1) From the MFD **Home** Screen, touch **Services > Telephone**.
- 2) The Telephone Screen is displayed.

Enable/Disable the Iridium System Connection

- 1) From the MFD **Home** Screen, touch **Services > Telephone**.
- 2) Touch the **Iridium #1** Button to display the Iridium #1 Transceiver Screen.
- 3) Touch the **Disable Iridium Transmission** Annunciator Button to disable the transceiver. Touch the button again to enable (gray annunciator) the transceiver.

Answer Incoming Calls

- 1) Touch the flashing **TEL** Button. The Notifications Screen is displayed.
- 2) Touch the **Answer** Button. The call is now connected. Touching the **Ignore** Button extinguishes the new call annunciation and the call remains disconnected.
- 3) When the call is finished, touch **End Call** to disconnect the call.

Outgoing Calls from the Cockpit

Voice calls can be made from the cockpit to an external telephone through the Iridium Satellite Network.

Making a call by entering the telephone number:

- 1) From the MFD **Home** Screen, touch **Services > Telephone**.
- 2) Touch the **Cockpit** Phone Button. The Cockpit Phone Screen is displayed.
- 3) Touch **Dial**. The phone number entry screen is displayed.
- 4) Using the number keys, enter the phone number. Touch **Find** to select a phone number from the Contact List.

The International dialing sequence is necessary to place a call from the cockpit to an external phone: Country Code + City/Area Code (if any) + Telephone Number. The following country codes may be used when calling other satellite telephone systems.

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

- 5) Touch **Enter**. The system now begins establishing a connection. The system will indicate a completed connection when the telephone to which the call is made is answered.

Making a call by selecting a contact:

- 1) From the MFD **Home** Screen, touch **Services > Contacts**.
- 2) Touch the button corresponding to the desired contact. The selected contact is displayed.
- 3) Touch the **Call or Send Text** Button. A selection screen is displayed.
- 4) Touch the **Make Phone Call** Button. The system initiates the call and indicates a completed connection when the telephone is answered.

Entering numbers during a call:

- 1) From the MFD **Home** Screen, touch **Services > Telephone**.
- 2) Touch the **Cockpit** Phone Button. The Cockpit Phone Screen is displayed.
- 3) Touch the **Open Keypad** Button. The Phone Keypad Screen is displayed.
- 4) Touch the desired numeric button to send the number. Repeat as necessary.

Ending a call:

- 1) From the MFD **Home** Screen, touch **Services > Telephone**.
- 2) Touch the **Cockpit** Phone Button. The Cockpit Phone Screen is displayed.
- 3) Touch the **End Call** Button.

Managing Telephone Audio



NOTE: The Push-to-Talk switch is not utilized for telephone communication. The microphone is active whenever a call is connected and telephone audio is enabled.

When an incoming call is received, or an outgoing call is made, telephone audio (which includes headset and microphone) is automatically enabled for either the pilot or copilot, depending on which Touchscreen Controller was used to make or answer the call. If the pilot or copilot wishes to join an existing call, the telephone audio must be enabled manually on the appropriate Touchscreen Controller. When the call is ended, telephone audio is automatically disabled. A green **Pilot Audio** Annunciator Button indicates the enabled pilot audio on the pilot-side Touchscreen Controller. The copilot-side controller will, likewise, indicate a green **Copilot Audio** Annunciator Button.

To enable/disable telephone audio and adjust volume:

- 1) From the MFD **Home** Screen, touch **Services** > **Telephone**.
- 2) Touch the **Cockpit** Phone Button. The Cockpit Phone Screen is displayed.
- 3) Touch the **Pilot Audio** or **Copilot Audio** Annunciator Button to disable telephone audio, including microphone (gray annunciator).
- 4) Touch the Annunciator Button again to enable telephone audio, including microphone (green annunciator).
- 5) Touch and move the **Volume** Slider on the appropriate Touchscreen Controller to adjust the telephone volume.

TEXT MESSAGING (SMS) (OPTIONAL)

The pilot or copilot can send and receive text messages on the Iridium satellite network. Messages may be sent to an email address or text message capable cellular telephone. Message length is limited to 160 characters, including the email address.

Viewing a Text Message When Received

- 1) Touch the flashing **SMS** Button. The **SMS Text Inbox** Tab is automatically selected and the newly received text message is shown at the top of the list.
- 2) Touch the desired message to display its contents.

- 3) If desired, touch **Reply** to create a reply to the message.
- 4) Touch **Delete** to delete the message from the list.
- 5) Touching **Save Contact** saves the contact information in the system contact list.

Reply to a Text Message

While viewing the text message content, touch the **REPLY** Button.

Or:

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the desired text message in the Inbox list. If necessary, scroll to the desired message. The text message is displayed.
- 3) Touch the **REPLY** Button. The Opened SMS Text Message Screen is displayed.
- 4) Touch the 'Message' Window to display the alphanumeric buttons.
- 5) Enter the reply text. The large upper knob on the Touchscreen Controller may be used to move the cursor within the message text in order to select the location for adding new text, or delete existing text.
- 6) Touch the **Enter** Button. The reply message is displayed.
- 7) Touch the **Send** Button. The SMS Message Replied To Screen is displayed.
- 8) If desired, touch the **Reply Again** Button to resend the reply.
- 9) Touch **Delete** to delete the message from the list.
- 10) Touching **Save Contact** saves the contact information in the system contact list.

Sending a Text Message

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the **Draft New** Button. The Opened SMS Text Message Draft Screen is displayed. The Draft New Message button is also available from within the **Drafts** and **Outbox** Tabs.
- 3) Touch the 'To' Window. A selection screen is displayed. If the text message is to be sent to SMS compatible telephone, touch the **Phone** Button. If the message is to be sent to an email address, touch the **Email** Button.
- 4) Enter the telephone number or email address. The number or address may be obtained from the Contacts by touching the **Find** Button.

- 5) Touch the **Enter** Button. The number or address is now displayed.
- 6) Touch the 'Message' Window. The alphanumeric buttons are displayed.
- 7) Enter the message text. The large upper knob on the Touchscreen Controller may be used to move the cursor within the message text in order to select the location for adding new text, or delete existing text.
- 8) Touch the **Enter** Button. The message text is displayed in the 'Message' Window.
- 9) Touch the **Send** Button.

Text Message Boxes

View Inbox messages:

- 1) From the MFD **Home** Screen, touch **Services** > **SMS Text**.
- 2) Touch the **Inbox** Tab. A list of received messages is displayed. The **Inbox** Tab is selected by default when accessing the SMS Text Messaging Screen.

View Draft messages:

- 1) From the MFD **Home** Screen, touch **Services** > **SMS Text**.
- 2) Touch the **Draft** Tab. A list of draft messages is displayed, provided messages have been previously saved.
- 3) Touch a message to access the **Send** or **Delete** Buttons.

View Outbox messages:

- 1) From the MFD **Home** Screen, touch **Services** > **SMS Text**.
- 2) Touch the **Outbox** Tab. A list of sent or unsent messages is displayed.
- 3) Touch a message to access the **Send Again**, **Delete**, and **Save Contact** Buttons.

Managing Text Messages

The following table illustrates the various message status icons.

Message Symbol	Description
	Received text message that has not been opened
	Received text message that has been opened

Message Symbol	Description
	A reply has been sent for this text message
	Saved text message, draft not sent
	System is sending text message
	Text message has been sent
	System failed to send text message

Text Message Symbols

Viewing messages sorted by message date/time:

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the **Options** Tab. The 'Sort Messages By' selections are displayed.
- 3) Touch the **Time** Button. A green annunciator indicates an active selection.
- 4) Touch the **Back** Button to return to the previously selected message box.

Viewing messages sorted by address:

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the **Options** Tab. The 'Sort Messages By' selections are displayed.
- 3) Touch the **Address** Button. A green annunciator indicates an active selection.
- 4) Touch the **Back** Button to return to the previously selected message box.

Marking all messages as read:

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the **Options** Tab. The selection buttons are displayed.
- 3) Touch the **Mark All Read** Button to mark all messages as read, and return to the Inbox. All messages in the Inbox now indicate they have been opened.

Delete all messages:

- 1) From the MFD **Home** Screen, touch **Services > SMS Text**.
- 2) Touch the **Options** Tab. The selection buttons are displayed.

- 3) Touch the **Delete All Messages** Button. A confirmation screen is displayed.
- 4) Touch the **OK** Button.

SIRIUSXM RADIO ENTERTAINMENT (OPTIONAL)

The SiriusXM Radio services are activated by first establishing an account with SiriusXM Satellite Radio. The Audio Radio ID must be provided to SiriusXM Satellite Radio to activate the entertainment subscription.

Selecting Channels

The Channel field on the Music Screen shows the available channels for the selected audio entertainment category. The Now Playing field shows information for the currently active channel.

Selecting a channel from the channel list:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Services > Music** to access the Music Screen.
- 2) Touch the desired channel in the channel list. The selected channel is now shown in the Now Playing field.

Selecting a channel directly:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Services Music > Channel**.
- 2) The numeric keypad is displayed. Enter the desired channel number.
- 3) Press the **Enter** Button. The selected channel is now shown in the Now Playing field.

Entertainment Categories

The Category field on the Music Screen shows the currently selected entertainment category. Categories of audio entertainment, such as jazz, rock, talk/news, sports, etc., can be selected to list the available channels for a type of music or other contents.

Selecting a category:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Services > Music > Category**. The list of categories is displayed.
- 2) Scroll to view the available categories.
- 3) Touch the desired category to select. The selected category is displayed on the **Category** Button and the channel list displays channels available for the selected category.

Favorites

Channels can be saved to a list of favorites and recalled for listening later.

Save a channel to favorites list:

- 1) From the **Home** Screen on the Touchscreen Controller, touch **Services > Music** to access the Music Screen.
- 2) Select a desired channel as the 'Now Playing' channel.
- 3) Touch the **Favorite** Annunciator Button. The current channel is placed in the favorites list. Note, a green annunciator indicates a that the 'Now Playing' channel is a favorite.

Select a favorite channel for listening:

- 1) From the **Home** Screen on the Touchscreen Controller, touch **Services > Music > Category**. The list of categories is displayed.
- 2) If necessary, scroll to view the **Favorites** Button.
- 3) Touch the **Favorites** Button to view the favorite channel list.
- 4) Touch the desired channel in the list. The channel is now displayed in the Now Playing field.

Adjusting Volume

Pilot SiriusXM entertainment audio volume is shown on the Volume Button on the Music Screen as a percentage of full volume. Volume can be muted manually, or muting may be initiated automatically when other audio, such as radio, intercom, or aural alerts, is present.

Adjusting the SiriusXM audio volume:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Services > Music > Volume**. The volume adjustment slider is displayed.
- 2) Touch and drag the slider to the right or left to adjust the volume. Drag to the right increases volume. Drag to the left to decrease the volume.

Muting or unmuting the SiriusXM audio volume:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Services > Music > Volume**.
- 2) Touch the **Music** Annunciator Button to mute or unmute the volume. Muted volume is indicated by a gray annunciator. Unmuted volume is indicated by a green annunciator.
- 3) Touch the **Back** Button to return to the Music Screen. When the volume is muted, 'Muted' is displayed in the Volume field.

Enable/disable soft mute settings:

- 1) From the MFD **Home** Screen, touch **Services > Music > Volume > Mute Settings**.
- 2) Touch the **Intercom** Annunciator Button to select/deselect automatic soft muting of entertainment audio when intercom audio is present. This function is active when the annunciator is green.
- 3) Touch the **Radio Inputs** Annunciator Button to allow automatic soft muting of entertainment audio when COM, NAV, ADF, etc. audio is present. This function is active when the annunciator is green.
- 4) Touch the **Aural Alerts** Annunciator Button to allow automatic soft muting of entertainment audio when alert audio is present. This function is active when the annunciator is green.
- 5) Touch the **Back** Button to return to the Music Screen.

SCHEDULED MESSAGES

The Scheduled Messages feature can be used to enter and display reminder messages (e.g., Change oil, RVSM checks, or Altimeter-transponder check) on the Messages Screen of the Touchscreen Controller. Messages can be set to display based on a specific date and time (Event), once the message timer reaches zero (One Time), or recurrently whenever the message timer reaches zero (Periodic). Message timers set to periodic alerting automatically reset to the original timer value once the message is displayed. When power is cycled, all messages are retained until deleted, and message timer countdown is resumed. Event messages triggered when the system is powered off will be displayed the next time the system is powered on.

Entering a scheduled message:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities > Scheduled Messages**.
- 2) Touch the **Add Message** Button.
- 3) Touch the **Message** Button.
- 4) The keypad is displayed. Enter the message name using the keypad. The large and small Upper Knobs can also be used to enter the characters.
- 5) Touch the **Enter** Button. The message name is displayed on the **Message** Button.
- 6) Touch the **Frequency** Button.

- 7) Touch **Event**, **One Time**, or **Periodic**. The selection is displayed on the **Frequency** Button.
- 8) Touch the **Time** Button.
- 9) The numeric keypad is displayed. Enter the time value using the keypad. If **One Time** or **Periodic** were selected in step 7, the time is entered in a HH:MM:SS format. If **Event** was selected in step 7, time is entered in a clock format (HH:MM LCL) as local time.
- 10) Touch the **Enter** Button. The time is displayed on the **Time** Button.
- 11) If **Event** was selected in step 7, touch the **Date** Button. The **Date** Button is subdued and disabled when **One Time** or **Periodic** were selected in step 7.
- 12) Touch the desired year, then the month followed by the day.

Edit a scheduled message:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Scheduled Messages**.
- 2) Touch the name of the message to be edited. The Message Options Window is displayed.
- 3) Touch the **Edit Message** Button.
- 4) Select the desired message parameter to be edited and perform the needed steps as discussed previously for entering a scheduled message.

Deleting a scheduled message:

- 1) From the MFD **Home** Screen on the Touchscreen Controller, touch **Utilities** > **Scheduled Messages**.
- 2) Touch the name of the message to be deleted. The Message Options Window is displayed.
- 3) Touch the **Delete Message** Button. Touch the **Delete All Messages** Button to delete all saved messages.

CREW PROFILES

The Crew Profile Screen provides additional capabilities for managing crew profiles. The system can store up to 25 crew profiles. From here, crew profiles may be added, renamed, activated, copied, or deleted. In addition, crew profiles can be imported from an SD card, or exported to an SD card on the Crew Profile screen. By default, 'DEFAULT PROFILE' is the active crew profile. This profile cannot be deleted or renamed.

Changes made to profile parameters are automatically saved to the currently active profile, with the exception of the Default Profile.

Adding a new crew profile:

- 1) From MFD Home, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the **Add Profile** Button.
- 3) Input the name to assign to the crew profile using the keypad or the large and small upper knobs, then touch **Enter** or press the upper knob. Crew Profiles may be up to 16 characters long, and cannot share the exact name of an existing crew profile.

Activating a crew profile:

- 1) From MFD **Home**, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the button for the crew profile to be activated.
- 3) Touch the **Activate** Button. When finished, the system displays the name of the selected crew profile in the 'Active Profile' window.

Copying an existing crew profile:

- 1) From MFD **Home**, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the button for the crew profile to be copied.
- 3) Touch the **Copy** Button.
- 4) Input the name to assign to the copied crew profile using the keypad or the large and small upper knobs, then touch **Enter** or press the right knob. Crew Profiles may be up to 16 characters long, and cannot share the exact name of an existing crew profile. The Crew Profile screen displays the name of the copied profile in the list.

Renaming an existing crew profile:

- 1) From MFD **Home**, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the button for the crew profile to be renamed.
- 3) Touch the **Rename** Button.
- 4) Input the new name to assign to the selected crew profile using the keypad or the large and small upper knobs, then touch **Enter** or press the upper knob. Crew Profiles may be up to 16 characters long, and cannot share the exact name of an existing crew profile. The Crew Profile screen displays the name of the renamed crew profile in the list.

Deleting a crew profile:



NOTE: *The system cannot delete the currently active crew profile. If necessary, activate another crew profile prior to deletion.*

- 1) From MFD **Home**, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the button for the profile to be deleted.
- 3) Touch the **Delete** Button.
- 4) Touch the **OK** Button to confirm and delete the profile, or touch the **Cancel** Button.

Importing a crew profile from an SD card:

- 1) If necessary, insert an SD card containing a crew profile into the top card slot in the MFD.
- 2) From MFD **Home**, touch **Utilities > Crew Profile**.
- 3) Touch the **Import** Button.
- 4) Scroll if necessary, and touch the button for the crew profile to be imported.

Exporting a crew profile to an SD card:

- 1) If necessary, insert an SD card to store a crew profile into the top card slot in the MFD.
- 2) From MFD **Home**, touch **Utilities > Crew Profile**.
- 3) Scroll if necessary, and touch the button for the crew profile to be exported from the list.
- 4) Touch the **Export** Button.

ELECTRONIC STABILITY & PROTECTION (ESP™)

Electronic Stability and Protection (ESP™) is an optional feature that is intended to discourage the exceedance of attitude, established airspeed and angle of attack parameters. This feature will only function when the aircraft is above 200 feet AGL and the autopilot is not engaged.

Enabling/Disabling ESP:

- 1) From the MFD **Home** Screen, touch **Utilities > Setup > Avionics Settings**.
- 2) If necessary, scroll to display the **Stability & Protection** Button.
- 3) Touch the **Stability & Protection** Button to enable or disable ESP. A green annunciator on the button indicates ESP is enabled.

ESP is automatically enabled on system power up.

ABNORMAL OPERATION



NOTE: *The Socata TBM 930 Airplane Flight Manual (AFM) always takes precedence over the information found in this section.*

REVERSIONARY MODES

Reversionary mode is a mode of operation in which all important flight information is presented on at least one of the operating display. If a PFD or MFD fails or is off-line, the system can combine a PFD, a condensed EICAS display, and a condensed Display Pane on another display in reversionary mode. The following discussion illustrates some of the various reversionary mode display combinations.

The flight crew can manually activate reversionary mode on PFD1 or the MFD by activating the respective reversionary switch mounted above the display unit. The reversionary mode switch is initialized by the pilot or copilot. The system does not automatically switch to reversionary mode.

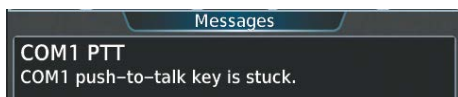
TOUCHSCREEN CONTROLLER FAILURE

If a Touchscreen Controller fails or is off-line, the operating Touchscreen Controller controls the on-side PFD and the MFD. Control of the cross-side PFD is lost. In addition, the single Touchscreen Controller provides audio and CNS control for both the pilot and copilot. If both Touchscreen Controllers fail or are off-line, the PFD and MFD continue to operate in Normal Mode; however, controls for the PFD, MFD, and NAV/COM tuning will be unavailable. Refer to the Audio and CNS Section for more information on NAV/COM failure modes.

STUCK MICROPHONE

If the push-to-talk (PTT) Key becomes stuck, the COM transmitter stops transmitting after 35 seconds of continuous operation. An alert appears on the Touchscreen Controller to advise the pilot of a stuck microphone.

The **MIC** Button Annunciator flashes as long as the PTT Key remains stuck.



COM FAILURE

In case of a COM system failure, an amber X may appear on the frequency display.



GTC



PFD



MFD

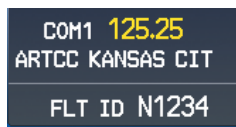
COM Failure

COM TUNING FAILURE

A discrepancy between the active COM frequency on the GTC, and the actual tuned frequency reported by the controlling GIA, causes the active COM frequency digits on the GTC and PFD to turn amber.



GTC



PFD

COM Tuning Failure

AUDIO CONTROLLER FAIL-SAFE OPERATION

If there is a failure of the Audio Controller, a fail-safe circuit connects the pilot's and copilot's headset and microphone directly to the COM1 transceiver. Audio will not be available on the speaker.

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

If GPS position is lost, or becomes invalid, selected hazards being displayed on the Navigation Map Display 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
 - ADF/DME Tuning
- Barometric Minimum Descent Altitude Box
- Glideslope, Glide-path, and Vertical Deviation Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNAV Target Altitude



Extreme Pitch Indication

DEAD RECKONING

While in Enroute or Oceanic phase of flight, if the system detects an invalid GPS solution or is unable to calculate a GPS position, the system automatically reverts to Dead Reckoning (DR) Mode. In DR Mode, the system uses its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft's current estimated position.



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 system stops navigating in GPS Mode.

DR Mode is indicated by the appearance of the letters ‘DR’ being prominently displayed, in amber, on the HSI slightly below and to the left of the aircraft symbol on the CDI as shown in the following figure. The CDI deviation bar is displayed in amber, 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 GTC.

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 system in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation. If, while in DR Mode, airspeed and/or heading data is also lost or not available, the DR function may not be capable of 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 system through DR while there is no heading and/or airspeed data available should not be used for navigation.

DR Mode is inherently less accurate than the standard GPS/SBAS Mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction 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



FMS ‘DR’ Indication on PFD

Dead Reckoning Indications

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

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

Also, while the system is in DR Mode, the autopilot will couple to GPS for up to 20 minutes. Terrain Proximity, TERRAIN-SVT, and TAWS 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

CREW ALERTING SYSTEM (CAS)

CAS messages are grouped by criticality (warning, caution, advisory) and sorted by order of appearance (most recent messages on top). The color of the message is based on its urgency and on required action.

- **Warning** (red) – Immediate crew awareness and action required; Master Warning triggered
- **Caution** (amber) – Immediate crew awareness and possible future corrective action required; Master Caution triggered

CAS MESSAGES

Warning Messages

Message	Description
AURAL WRN FAIL	Aural warning system failure due to non-communicating LRUs
AURAL WARN 1 CHNL	Aural warning failure of one LRU
BAT OVERHEAT	Battery temperature over 70°C
BLEED TEMP	Bleed temperature high
CABIN ALTITUDE	Cabin altitude over 10,000 ft
CABIN DIFF PRESS	Cabin pressure differential over 6.2 psi
DOOR	Pilot or cabin door open
ELEC FEATH FAULT	Feathering system failure
EMERGENCY DESCENT	Autopilot has activated emergency descent mode
FIRE	Engine compartment fire (temperature over 200°C; if installed)
FLAPS ASYM	Dissymmetry between left- and right-hand flaps
FUEL OFF	Fuel tank selectors set to "Off"
FUEL PRESS	Fuel pressure below 10 psi
GEAR UNSAFE	Gears are in an unsafe configuration
ITT	Engine start: ITT over 1000°C, 870°C (5 s), or 840°C (20 s) Engine running: ITT over 840°C
OIL PRESS	Oil pressure below 60 psi
OXYGEN	Oxygen cylinder closed

Message	Description
PARK BRAKE	Parking brake applied
USP ACTIVE	Underspeed protection is active
XPDR FAULT	The transponder is not functioning properly or has failed

Caution Messages

Message	Description
AP ON YD OFF	The autopilot is ON while the Yaw Damper is OFF
AUTO SEL	Fuel timer off or out of service
AUX BOOST PMP ON	Electric fuel pump running (manual or automatic mode)
BAT AMP	Battery current over 50 A while on ground
BAT OFF	Battery off
BLEED OFF	Flow control and shut-off valve/shut-off valve closed
CHIP	Oil chip detector on (if installed)
EDM OVERRIDE	Emergency Descent Mode has been overridden by the crew
FRONT CARGO DOOR	Forward baggage door open
FUEL IMBALANCE	Fuel tanks imbalanced by more than 15 USGAL for >30 seconds
FUEL LOW L-R*	Fuel quantity less than or equal to 9.1 USGAL in specified tank
GPU DOOR	GPU receptacle door not closed
IGNITION	Ignition exciter running
INERT SEP FAIL	Inertial separator failure
INERT SEP ON	Inertial separator extended
LOW LVL FAIL L-R*	Low fuel level sensor failure for specified tank
LOW VOLTAGE	Battery voltage below 26 V
MAIN GEN	Starter generator unconnected
MAX DIFF MODE	MAX DIFF PRESS MODE activated
NG HI	Generator speed is more than 103%
OIL PRESS	Oil pressure between 60 and 100 psi
OIL TEMP	Oil temperature below 0°C or above 104°C
PITOT HT ON L-R*	Specified pitot heat (left or right) on while engine off
PITOT NO HT L-R*	Specified pitot heat (left or right) off
PROP DEICE FAIL	Prop deice selected and not on
PROP DEICE ON	Prop deice on while engine off

Message	Description
REAR CARGO DOOR	The rear cargo door is open
STALL HEAT ON	Stall warning heat on while engine off
STALL NO HEAT	Stall warning heat off
STARTER	Starter generator running
VACUUM LOW	Vacuum pressure less than 3.75 in Hg
USE OXYGEN MASK	Cabin altitude high

* Only affected side (L, R, or L-R) displayed in CAS message; applicable messages listed here display L-R for example

COMPARATOR ALERTS

Comparator Annunciation	Description	Condition
ALT	Altitude Miscompare	Difference in altitude sensors is ≥ 200 ft.
IAS	Indicated Airspeed Miscompare	If both airspeed sensors detect < 35 knots, this is inhibited. If either airspeed sensor detects ≥ 35 knots, and the difference in sensors is > 10 knots.
HDG	Heading Miscompare	Difference in heading sensors is > 6 degrees.
PIT	Pitch Miscompare	Difference in pitch sensors is > 5 degrees.
ROL	Roll Miscompare	Difference in roll sensors is > 6 degrees.
ALT	Altitude No Compare	No data from one or both altitude sensors.
IAS	Indicated Airspeed No Compare	No data from one or both airspeed sensors.
HDG	Heading No Compare	No data from one or both heading sensors.
PIT	Pitch No Compare	No data from one or both pitch sensors.
ROL	Roll No Compare	No data from one or both roll sensors..

REVERSIONARY SENSOR ALERTS

Reversionary Sensor Window Text	Condition
BOTH ON ADC 1	Both PFDs are displaying data from the #1 Air Data Computer.
BOTH ON ADC 2	Both PFDs are displaying data from the #2 Air Data Computer.
BOTH ON AHRS 1	Both PFDs are displaying data from the #1 Attitude & Heading Reference System.
BOTH ON AHRS 2	Both PFDs are displaying data from the #2 Attitude & Heading Reference System.
BOTH ON GPS 1	Both PFDs are displaying data from the #1 GPS.
BOTH ON GPS 2	Both PFDs are displaying data from the #2 GPS.
USING ADC 1	PFD2 is displaying data from the #1 Air Data Computer.
USING ADC 2	PFD1 is displaying data from the #2 Air Data Computer.
USING AHRS 1	PFD2 is displaying data from the #1 AHRS.
USING AHRS 2	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.

WEATHER RADAR ANNUNCIATIONS

The system displays the radar mode annunciation in the upper left corner of the Weather Radar Display. Additional information may be displayed in the center of the Weather Radar Page as a banner annunciation.

Radar Mode	Radar Mode Annunciation Box	Center Banner Annunciation
Standby	STANDBY	STANDBY
Weather	WEATHER	None
Ground Mapping	GROUND	None
Off	OFF	OFF
Radar Failed*	FAIL	RADAR FAIL

Radar Modes on the Weather Radar Page

The system displays the status of the radar antenna stabilization feature in the upper right corner of the Weather Radar Page.

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

Radar Feature Status Annunciations on the Weather Radar Pane

If the unit fails, an annunciation as to the cause of the failure is shown as a banner in the center of the Weather Radar Page.

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

Abnormal Radar Status Annunciations on the Weather Radar Page

GDL 69/69A SXM DATA LINK RECEIVER MESSAGES

Message	Message Location	Description
CHECK ANTENNA	SiriusXM Info Screen (Touchscreen Controller)	Data Link Receiver antenna error; service required
UPDATING	SiriusXM Info Screen (Touchscreen Controller)	Data Link Receiver updating encryption code
NO SIGNAL	SiriusXM Info Screen (Touchscreen Controller) Weather Datalink Display (MFD)	Loss of signal; signal strength too low for receiver
LOADING	Music Screen (Touchscreen Controller)	Acquiring channel audio or information
OFF AIR	Music Screen (Touchscreen Controller)	Channel not in service
-----	Music Screen (Touchscreen Controller)	Missing channel information
WEATHER DATA LINK FAILED	Weather Datalink Display (MFD)	No communication from Data Link Receiver within last 5 minutes
ACTIVATION REQUIRED	SiriusXM Info Screen (Touchscreen Controller)	SiriusXM subscription is not activated
DETECTING ACTIVATION	Weather Datalink Display (MFD)	SiriusXM subscription is activating.
WAITING FOR DATA...	Weather Datalink Display (MFD)	SiriusXM subscription confirmed downloading weather data.

TAS ANNUNCIATIONS

Traffic Map Pane Center Annunciation	Description
NO DATA	System is not receiving any data from the traffic unit.
DATA FAILED	System is receiving data from the traffic unit, but the unit is reporting a failure.
FAILED	The traffic unit is sending invalid data to the system.

TAS Failure Annunciations

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range*. Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX <UP> or <DN>	System cannot determine bearing of Traffic Advisory**. Annunciation indicates distance in nm, altitude separation in hundreds of feet, and an altitude trend ('<UP>' indicates climbing, '<DN>' indicates descending), if a trend of at least 500 fpm is detected.
TRFC FAIL	The traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data)
NO TRFC DATA	Data is not being received from the traffic unit

*Shown as symbol on Traffic Map Pane

**Shown in center of Traffic Map Pane

TAS Traffic Status Annunciations

TIS ANNUNCIATIONS

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

*Shown as symbol on traffic maps
 **Also shown in center of traffic maps
 †Also shown in lower left corner of traffic maps.

TIS Traffic Status Annunciations

Traffic Map Mode Annunciation	Traffic Map Center Banner Annunciation	Traffic Overlay Status Icon (Navigation Maps)	Description
DATA FAILED	TRFC FAIL		Data is being received from the transponder, but a failure is detected in the data stream*
NO DATA	TRFC FAIL		Data is not being received from the transponder*
OPERATING	None		TIS is operating and is receiving traffic data from a data link.
OPERATING	UNAVAILABLE		TIS is operating, but the traffic service is currently unavailable or is out of reception range.
STANDBY	STANDBY		TIS is in Standby Mode.
UNIT FAILED	TRFC FAIL		The transponder has failed*

* Contact a service center or Garmin dealer for corrective action

TIS Modes and Status Annunciations

AFCS ALERTS

The following alert annunciations appear in the AFCS System Status field on the PFD.

Alert Condition	Annunciation	Description
Rudder Mistrim Right		Yaw servo providing sustained force in the indicated direction. Aircraft rudder retrim after substantial pitch and power changes required.
Rudder Mistrim Left		

Alert Condition	Annunciation	Description
Aileron Mistrim Right		Roll servo providing sustained force in the indicated direction
Aileron Mistrim Left		
Elevator Mistrim Down		Pitch servo providing sustained force in the indicated direction. May indicate a failure of the pitch trim servo or trim system.
Elevator Mistrim Up		
Pitch Trim Failure (or stuck MEPT Switch)		If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move MEPT switches separately to unstuck
Yaw Trim Failure (or stuck MEYT Switch)		If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move the MEYT switch to check if a stuck switch is causing the annunciation
Yaw Damper Failure		YD control failure; AP also inoperative
Roll Failure		Roll axis control failure; AP inoperative
Pitch Failure		Pitch axis control failure; AP inoperative
System Failure		AP and MEPT are unavailable; FD may still be available
Preflight Test		Performing preflight system test; aural alert sounds at completion. Do not press the AP DISC Switch during servo power-up and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-up tests). Power must be cycled to the servos to remedy the situation.
		Preflight system test failed; aural alert sounds at failure



NOTE: Do not press the **AP DISC** switch during servo power-up and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-up tests). Power must be cycled to the servos to remedy the situation.

TERRAIN-SVT ALERTS

Alert Type	PFD/MFD TERRAIN-SVT 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"

Alert Type	PFD/Terrain SVT Display Annunciation	Terrain SVT Display Center Banner Annunciation	Voice Alert
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting Inhibited	TER INH	None	None
No GPS position	TER N/A	NO GPS POSITION	"Terrain System Not Available"*

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

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

Terrain SVT System Status Annunciations

TAWS-B ALERTS

Annunciations appear on the PFD and MFD. Pop-up alerts appear only on the MFD.

Alert Type	PFD/MFD** Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alerts
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 - PULL-UP * or TERRAIN AHEAD - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up" * or Terrain Ahead, Pull Up; Terrain Ahead, Pull Up'
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 - PULL-UP * or OBSTACLE AHEAD - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up" * or "Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN or TERRAIN AHEAD *	"Caution, Terrain; Caution, Terrain" or "Terrain Ahead; Terrain Ahead" *

Alert Type	PFD/MFD** Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alerts
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION - TERRAIN * or TERRAIN AHEAD	"Caution, Terrain; Caution, Terrain"* or "Terrain Ahead; Terrain Ahead"
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	CAUTION - OBSTACLE * or OBSTACLE AHEAD	"Caution, Obstacle; Caution, Obstacle"* or "Obstacle Ahead; Obstacle Ahead"
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"

* Alerts with multiple messages are configurable at installation and are installation-dependent. Alerts for the default configuration when more than one option is available are indicated with asterisks.

** Annunciation is displayed on the MFD when terrain display is enabled.

TAWS-B Alerts Summary

Alert Type	PFD and TAWS Pane Annunciation	TAWS Pane Center Banner Annunciation	Voice Alert
TAWS System Fail	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
TAWS Not Available	TAWS N/A	NO FMS POSITION (if FMS position lost)	"TAWS Not Available"
TAWS Available	None	None	"TAWS Available"
System Test in progress	TAWS TEST	TAWS TEST	None
TAWS System Test pass	None	None	"TAWS System Test OK"
TAWS PDA/FLTA Alerting Inhibited	TAWS INH	None	None

TAWS-B System Test Status Annunciations

SYSTEM MESSAGES

System Message	Comments
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation. This message may also be displayed if the active flight plan is deleted while an RNAV approach that requires SBAS is active
ADC1 ALT EC – GDC1 altitude error correction is unavailable.	ADC1 is reporting that the altitude error correction is unavailable.
ADC1 AS EC – GDC1 airspeed error correction is unavailable.	ADC1 is reporting that the airspeed error correction is unavailable.
ADC1 SERVICE – GDC1 needs service. Return unit for repair.	A failure has been detected in the GDC1. The system should be serviced.
ADC2 ALT EC – GDC2 altitude error correction is unavailable.	ADC2 is reporting that the altitude error correction is unavailable.
ADC2 AS EC – GDC2 airspeed error correction is unavailable.	ADC2 is reporting that the airspeed error correction is unavailable.

System Message	Comments
ADC2 SERVICE – GDC2 needs service. Return unit for repair.	A failure has been detected in the GDC2. 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 CAL – AHRS1 calibration version error. Srvc req'd.	The AHRS1 calibration version error. The system should be serviced.
AHRS1 CONFIG – AHRS1 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The AHRS1 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 AHRS1 is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The AHRS1 is operating exclusively in no-GPS mode. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The AHRS1 is using the backup GPS path. Primary GPS path has failed. The system should be serviced when practical..
AHRS1 SERVICE – AHRS1 needs service. Return unit for repair.	A failure has been detected in the #1 AHRS. The system should be serviced.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The AHRS1 earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving valid airspeed.	The AHRS1 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.

System Message	Comments
AHRS2 CAL – AHRS2 calibration version error. Srvc req'd.	The AHRS2 calibration version error. The system should be serviced.
AHRS2 CONFIG – AHRS2 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The AHRS2 is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The AHRS2 is not receiving backup GPS information. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The AHRS2 is operating exclusively in no-GPS mode. The system should be serviced.
AHRS2 GPS – AHRS2 using backup GPS source.	The AHRS2 is using the backup GPS path. Primary GPS path has failed. The system should be serviced when practical.
AHRS2 SERVICE – AHRS2 needs service. Return unit for repair.	A failure has been detected in the #2 AHRS. The system should be serviced.
AHRS2 SRVC – AHRS2 Magnetic-field model needs update.	The AHRS2 earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS2 TAS – AHRS2 not receiving valid airspeed.	The AHRS2 is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APR DWNGRADE – Apr downgraded.	Vertical guidance generated by SBAS is unavailable. Use only LNAV minimums.
APR INACTV – Approach is not active.	The system notifies the pilot the loaded approach is not active. Activate approach when required.
ARSPC AHEAD – Airspace ahead - less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.

	System Message	Comments
Flight Instruments	ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
EAS	ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
Nav/Com/XPDR/Audio	CHECK CRS – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
AFC	CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
GPS Nav	CNFG MODULE – PFD1 configuration module is inoperative.	The specified GDU's configuration module backup memory has failed. The system should be serviced.
Flight Planning	COM1 CONFIG – COM1 config error. Config service req'd.	The COM1 configuration settings do not match backup configuration memory. The system should be serviced.
Procedures	COM1 MANIFEST – COM1 software mismatch, communication halted.	The COM 1 has incorrect software installed. The system should be serviced.
Hazard Avoidance	COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
Additional Features	COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
Abnormal Operation	COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1. COM1 may still be usable. The system should be serviced when practical.
Annun/Alerts	COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
Appendix	COM2 CONFIG – COM2 config error. Config service req'd.	The COM2 configuration settings do not match backup configuration memory. The system should be serviced.
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System Message	Comments
COM2 MANIFEST – COM2 software mismatch, communication halted.	The COM 2 has incorrect software installed. The system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	The COM2 external push-to-talk switch is stuck in the enable (or “pressed”) position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or “pressed”) position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 SERVICE – COM2 needs service. Return unit for repair.	The system has detected a failure in COM2. COM2 may still be usable. The system should be serviced when practical.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM2. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
CRUISE I – Cruise I conditions met.	Cruise I engine trend data log has been captured.
CRUISE II – Cruise II conditions met.	Cruise II engine trend data log has been captured.
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.
DATABASE CHANGE – Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after a navigation database update. Verify use of airways in stored flight plans and reload airways as needed.
DATABASE CHANGE – Verify user modified procedures.	This occurs when a stored flight plan contains procedures that have been manually edited. This alert is issued only after a navigation database update. Verify the user-modified procedures in stored flight plans are correct and current.

System Message	Comments
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The GDUs have different navigation database versions or regions installed. Crossfill is off. Check the Avionics Status Screen to determine versions or regions. Also, check the Avionics Status Screen for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The GDUs have different obstacle database versions or regions installed. Check the Avionics Status Screen to determine versions or regions. Also, check the Avionics Status Screen 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 GDUs have different standby navigation database versions or regions installed. Check the Avionics Status Screen to determine versions or regions. Also, check the Avionics Status Screen for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The GDUs have different terrain database versions or regions installed. Check the Avionics Status Screen to determine versions or regions. Also, check the Avionics Status Screen for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DIG GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
DME CHECK RANGE – DME range disagreement. Check position sensors.	A failure or disagreement has been detected in a DME receiver. Check position sensors.
ESP CONFIG – ESP config error. Config service req'd.	ESP is not configured properly. The system should be serviced.
ESP DEGRADE – ESP IAS mode is inoperative.	IAS mode of ESP is inoperative. The system should be serviced.

System Message	Comments
ESP FAIL – ESP is inoperative.	The ESP function has failed and is inoperative. The system should be serviced.
ESP OFF – ESP selected off.	Electronic Stability and Protection has been disabled on the Avionics Settings Screen.
EXCEEDANCE – Exceedance data is being logged.	An exceedance log has been captured.
FAILED PATH – A data path has failed.	A data path between two or more LRUs has failed. The system should be serviced when practical.
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-up, The system detects that a stored flight plan waypoint is locked. This occurs when an 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 flight plans that are deleted. Remove the waypoint from the flight plan if it no longer exists in any database, or update the waypoint name/identifier to reflect the new information.
FPL WPT MOVE – Flight plan waypoint moved.	The system has detected that a waypoint coordinate has changed due to a new navigation database update. Verify that stored flight plans contain correct waypoint locations.
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1. The system should be serviced.
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1. The receiver may still be available. The system should be serviced when practical.
G/S2 FAIL – G/S2 is inoperative.	A failure has been detected in glideslope receiver 2. The system should be serviced.

	System Message	Comments
Flight Instruments	G/S2 SERVICE – G/S2 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 2. The receiver may still be available. The system should be serviced when practical.
EAS	GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The GDC1 has incorrect software installed. The system should be serviced.
Nav/Com/XPDR/Audio	GDC2 MANIFEST – GDC2 software mismatch, communication halted.	The GDC2 has incorrect software installed. The system should be serviced.
AFC	GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69A configuration settings do not match those of backup configuration memory. The system should be serviced.
GPS Nav	GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69A. The receiver is unavailable. The system should be serviced.
Flight Planning	GDL69 MANIFEST – GDL69 software mismatch, communication halted.	The GDL 69A has incorrect software installed. The system should be serviced.
Procedures	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.
Hazard Avoidance	GEA1 MANIFEST – GEA1 software mismatch, communication halted.	The GEA1 has incorrect software installed. The system should be serviced.
Additional Features	GEO LIMITS – AHRS1 too far north/south, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is annunciated as invalid.
Abnormal Operation	GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
Annun/Alerts	GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
Appendix	GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
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System Message	Comments
GIA1 COOLING – GIA1 over temperature.	The GIA1 temperature is too high. If problem persists, the system should be serviced.
GIA1 COOLING – GIA1 temperature too low.	The GIA1 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA1 MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 has incorrect software installed. The system should be serviced.
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 self-test has detected a problem in the unit. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 COOLING – GIA2 over temperature.	The GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 temperature too low.	The GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 MANIFEST – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	The GIA2 self-test has detected a problem in the unit. The system should be serviced.
GMA1 AUX MANIFEST – GMA 1 AUX software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio controller configuration settings do not match backup configuration memory. The system should be serviced.
GMA1 FAIL – GMA1 is inoperative.	The audio controller has detected a failure. The audio controller is unavailable. The system should be serviced.

System Message	Comments
GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The audio controller has incorrect software installed. The system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio controller self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio controller may still be usable. The system should be serviced when practical.
GMC CONFIG – GMC Config error. Config service req'd.	Error in the configuration of the GMC.
GMC FAIL – GMC is inoperative.	A failure has been detected in the GMC. The GMC is unavailable.
GMC KEYSTK – GMC [key name] key is stuck.	A key is stuck on the GMC bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
GMC MANIFEST – GMC software mismatch. Communication halted.	The GMC has incorrect software installed. The system should be serviced.
GMU1 MANIFEST – GMU1 software mismatch, communication halted.	The GMU1 has incorrect software installed. The system should be serviced.
GPS NAV LOST – Loss of GPS navigation. Enable GPS sensors.	Loss of GPS navigation due to GPS being disabled
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS1 CHECK POSITION – Position difference. Check position sensors.	A difference has been detected in the current position. Check position sensors.
GPS1 FAIL – GPS1 is inoperative.	A failure has been detected in GPS1 receiver. The system should be serviced.
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A fault has been detected in the GPS1 receiver. The receiver may still be available. If the message persists through a normal power cycle, the system should be serviced when practical.

System Message	Comments
GPS2 CHECK POSITION – Position difference. Check position sensors.	A difference has been detected in the current position. Check position sensors.
GPS2 FAIL – GPS2 is inoperative.	A failure has been detected in GPS2 receiver. The system should be serviced.
GPS2 SERVICE – GPS2 needs service. Return unit for repair.	A fault has been detected in the GPS2 receiver. The receiver may still be available. If the message persists through a normal power cycle, the system should be serviced when practical.
GRA1 CAL – GRA1 calibration error. Service req'd.	A calibration error has been detected in the GRA. The system should be serviced.
GRA1 CONFIG – GRA1 config error. Config service req'd.	The GRA configuration settings do not match those of backup configuration memory. The system should be serviced.
GRA1 MANIFEST – GRA1 software mismatch, communication halted.	The GRA has incorrect software installed. The system should be serviced.
GRA1 SERVICE – GRA1 needs service. Return unit for repair.	A failure has been detected in the GRA. The system should be serviced.
GRA1 TEMP – GRA1 over temperature.	The GRA temperature is too high. If the problem persists, the system should be serviced.
GRS1 CONFIG – GRS1 config error. Config service req'd.	GRS configuration settings do not match those of backup configuration memory. The system should be serviced.
GRS1 MANIFEST – GRS1 software mismatch, communication halted.	The AHRS1 has incorrect software installed. The system should be serviced.
GRS1 SERVICE – GRS1 needs service. Return unit for repair.	The AHRS1 should be serviced when practical.
GSR1 FAIL – GSR1 has failed.	A failure has been detected in GSR1. The system should be serviced.
GTC1 CARD1 ERR – GTC1 card 1 is invalid.	The internal SD card in the Touchscreen Controller contains invalid data. The system should be serviced.

System Message	Comments
GTC1 CARD1 REM – GTC1 card 1 was removed. Reinsert card.	The internal SD card in the Touchscreen Controller was removed. The system should be serviced.
GTC1 CONFIG – GTC1 config error. Config service req'd.	Touchscreen Controller configuration settings do not match those of backup configuration memory. The system should be serviced.
GTC1 COOLING – GTC1 has poor cooling. Reducing power usage.	The Touchscreen Controller has insufficient cooling. If the problem persists, the system should be serviced.
GTC1 DB ERR – GTC1 database error exists.	The Touchscreen Controller detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
GTC1 FAN FAIL – GTC1 internal fan failure. Unit needs service.	The internal fan in the Touchscreen Controller has failed. The system should be serviced.
GTC1 KEYSTK – GTC1 [key name] key is stuck.	A knob or key is stuck on the Touchscreen Controller bezel. Attempt to free the stuck control by pushing or turning it several times. The system should be serviced if the problem persists.
GTC1 MANIFEST – GTC1 software mismatch, communication halted.	The Touchscreen Controller has incorrect software installed. The system should be serviced.
GTC1 SERVICE – GTC1 needs service. Return unit for repair.	The Touchscreen Controller should be serviced..
GTC1 VOLTAGE – GTC1 has low voltage. Reducing power usage	The Touchscreen Controller voltage is low. The system should be serviced.
GTC2 CARD1 ERR – GTC2 card 1 is invalid.	The internal SD card in the Touchscreen Controller contains invalid data. The system should be serviced.
GTC2 CARD1 REM – GTC2 card 1 was removed. Reinsert card.	The internal SD card in the Touchscreen Controller was removed. The system should be serviced.

System Message	Comments
GTC2 CONFIG – GTC2 config error. Config service req'd.	Touchscreen Controller configuration settings do not match those of backup configuration memory. The system should be serviced.
GTC2 COOLING – GTC2 has poor cooling. Reducing power usage.	The Touchscreen Controller has insufficient cooling. If the problem persists, the system should be serviced.
GTC2 DB ERR – GTC2 database error exists.	The Touchscreen Controller detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
GTC2 FAN FAIL – GTC2 internal fan failure. Unit needs service.	The internal fan in the Touchscreen Controller has failed. The system should be serviced.
GTC2 KEYSTK – GTC2 [key name] key is stuck.	A knob or key is stuck on the Touchscreen Controller bezel. Attempt to free the stuck control by pushing or turning it several times. The system should be serviced if the problem persists.
GTC2 MANIFEST – GTC2 software mismatch, communication halted.	The Touchscreen Controller has incorrect software installed. The system should be serviced.
GTC2 SERVICE – GTC2 needs service. Return unit for repair.	The Touchscreen Controller should be serviced..
GTC2 VOLTAGE – GTC2 has low voltage. Reducing power usage	The Touchscreen Controller voltage is low. The system should be serviced.
GTS CONFIG – GTS Config error. Config service req'd.	The GTS and GDU have different copies of the GTS configuration, or the Mode S address is invalid. The system should be serviced.
GTS MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.
GTX1 MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.

System Message	Comments
GTX2 MANIFEST – GTX2 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
GWX CONFIG – GWX config error. Config service req'd.	GWX 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 or the GWX is reporting a fault. The radar system should be serviced.
GWX MANIFEST – GWX software mismatch, communication halted.	The GWX has incorrect software installed. The system should be serviced.
GWX SERVICE – GWX needs service. Return unit for repair.	A failure has been detected in the GWX. The GWX may still be usable.
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.
HOLD EXPIRED – Holding EFC time expired.	Expect Further Clearance (EFC) time has expired for the User Defined Hold.
HW MISMATCH – GIA hardware mismatch, GIA2 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA1 hardware mismatch, GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
LOSS OF GPS NAVIGATION – Poor Satellite Coverage.	Loss of GPS navigation due to insufficient/poor satellite coverage.

System Message	Comments
LOW BANK ACTIVE – Disengage for approach.	Low Bank mode is active. Disengage to continue approach.
LOW BANK ACTIVE – Disengage for RNP less than 1.0.	Low Bank mode is active. Disengage to continue RNP 1.0.
LRG MAG VAR – Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
MANIFEST – GSR1 software mismatch, communication halted.	The GSR1 has incorrect software installed. The system should be serviced.
MFD1 BACKLIGHT CALIBRATION – MFD1 calibration. Return for repair.	The specified GDU's backlight calibration cannot be found or is invalid. The system should be serviced.
MFD1 CARD 1 ERR – MFD1 card 1 is invalid.	The SD card in the top card slot of the MFD contains invalid data.
MFD1 CARD 1 REM – MFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the MFD. The SD card needs to be reinserted.
MFD1 CARD 2 ERR – MFD1 card 2 is invalid.	The SD card in the bottom card slot of the MFD contains invalid data.
MFD1 CARD 2 REM – MFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the MFD. The SD card needs to be reinserted.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	The MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 database error exists.	The MFD detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.

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MFD1 DB ERR – MFD1 Obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified MFD. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 Terrain database missing.	The terrain database is present on another LRU, but is missing on the MFD. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 FAN FAIL – MFD1 internal fan failure. Return for repair.	The specified GDU's internal cooling fan has failed. The system should be serviced.
MFD1 KEYSTK – MFD1 [key name] is stuck.	A key is stuck on the MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 MANIFEST – MFD 1 software mismatch, communication halted.	The MFD has incorrect software installed. The system should be serviced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
MFD1 SOFTWARE – MFD1 mismatch, communication halted.	The MFD has different software versions installed. The system should be serviced.
MFD1 TERRAIN DSP – MFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the MFD is missing or invalid.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
NAV DB UPDATED – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.
NAV1 MANIFEST – NAV1 software mismatch, communication halted.	The NAV 1 has incorrect software installed. The system should be serviced.

System Message	Comments
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or “pressed”) state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 receiver. The receiver may still be available. The system should be serviced.
NAV2 MANIFEST – NAV2 software mismatch, communication halted.	The NAV 2 has incorrect software installed. The system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or “pressed”) state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	A failure has been detected in the NAV2 receiver. The receiver may still be available. The system should be serviced.
NON-MAG UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-up.
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.
PFD POSITIONS DIFFERENT – PFD position mismatch. Check position sensors.	A difference has been detected in the displayed position on the PFDs. Check position sensors.
PFD1 BACKLIGHT CALIBRATION – PFD1 calibration lost. Return for repair.	The PFD1 backlight calibration cannot be found or is invalid. The system should be serviced.
PFD1 CARD 1 ERR – PFD1 card 1 is invalid.	The SD card in the top card slot of PFD1 contains invalid data.

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PFD1 CARD 1 REM – PFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of PFD1. The SD card needs to be reinserted.
PFD1 CARD 2 ERR – PFD1 card 2 is invalid.	The SD card in the bottom card slot of PFD1 contains invalid data.
PFD1 CARD 2 REM – PFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of PFD1. The SD card needs to be reinserted.
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD1 configuration settings do not match backup configuration memory. The system should be serviced.
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	PFD1 is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 database error exists.	PFD1 detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 Obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 Terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 FAN FAIL – PFD1 internal fan failure. Unit needs service.	The PFD1 internal cooling fan has failed. The system should be serviced.
PFD1 KEYSTK – PFD1 [key name] is stuck.	A key is stuck on the PFD1 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD1 MANIFEST – PFD1 software mismatch, communication halted.	PFD1 has incorrect software installed. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD1 self-test has detected a problem. The system should be serviced.
PFD1 SOFTWARE – PFD1 mismatch, communication halted.	PFD1 has different software versions installed. The system should be serviced.

System Message	Comments
PFD1 TERRAIN DSP – PFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in PFD1 is missing or invalid.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PFD2 BACKLIGHT CALIBRATION – PFD2 calibration lost. Return for repair.	The PFD2 backlight calibration cannot be found or is invalid. The system should be serviced.
PFD2 CARD 1 ERR – PFD2 card 1 is invalid.	The SD card in the top card slot of PFD2 contains invalid data.
PFD2 CARD 1 REM – PFD2 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of PFD2. The SD card needs to be reinserted.
PFD2 CARD 2 ERR – PFD2 card 2 is invalid.	The SD card in the bottom card slot of PFD2 contains invalid data.
PFD2 CARD 2 REM – PFD2 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of PFD2. The SD card needs to be reinserted.
PFD2 CONFIG – PFD2 config error. Config service req'd.	The PFD2 configuration settings do not match backup configuration memory. The system should be serviced.
PFD2 COOLING – PFD2 has poor cooling. Reducing power usage.	PFD2 is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD2 DB ERR – PFD2 database error exists.	PFD2 detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD2 DB ERR – PFD2 Obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD2 DB ERR – PFD2 Terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.

System Message	Comments
PFD2 FAN FAIL – PFD2 internal fan failure. Unit needs service.	The PFD2 internal cooling fan has failed. The system should be serviced.
PFD2 KEYSTK – PFD2 [key name] is stuck.	A key is stuck on the PFD2 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD2 MANIFEST – PFD 1 software mismatch, communication halted.	PFD2 has incorrect software installed. The system should be serviced.
PFD2 SERVICE – PFD2 needs service. Return unit for repair.	The PDF1 self-test has detected a problem. The system should be serviced.
PFD2 SOFTWARE – PFD2 mismatch, communication halted.	PFD2 has different software versions installed. The system should be serviced.
PFD2 TERRAIN DSP – PFD2 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in PFD2 is missing or invalid.
PFD2 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 voltage is low. The system should be serviced.
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.
RAIM UNAVAIL – RAIM not available from FAF to MAP waypoints.	GPS satellite coverage is insufficient to perform Receiver Autonomous Integrity Monitoring (RAIM) from the FAF to the MAP waypoints.
RECORDER SERVICE REQUIRED – The CVDR needs service.	The CVDR needs service.

System Message	Comments
REGISTER CONNEXT – Data services inop, register w/ Connext.	The system is not registered with Garmin Connext, or its current registration data has failed authentication.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT MAG – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to Magnetic.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
SLCT NON-MAG – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to True.
STEEP TURN – Steep turn ahead.	The computed bank angle needed to execute the turn ahead may exceed the current bank angle limit.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.
SVT DISABLED – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVT DISABLED – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
TCAS FAIL - TCAS system is inoperative.	The TCAS or TAS system is not operational.
TERRAIN AUD CFG – Trn Awareness audio config error. Service req'd.	TAWS is disabled because the audio configuration is invalid. The system should be serviced.

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System Message	Comments
TERRAIN DISABLED – Terrain Awareness DB resolution too low.	TAWS is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot the timer has expired.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
TRN AUD FAIL – Trn Awareness audio source unavailable.	TAWS is disabled because an aural alert audio source is unavailable.

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.
UNABLE VNAV – Excessive cross-track error.	The current cross-track exceeds the limit, causing vertical deviation to go invalid.
UNABLE VNAV – Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
UNABLE VNAV – Reverted to PIT.	The current VNAV is not supported, the Flight Director has reverted to PIT mode.
UNABLE VNAV – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
UNABLE VNAV – 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.
UNABLE VNAV ALTITUDE – Cannot meet VNAV altitude constraint.	The current vertical speed is insufficient to make the active flight plan altitude constraint prior to crossing the waypoint.

VNAV CONFIG – VNAV config error Config service req'd.	VNAV configuration error. The system should be serviced.
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System Message	Comments
WPT ARRIVAL – Arriving at waypoint - [xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
WX ALERT – Possible severe weather ahead.	The GWX 70 indicates severe weather within ± 10 degrees of the aircraft heading at a range of 80 to 320 nm.
XPDR1 ADS-B FAIL – XPDR1 unable to transmit ADS-B messages.	ADS-B is inoperative. Other transponder functions may be available. Transponder should be serviced when practical
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR1 SERVICE – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when practical.
XPDR2 ADS-B FAIL – XPDR2 unable to transmit ADS-B messages.	ADS-B is inoperative. Other transponder functions may be available. Transponder should be serviced when practical
XPDR2 CONFIG – XPDR2 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR2 FAIL – XPDR2 is inoperative.	There is no communication with the #2 transponder.
XPDR2 SERVICE – XPDR2 needs service. Return unit for repair.	The #2 transponder should be serviced when practical.
XTALK ERROR – Flight display crosstalk error has occurred.	The GDUs and/or GTCs are not communicating with each other. The system should be serviced.

FLIGHT PLAN IMPORT/EXPORT MESSAGES

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

Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. In addition, one or more of these waypoints may not have imported successfully.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.

Flight Plan Import/Export Results	Description
'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.

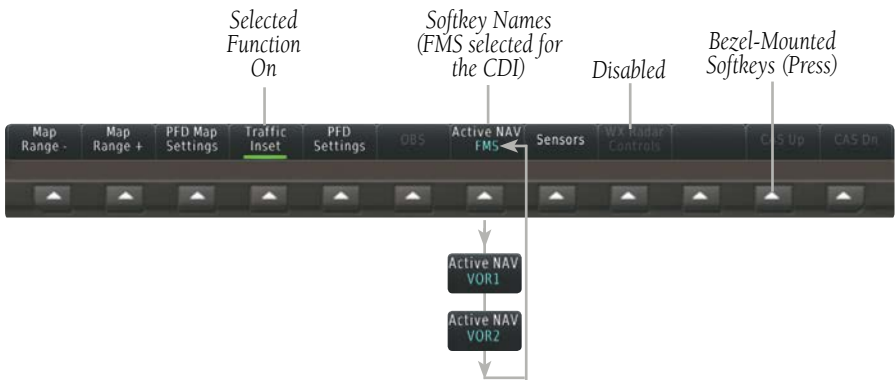
OTHER G3000 AURAL ALERTS

Voice Alert	Description
"Minimums, minimums"	The aircraft has descended below the preset barometric minimum descent altitude.
"Vertical track"	The aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"Airspeed"	Played when the indicated airspeed is below a given threshold for a given aircraft configuration. Note this alert may be heard under normal conditions during the landing flare.
"Engaging Autopilot"	The autopilot is being engaged automatically by the system. Only available when ESP™ is installed.
"Incoming Call"	Satellite telephone is receiving a call.
"ATC Message"	New Data Link message received from ATC.
"Stall"	Imminent stall is sensed.
"Landing Gear"	Indicates to the pilot that the landing gear should be down.
"Overspeed"	Indicates that the aircraft is exceeding 265 knots.
"Use Oxygen Mask"	Indicates that there is a cabin depressurization and that the pilots should use oxygen mask.
"Traffic"	Played when a Traffic Advisory (TA) is issued with the TIS system.
"Traffic Not Available"	The aircraft is outside the Traffic Information Service (TIS) coverage area.
"Traffic, Traffic"	Played when a Traffic Advisory (TA) is issued with a TAS system.

Voice Alert	Description
"TAS System Test OK"	Played when the TAS system passes a pilot-initiated self test.
"TAS System Test Failed"	Played when the TAS system fails a pilot-initiated self test.
"One o'clock" through "Twelve o'clock" or "No Bearing"	Played to indicate bearing of traffic from own aircraft (GTS 820 only).
"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	Played to indicate altitude of traffic relative to own aircraft (GTS 820 only).
"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"	Played to indicate distance of traffic from own aircraft (GTS 820 only).

APPENDIX

PFD SOFTKEYS



Top Level PFD Softkeys



PFD Map Settings Softkey Map



PFD Settings Softkey Map



Sensors Softkey Map



WX Radar Controls Softkey Map

Level 1	Level 2	Level 3	Level 4	Description
Map Range -				Decreases the Inset Map and HSI Map display range
Map Range +				Increases the Inset Map and HSI Map display range
PFD Map Settings				Displays the Inset Map and HSI Map display settings softkeys
	Map Layout			
		Map Off		Removes the Inset Map or HSI Map from the display
		Inset Map		Displays the Inset Map
		HSI Map		Displays the HSI Map

	Level 1	Level 2	Level 3	Level 4	Description
Flight Instruments		Detail			Selects desired amount of map detail; cycles through declutter levels: All (No Declutter): All map features visible DCLTR 1: Declutters land data DCLTR 2: Declutters land and SUA data Least: Removes everything except for the active flight plan
EAS					
Nav/Com/XPDR/Audio					
AFCs		Weather Legend			Displays/removes the name of the selected data link weather provider (SiriusXM, Connex) and the weather product icon and age box (for enabled weather products).
GPS Nav		Traffic			Adds or removes the display of traffic on the Inset Navigation Map. The softkey annunciator is green when the traffic function is on. When the traffic function is off, the annunciator is gray.
Flight Planning					
Procedures		Stormscope			Adds or removes the display of Stormscope information on the Inset Navigation Map. The softkey annunciator is green when the function is on. When the function is off, the annunciator is gray.
Hazard Avoidance		Terrain Off			Off: Removes terrain information from the Inset Navigation Map.
Additional Features		Terrain Absolute			Absolute: Displays Absolute terrain information on the Inset Navigation Map.
Abnormal Operation		Terrain Relative			Relative: Displays relative terrain information on the Inset Navigation Map.
Annun/Alerts		Datalink Settings			Displays Datalink settings softkeys.
Appendix			Datalink Connex		Selects Garmin Connex as the weather source for the display of weather data on the Inset Map or HSI Map.
Index			Datalink SiriusXM		Selects SiriusXM as the weather source for the display of weather data on the Inset Map or HSI Map.

Level 1	Level 2	Level 3	Level 4	Description
		Source USA or Source Canada		Selects USA or Canada as the source.
		Storm Cell Movement		Adds or removes the display of storm cell movement.
	Wx Overlay SiriusXM or Connext or WX Radar Off			SiriusXM: Selects SiriusXM as the weather source for the display of weather data on the Inset Map or HSI Map when SiriusXM is selected as the weather source using the Data Link softkey. Connext: Selects Connext as the weather source for the display of weather data on the Inset Map or HSI Map when SiriusXM is selected as the weather source using the Data Link softkey. WX Radar: Displays airborne weather radar map overlay on the HSI Map.
	SiriusXM Lightning Or Connext Lightning			Softkey is available when SiriusXM is selected as the weather source. Adds/removes the display of SiriusXM information on the Inset or HSI Navigation Map. The softkey annunciator is green when the lightning function is on. When the lightning function is off, the annunciator is gray. Softkey is available when Connext is selected as the weather source. Adds/removes the display of Connext information on the Inset or HSI Navigation Map. The softkey annunciator is green when the lightning function is on. When the lightning function is off, the annunciator is gray.

Level 1	Level 2	Level 3	Level 4	Description
	METAR			Adds or removes the display of SiriusXM or Connex METAR data on the Inset or HSI Navigation Map. The softkey annunciator is green when the METAR data is enabled. When the METAR data is off, the annunciator is gray.
Traffic Inset				Replaces the Inset Map or HSI Map with a dedicated traffic display. The softkey annunciator is green when the dedicated traffic display on. When the Inset Map or HSI Map is on, the softkey annunciator is gray.
PFD Settings				Displays the PFD settings softkeys.
	Attitude Overlays			Displays the softkeys for enabling or disabling Synthetic Vision features.
		Pathways		Displays Pathway Boxes on the Synthetic Vision Display.
		Synthetic Terrain		Enables synthetic terrain depiction.
		Horizon Heading		Displays compass heading along the Zero-Pitch line.
		Airport Signs		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.
	PFD Mode			Enables or disables a multi-function Display Pane to the right or left (depending on pilot-side or copilot-side) on the PFD. FULL: Display Pane is disabled. The PFD display occupies the full screen. Split: Display Pane is enabled. The PFD screen is split between the PFD display and the Display Pane.

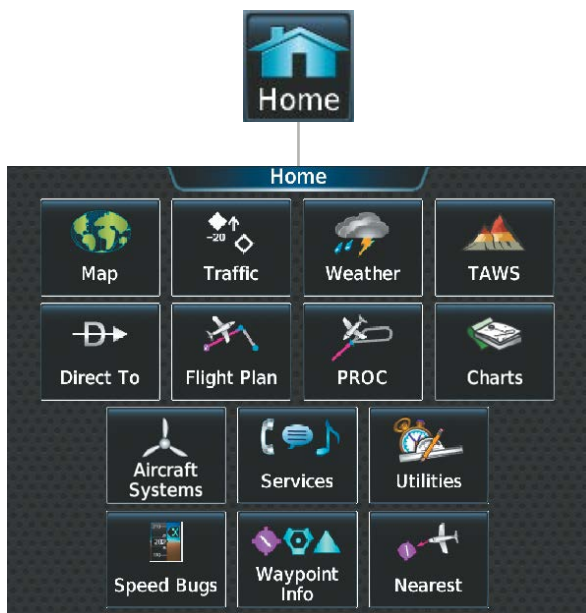
Level 1	Level 2	Level 3	Level 4	Description
	Bearing 1			Cycles the Bearing 1 Information Window through NAV1, GPS/waypoint identifier and GPS-derived distance information, ADF/frequency, and Off.
	Bearing 2			Cycles the Bearing 2 Information Window through NAV2, GPS/waypoint identifier and GPS-derived distance information, ADF/frequency, and Off.
	Other PFD Settings			Displays additional PFD settings softkeys.
		Wind		Displays the wind option softkeys
			Option 1	Headwind/Tailwind and crosswind components.
			Option 2	Wind direction arrow and speed.
			Option 3	Wind direction arrow with direction and speed.
			Off	Information not displayed.
		AOA		Selects the display mode for the Angle of Attack (AOA) indicator on the PFD Auto: Displays AOA indicator on the PFD On: Displays AOA indicator on the PFD Off: Removes AOA indicator from the PFD
		Altitude Units		Displays softkeys to select altitude unit parameters.
			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 hectopascals.
OBS				Selects OBS mode on the CDI when navigating by GPS (only available with active leg). When OBS is on, the softkey annunciator is green.

	Level 1	Level 2	Level 3	Level 4	Description
Flight Instruments	Active NAV				Cycles through FMS, NAV1, and NAV2 navigation modes on the CDI.
EAS	Sensors				Displays the sensor selection softkeys.
Nav/Com/XPDR/Audio		ADC Settings			Displays the ADC selection softkeys.
AFCs			ADC 1		Selects the number 1 ADC. The softkey annunciator is green when selected.
GPS Nav			ADC 2		Selects the number 2 ADC. The softkey annunciator is green when selected.
Flight Planning		AHRS Settings			Displays the AHRS selection softkeys.
Procedures			AHRS 1		Selects the number 1 AHRS. The softkey annunciator is green when selected.
Hazard Avoidance			AHRS 2		Selects the number 2 AHRS. The softkey annunciator is green when selected.
Additional Features	WX Radar Controls				Displays the WX Radar selection softkeys.
Abnormal Operation		Radar On			Places all weather displays in Standby mode and the weather radar performs an antenna clearance check to ensure proper antenna movement within the radome. When the Radar On Button or Softkey is disabled, all weather radar displays enter Off Mode.
Annun/Alerts		Mode			Selects the display mode for the display of weather radar on the HSI map. Standby: Sets the weather radar displayed on the HSI map to Standby. Weather: Allows weather returns to be displayed on the HSI map. Ground: Allows ground mapping returns to be displayed on the HSI map.
Appendix		Bearing Left			Pressing the softkey once moves the bearing line in the to the left. Pressing and holding the softkey continues movement to the left.
Index					

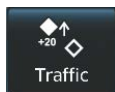
Level 1	Level 2	Level 3	Level 4	Description
	Bearing Right			Pressing the softkey once moves the bearing line in the to the right. Pressing and holding the softkey continues movement to the right.
	Tilt Down			Pressing the softkey once adjusts the antenna tilt angle down in 0.25° increments. Pressing and holding the softkey continues adjustment.
	Tilt Up			Pressing the softkey once adjusts the antenna tilt angle up in 0.25° increments. Pressing and holding the softkey continues adjustment.
	Gain -			Pressing the softkey once decreases the gain in increments of 0.5. Pressing and holding the softkey continues adjustment. A manual setting of '0.0' is equivalent to the calibrated gain setting.
	Gain +			Pressing the softkey once increases the gain in increments of 0.5. Pressing and holding the softkey continues adjustment. A manual setting of '0.0' is equivalent to the calibrated gain setting.
CAS Up				Scrolls up the list of CAS alerts.
CAS Dn				Scrolls down the list of CAS alerts.

GTC SCREENS

MFD Home Screen



Shows Navigation Map Pane in the selected Display Pane. Touch the button again to access the Map Settings Screen on the Touchscreen Controller.



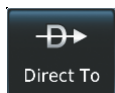
Shows Traffic Map Pane in the selected Display Pane. Touch the button again to access the Traffic Map Settings Screen on the Touchscreen Controller.



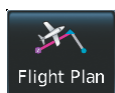
Shows a Weather (SiriusXM, Connex, or Radar) Pane in the selected Display Pane. Touch the button again to access Weather Selection Screen on Touchscreen Controller.



Shows the Terrain SVT or TAWS Pane (optional) in the selected Display Pane. Touch the button again to access TAWS Settings screen on Touchscreen Controller.



Accesses Direct-To Screen on Touchscreen Controller.



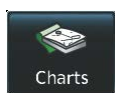
Flight Plan

Accesses Active Flight Plan Screen on the Touchscreen Controller. A Flight Plan display is shown on the selected Display Pane.



PROC

Accesses Procedures Screen on Touchscreen Controller. Additional map displays may be shown as procedures are selected.



Charts

Accesses Charts Screen on Touchscreen Controller. Charts are shown on the selected Display Pane.



Aircraft Systems

Accesses Systems Screen on Touchscreen Controller. Systems data can be selected for display on the Touchscreen Controller, and displayed on a Display Pane. Also provides access to systems controls, systems tests, and optional video controls.



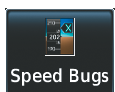
Services

Accesses the Services Screen on Touchscreen Controller. Includes Music, optional Iridium phone and text messaging services, and Contacts.



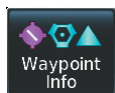
Utilities

Accesses the Utilities Screen on Touchscreen Controller. Includes Weight and Fuel, Trip Planning functions, Minimums, Trip Statistics, Timer, Scheduled Messages, GPS Status, Initialization, Electronic Documents (optional), Screen Cleaning, Crew Profile, and Setup.



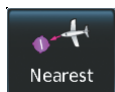
Speed Bugs

Accesses the Speed Bugs screen on Touchscreen Controller, where the speed bugs can be configured.



Waypoint Info

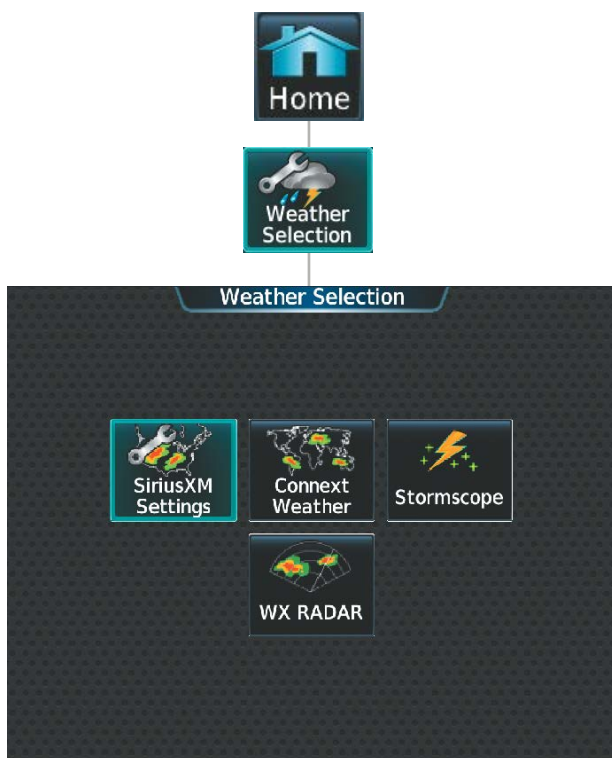
Provides information about Airports, Intersections, VORs, NDBs, User Waypoints. Also allows creation of User Waypoints.



Nearest

Provides information about the nearest Airports, Intersections, VORs, NDBs, User Waypoints, Airspace, ARTCC facilities, Flight Service Stations, and Weather reporting stations.

Weather Selection Screen



Shows optional SiriusXM Weather data in the selected Display Pane. Touch the button again to access SiriusXM Weather Settings on Touchscreen Controller.



Shows optional Connxet Weather data in the selected Display Pane. Touch the button again to access Connxet Weather Settings on Touchscreen Controller.

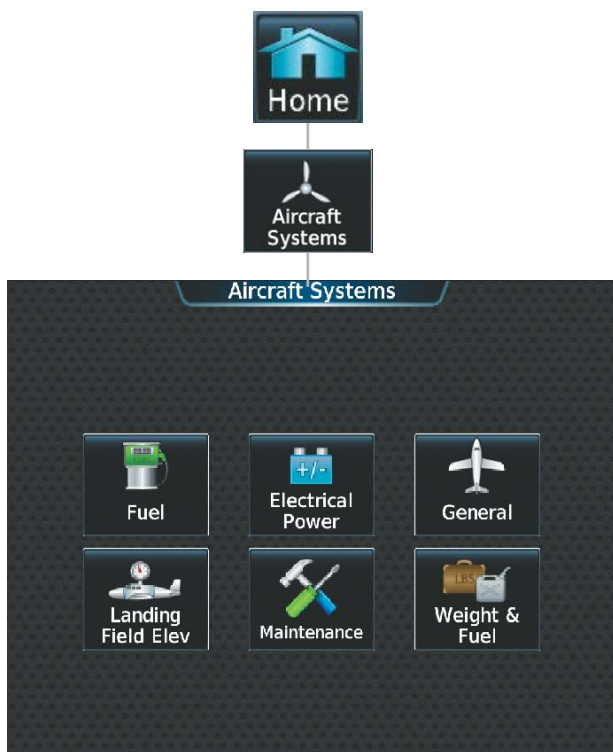


Shows Stormscope data in the selected Display Pane. Touch the button again to access Stormscope Settings on Touchscreen Controller.



Shows optional Weather Radar data in the selected Display Pane. Touch the button again to access Weather Radar Settings on Touchscreen Controller.

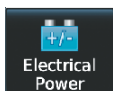
Aircraft Systems Screen



Shows open doors in red (CAS messages also generated). Statuses of stall sensor, propeller, pitot probes, and windshield heat



Shows the status of the fuel tanks and feed system. Fuel quantity is depicted graphically.



Shows the Electrical Pane, with information about the batteries, generators, and electrical busses.



Shows the Weight and Fuel Screen for entering weight and fuel information and performing computations.

Flight
Instruments



Shows the Landing Field Elevation Screen. Provides controls for entering the landing field elevation, and selecting the source of landing field elevation data.

EAS



Provides functions accessible to maintenance personnel.

Nav/Com/
XPDR/Audio

AFCs

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

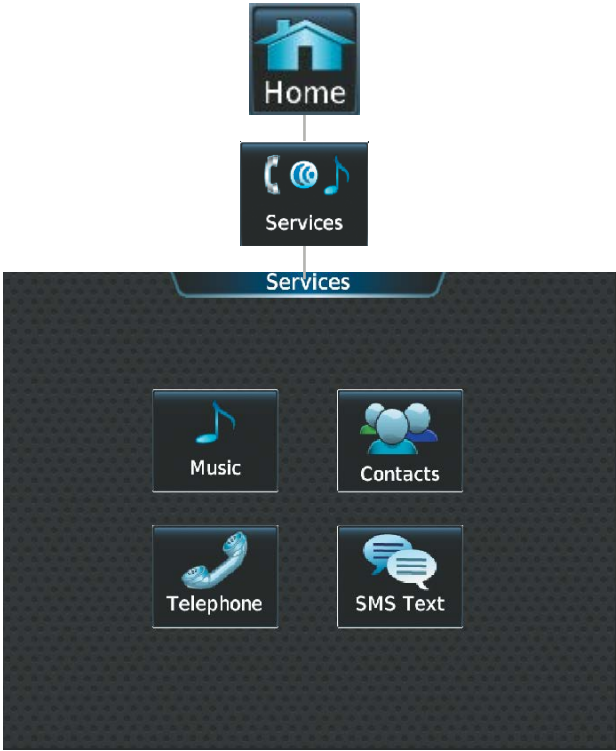
Abnormal
Operation

Annun/
Alerts

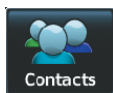
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Services Screen



Music Screen provides controls for the optional SiriusXM Satellite Radio including channel information, selection, and volume settings.



Contacts

Accesses the optional Contacts Screen for management of contact information including phone and email addresses. Also provides quick access to stored contacts via phone, SMS, or email.



Telephone

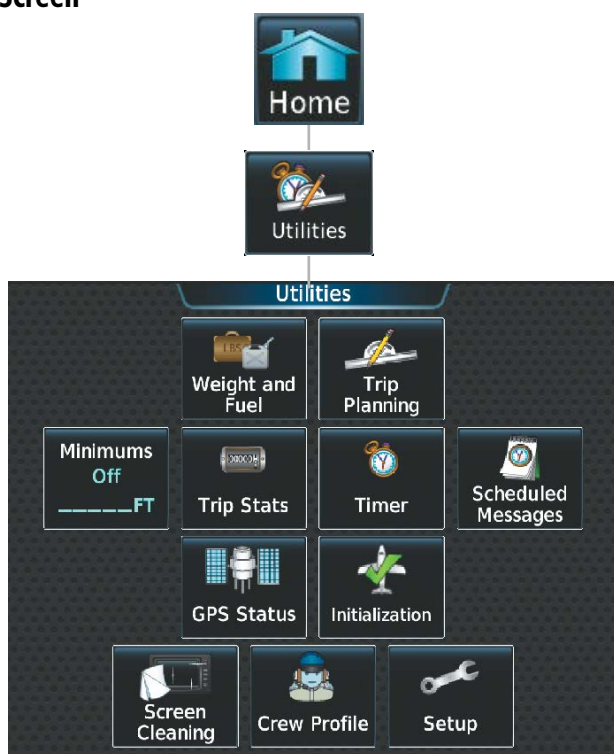
Telephone Screen (available with the Iridium voice telephone option) shows the status of the Iridium satellite telephone connection and provides telephone controls.



SMS Text

SMS Text Messaging Screen (available with the Iridium voice telephone option) provides management of incoming and outgoing SMS (short message service) text messages.

Utilities Screen



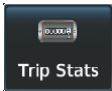
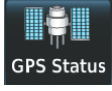
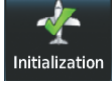
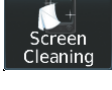
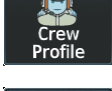
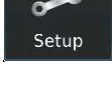
Trip Planning

Shows the Trip Planning Pane in the selected Display Pane, and accesses the Trip Planning screen on the Touchscreen Controller.

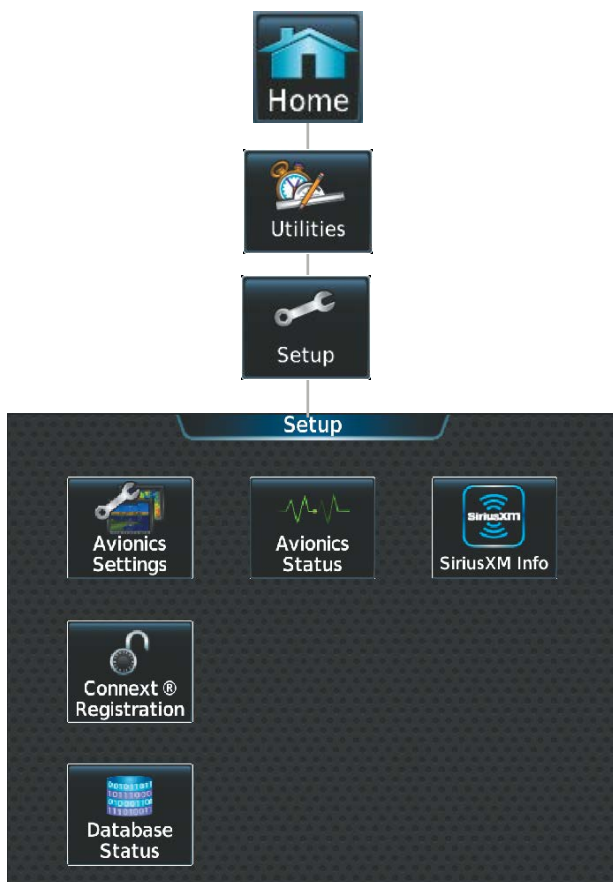


Minimums Off
____FT

Accesses the Minimums screen on the Touchscreen Controller. Provides controls for the Minimum Descent Altitude/Decision Height alerting function. Button displays the current minimums altitude and source if provided.

Flight Instruments		Accesses the Trip Statistics screen on the Touchscreen Controller. Shows information regarding Flight Time, Departure/Arrival Time, Odometer, Trip Odometer, Trip Air Odometer, Fuel Used, Average Ground Speed, Maximum Ground Speed, Average Wind Speed, and Average Wind Direction. Also provides settings for resetting trip statistics.
EAS		Accesses the Timer screen on the Touchscreen Controller. Controls the timer on PFD1.
Nav/Com/XPDR/Audio		Used to create custom messages to be displayed one-time or periodically. The Touchscreen Controller displays these System Messages on the Notifications Screen.
AFC		Accesses the GPS Status Screen for control of GPS sensors. Shows the GPS Status Pane in the Selected Display Pane.
GPS Nav		Displays the Initialization Screen on the Touchscreen Controller. Provides controls for selecting the Crew Profile, checking System Tests, Weight and Fuel, and Flight Plan.
Flight Planning		Accesses Weight and Fuel screen. Provides for input of weight and balance data and performs calculations.
Procedures		Feature temporarily disables touchscreen glass input to allow for manual cleaning. Turn or press any knob or softkey on the Touchscreen Controller to exit Screen Cleaning Mode.
Hazard Avoidance		Displays Crew Profile Screen, which provides controls for activating and managing crew profiles.
Additional Features		Displays the Setup Screen, which provides controls for avionics settings and status, data link settings, Wi-Fi settings, ADS-B Status and for displaying the status of avionics databases.
Abnormal Operation		
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Setup Screen



Provides controls for changing system avionics settings, such as, time format, units of measure, airspace alert settings, and MFD Data Bar Fields.



Displays information on the Touchscreen Controller for installed LRUs, system software, and databases.



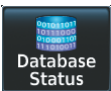
Shows the SiriusXM Information Screen on the Touchscreen Controller. Used to activate audio and data services from SiriusXM Satellite Radio and to verify subscriptions of SiriusXM Weather products.

Flight Instruments



Used to register with the optional Garmin Connex. Also provides information on current Connex registration.

EAS



Provides access to the Database Status Screen for checking database cycle information.

Nav/Com/XPDR/Audio

AFCs

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

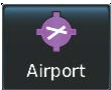
Abnormal Operation

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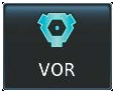
Waypoint Info Screen



Accesses airport information including frequencies, weather, procedures, charts, runways, and airport directory data.



Shows information for a selected intersection including bearing, distance, and location.



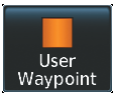
VOR

Provides VOR information including frequencies and location.



NDB

Provides NDB information including frequencies and locations.



User
Waypoint

Provides location information for User Waypoints including a list of User Waypoints.

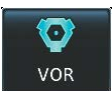
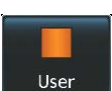
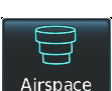


Create
Waypoint

Create User Waypoints based on present position or a designated location.

Nearest Screen



Flight Instruments		Displays a list of the nearest airports, with runway, bearing, and distance information.
EAS		Displays a list of the nearest intersections with bearing and distance information.
Nav/Com/XPDR/Audio		Displays a list of the nearest VORs with bearing, distance, and frequency information.
AFC		Displays a list of the nearest NDBs with bearing, distance, and frequency information.
GPS Nav		Displays a list of the nearest User Waypoints with bearing and distance information.
Flight Planning		Displays information about the nearest airspace and status.
Procedures		Displays information about the nearest ARTCC facilities including bearing, distance, and frequencies.
Hazard Avoidance		Displays the nearest Flight Service Stations with bearing, distance, and frequency information.
Additional Features		Displays the nearest weather reporting sources, bearings, distances, and frequencies.
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PFD Home Screen



Cycles through FMS, LOC1/VOR1 and LOC2/VOR2 navigation modes on the CDI

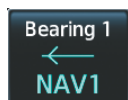


Selects OBS mode on the CDI when navigating by FMS (only available with active leg). When OBS is active the annunciator is green.

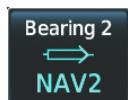
or



Selects SUSP mode on the CDI when navigating by FMS. When SUSP is active the annunciator is green.



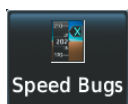
Cycles the Bearing 1 through OFF, NAV1, NAV2, FMS, and ADF1 (if installed)



Cycles the Bearing 2 through OFF, NAV1, NAV2, FMS, and ADF1 (if installed).



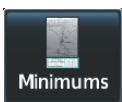
Scrolls CAS messages up and down.



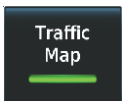
Accesses the Speed Bugs screen on Touchscreen Controller, where the speed bugs can be configured.



Accesses the Timer screen on the Touchscreen Controller. Controls timer on PFD.



Accesses the Minimums screen on the Touchscreen Controller. Set MDA or DH.



Shows the Traffic Map on the PFD in inset format when the PFD is in Full Mode. Shows the Traffic Map Pane on the PFD when the PFD is in Split Mode.



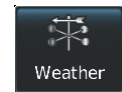
Accesses the PFD Map Settings Screen on the Touchscreen Controller. The Inset Map or HSI Map is not available when in split mode.



Accesses the Sensors Screen. Allows for selection of ADC and AHRS sensors.

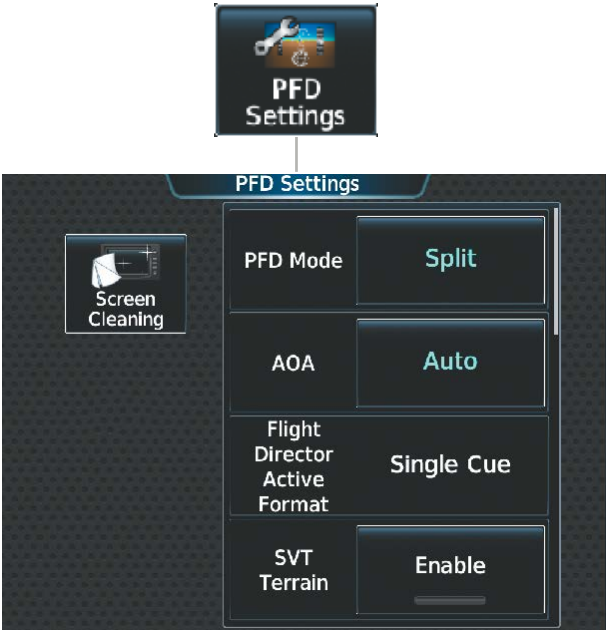


Accesses the PFD Settings Screen to view or set PFD Mode, AOA, Flight Director Active Format, SVT Terrain, SVT Pathways, Horizon Heading, SVT Airport Signs, Wind, Time Format, Time Offset, COM Channel Spacing, Baro Select Units, Meters Overlay, and Screen Cleaning function.



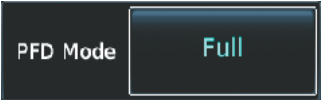
Displays the nearest weather reporting sources, bearings, distances, and frequencies

PFD Settings



Deactivates touch input on the Touchscreen Controller to facilitate cleaning. Press or turn a knob on the controller to resume touch input.

PFD SETTINGS



Allows the GDU to be split into a condensed PFD and Display Pane, which appears on the inboard portion of the screen.

Full: Selects full size PFD display.

Split: Selects a condensed PFD and a display pane

Selects the display mode for the Angle of Attack (AOA) indicator on the PFD.



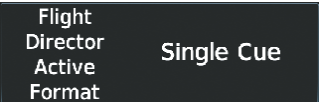
Auto: Displays AOA indicator on the PFD.

On: Displays AOA indicator on the PFD.

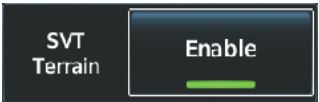
Off: Removes AOA indicator from the PFD.

Flight Instruments
EAS
Nav/Com/XPDR/Audio
AFCS
GPS Nav
Flight Planning
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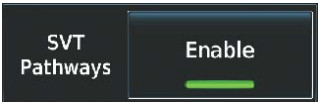
Flight Instruments
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Nav/Com/XPDR/Audio
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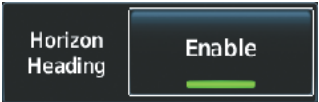
Shows the type of Flight Director available.



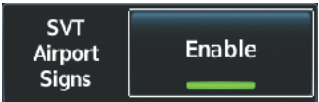
Enables/disables synthetic terrain depiction. When Enabled, the annunciator is green.



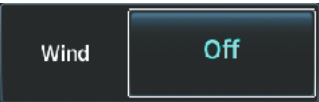
Enables/disables synthetic terrain pathways depiction. When enabled., the annunciator is green. When synthetic terrain is disabled, button is subdued.



Enables/disables display of compass heading along the Zero-Pitch line. When Enabled, the annunciator is green. Button is subdued when synthetic terrain is disabled.



Enables/disables the display of 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. When Enabled, the annunciator is green. Button is subdued when synthetic terrain is disabled.

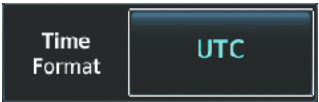


Option 1: Wind direction arrows with headwind and crosswind components

Option 2: Wind direction arrow and speed

Option 3: Wind direction arrow with direction and speed

Off: Wind information not displayed.



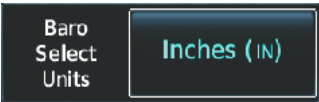
Selects the Time Format: Local 12hr, Local 24hr, or UTC



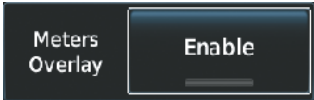
Displays the Local and UTC time offset.



Selects the COM Channel Spacing: 25 kHz or 8.33 kHz



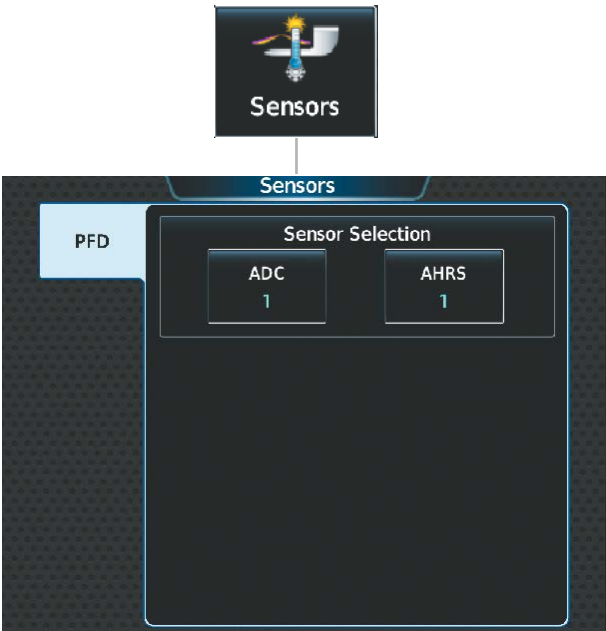
Inches (IN): Displays the BARO setting as inches of mercury.



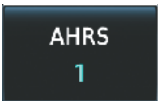
Hectopascals (HPA): Displays the BARO setting as hectopascals.

Enables/disables the display of the meter overlay on the Altimeter.

PFD Sensors



Accesses the ADC Sensors page where the Air Data Computer (ADC) used by the on-side PFD can be manually selected.



Accesses the AHRS Sensors Screen where the Attitude and Heading reference system sensors used can be manually selected.

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DATABASE MANAGEMENT



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

The system uses Secure Digital (SD) cards to load and store various types of data. For basic flight operations, SD cards are required for database storage as well as Jeppesen navigation database updates. Not all SD cards are compatible with the system. Use only SD cards supplied by Garmin or the aircraft manufacturer.



CAUTION: *When downloading updates to the Jeppesen Navigation Database, copy the data to an SD card other than a Garmin Supplemental Data Card. Otherwise, data corruption can occur.*



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 Avionics Status Screen on the Touchscreen Controller.*



NOTE: *Loading a database in the system prior to its effective date will result in the expiration date on the power-up screen and the effective date on the Avionics Status Screen being displayed in amber.*



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

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



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



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



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



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

Navigation and Chartview Databases

The Navigation Database is updated on a 28-day cycle. There are two possible methods for updating the navigation database. If the 28-day cycle of your navigation database has already ended, you must update the active navigation database. However, if the expiration date of the navigation database hasn't already been reached, you may load a standby navigation database. The system will then automatically update the active database at the first aircraft power-on when the new navigation becomes effective.

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



NOTE: To do this procedure, use a new SD card to copy the navigation database. Garmin SD Cards (bottom SD card slots) shall not be used. The use of SanDisk SD Card is recommended to store the navigation database file. Before utilization, it is recommended to format the SD Card with the FAT32 file system so that displays will read it. After the navigation database is loaded or copied, the top SD card may be removed.

- 1) Go to www.flygarmin.com or www.jeppesen.com. Download the applicable software and install the navigation database on a blank SD card.
- 2) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of PFD1, (label of SD card facing left).
- 3) Turn the system ON. A prompt is displayed in the upper left corner of the display:
- 4) Press the **NO** Softkey to proceed to loading the active database.
- 5) A prompt similar to the following is displayed. Press the **YES** Softkey to update the active navigation database.
- 6) After the update completes, the display starts in normal mode.
- 7) Turn the system OFF and remove the SD card from the top card slot.
- 8) Repeat steps 1 through 7 for the remaining displays.
- 9) Apply power to the system and press the right most softkey to acknowledge the startup screen.
- 10) From the Home Screen, touch **Utilities > Setup > Database Status**.
- 11) Monitor the Navigation Database synchronization until it finishes.



NOTE: The new database from the display units are synchronized to the touchscreen controllers in this step.

- 12) Remove and reapply power to the system.
- 13) Press the soft key on the far right side of the MFD to acknowledge the startup screen.

- 14) From the Home Screen, touch **Utilities > Setup > Database Status**.
- 15) Verify the correct cycle is indicated in the Navigation Database field.



NOTE: Updates shown for the standby navigation database on the Database Status screen are a composite of the updates for all displays.

- 16) To view standby navigation database update information of each display, scroll down the list shown in the Database Status screen and touch **LRU Database Info**.
- 17) Touch a button from the list to view database information associated with that display.
- 18) On the Touchscreen Controller, touch the **MSG** button and determine if any message related to databases is active.
- 19) Remove power from the system.

Dual Navigation Database Feature

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

If a navigation database loader card is inserted into the top SD card slot of a display, and an SD card is in the bottom slot, the system will prompt the user (upon on-ground power up) as to whether the database should be stored on the bottom SD card as the standby database. If the user responds affirmatively, the system will copy the navigation database from the top SD card to the bottom SD card. As long as the bottom SD card remains in the card slot, this standby navigation database will be available for the system to use as the active database as soon as it becomes effective.

The system checks the active and standby databases upon (on-ground only) power-up. If the standby database is current and the active database is out of date, the display will upload the standby database into the active internal database location. Uploading the standby database to the active location takes approximately 45-55 seconds. The pilot is alerted that the update is complete by a system alert message, 'NAV DB UPDATED'.

Loading a standby navigation database:



NOTE: To do this procedure, use a new SD card to copy the navigation database. Garmin SD Cards (bottom SD card slots) shall not be used. The use of SanDisk SD Card is recommended to store the navigation database file. Before utilization, it is recommended to format the SD Card with the FAT32 file system so that displays will read it. After the navigation database is loaded or copied, the top SD card may be removed.

- 1) Go to www.flygarmin.com or www.jeppesen.com. Download the applicable software and install the navigation database on a blank SD card.
- 2) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of PFD 1.
- 3) Verify that an SD card is inserted in the bottom slot of each PFD and the MFD.
- 4) Turn the system ON. A prompt is displayed:
- 5) Press the **YES** Softkey. The navigation database is copied to the SD card in the bottom card slot of the PFD 1.
- 6) After the navigation database files are copied to the bottom SD card, press any key to continue, as instructed.
- 7) Again, press any key to continue as instructed on the display.
- 8) 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.
- 9) Press any key to acknowledge the startup screen.
- 10) From the Home Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**.
- 11) The new database is copied to the SD card in the bottom card slot of PFD1 and PFD2. While the database is copying, progress can be monitored at the bottom of the applicable database field. When copying is finished, 'Sync Complete' is displayed.
- 12) Turn system power OFF.
- 13) Remove the SD card from the top card slot of the MFD.
- 14) Apply power to the system.

- 15) From the **Home** Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**.
- 16) Verify the correct cycle is indicated for the updated database.
- 17) To view database update information of each display, scroll down the list shown in the Database Status screen and touch **LRU Database Info**.
- 18) Touch a button from the list to view database information associated with that display.
- 19) When finished, touch **Back** or **Home**.

Manually activating the standby navigation database:

- 1) From the **Home** Screen, touch **Utilities > Setup > Database Status**.
- 2) If a Standby Navigation Database has already been copied to the bottom card, touch the **Activate STBY Nav** Button in the upper right corner of the screen.
- 3) A prompt is displayed, touch **Yes** to overwrite the Active Navigation Database with the Standby Navigation Database. Touch **No** to cancel.

AUTOMATIC DATABASE SYNCHRONIZATION FEATURE

When updating the active navigation database, the automatic database synchronization feature automatically transfers the navigation database from a single SD Card to the internal memory of all GDUs and Touchscreen Controllers. When updating all other databases (including the standby navigation database) the data is transferred from a single SD card to the remaining SD cards on each GDU, as well as the internal memory of each Touchscreen Controller. After power-up, the system compares all copies of each applicable database. If similar databases do not match, the most recent valid database is automatically copied to each card in the system that does not already contain that database.

The following databases are checked and synchronized: Navigation, Basemap, Safe-Taxi, Terrain, Obstacle, FliteCharts, ChartView, and Airport Directory.



NOTE: The terrain database may take as long as 100 minutes to synchronize using this method. Therefore the user may want to transfer the data using a PC, or connect the system to a ground power source while performing the database synchronization.

The synchronization progress may be monitored on the Database Status Screen on the Touchscreen Controller. This screen shows the synchronization status of each applicable database as follows:

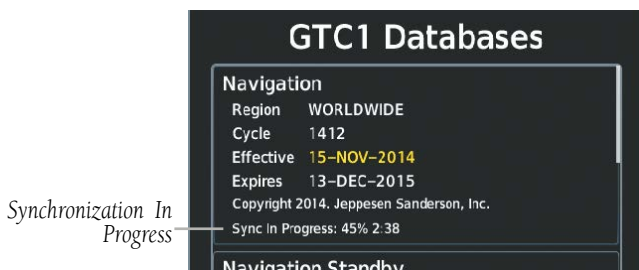
- ‘Sync in Progress’ with percent complete and time remaining
- ‘Sync Complete’
- ‘Sync Error’

While database synchronization is occurring, ‘Sync in Progress’ is displayed along with percent complete and time remaining. When the synchronization is complete for the selected GDU or Touchscreen Controller Database Status Screen, the status is listed as ‘Sync Complete’. The synchronization status is only present when a sync is occurring or has occurred on the current power-up.

An indication of ‘Sync Complete’ still requires a power cycle before the synchronized databases will be used by the system.

To view database status:

- 1) From the **Home** Screen on the Touchscreen Controller, touch **Utilities > Setup > Avionics Status**.
- 2) If necessary, touch the **Database** Tab. The Touchscreen Controller shows a list of displays on which databases reside.
- 3) Touch a button from the list to view database information associated with that display (**MFD1**, **PFD1**, **PFD2**, **GTC1**, **GTC2**).
- 4) Scroll through the database information to view database status.

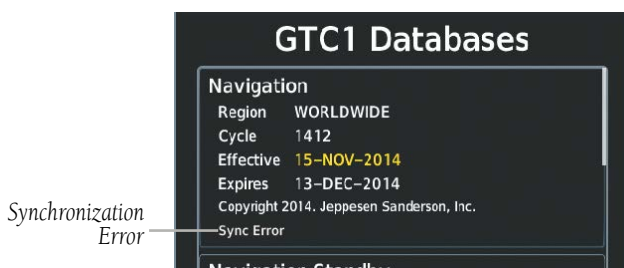


Avionics Status Screen, Database Information Window, Navigation Database Sync in Progress



Avionics Status Screen, Database Information Window, Navigation Database Sync Complete

If an error occurs during the synchronization, 'Sync Error' is displayed in the synchronization status field. If synchronization completes for one GDU or Touchscreen Controller, but an error occurs for another, the error message will be displayed on the Database Status Screen for the affected GDU or Touchscreen Controller. When an error message is displayed, the problem must be corrected before the synchronization can be completed. A power cycle is required to restart synchronization.



Synchronization Error Message

GARMIN DATABASES AND JEPPESEN CHARTVIEW DATABASE

The following databases are stored on Supplemental Data Cards provided by Garmin:

- Expanded basemap
- Terrain
- Obstacle
- FliteCharts or ChartView
- Airport Directory (AOPA or AC-U-KWIK)

After subscribing to the desired database product, these database products will be downloaded and ultimately stored on three Supplemental Data Cards. A Supplemental Data Card resides in the bottom card slot of each GDU.

Databases residing on Supplemental Data Cards are not stored internally in the displays (except for the Touchscreen Controllers), therefore, a Supplemental Data Card containing identical database versions must be kept in the bottom card slot each GDU.

The basemap database contains data for the topography and land features, such as rivers, lakes, and towns. It is updated only periodically, with no set schedule. There is no expiration date.

The terrain database contains the terrain mapping data. This database is updated periodically and has no expiration date.

The obstacle database contains data for obstacles, such as towers, that pose a potential hazard to aircraft. Obstacles 200 feet and higher are included in the obstacle database. It is very important to note that not all obstacles are necessarily charted and therefore may not be contained in the obstacle database. This database is updated on a 56-day cycle.



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

The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams aid in following ground control instructions by accurately displaying the aircraft position on the map in relation to taxiways, ramps, runways, terminals, and services. This database is updated on a 56-day cycle.

The AOPA or AC-U-KWIK Airport Directory provides data on airports and heliports

throughout the U.S. or worldwide, respectively. The AOPA Directory offers detailed information for over 5,300 U. S. airports, along with the names and phone numbers of thousands of FBOs. These databases are updated every 56 days. The AC-U-KWIK Directory offers detailed information for more than 8,000 airports with runways longer than 3,000 feet worldwide.

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. The ChartView database must be purchased directly from Jeppesen, but can be updated at www.jeppesen.com or www.flygarmin.com. It should be copied to Garmin supplied Supplemental Data Cards which will reside in the bottom card slot on of each GDU.

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.

The Garmin database updates can be obtained by following the instructions detailed in the ‘Aviation Databases’ section of the Garmin website (flygarmin.com). Once the updated files have been downloaded from the website, a PC equipped with an appropriate SD card reader is used to unpack and program the new databases onto the appropriate existing Supplemental Data Cards. Equipment required to perform the update is as follows:

- Windows-compatible PC computer (running Windows XP, Vista, or Windows 7)
- SD Card Reader: SanDisk SDDR-93, SanDisk SDDR-99, Verbatim #96504, or equivalent
- Updated database obtained from the Garmin website
- Existing Supplemental Database SD Cards (010-00474-44) from each GDU

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.

After the data has been copied to the appropriate data card, perform the following steps:

Updating Basemap, SafeTaxi, Obstacle, and Airport Directory Databases



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

- 1) With the system OFF, remove the MFD database SD Card from the bottom SD slot of the MFD.
- 2) Go to www.flygarmin.com. Download the applicable software and install the navigation database on a blank SD card.
- 3) Put the database SD Card back in the bottom SD card slots the MFD.
- 4) Turn the system ON.
- 5) During **MFD** power-up screen, make sure that the database is initialized and shown on the database information.
- 6) Press the right most softkey on MFD display to acknowledge the startup screen.
- 7) From the **Home** Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**.
- 8) Monitor the updated database synchronization (if applicable) until it finishes.



NOTE: The new database from the display units are synchronized to the touchscreen controllers in this step. Only the Airport Directory (AOPA), database requires synchronization.

- 9) Remove and reapply power to the system.
- 10) Press the right most softkey on MFD display to acknowledge the startup screen.
- 11) From the Home Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**.
- 12) Verify the correct cycle is indicated for the updated databases.
- 13) To view database update information of each display, scroll down the list shown in the Database Status screen and touch **LRU Database Info**.
- 14) Touch a button from the list to view database information associated with that display.

- 15) Scroll through the database information to view database status.
- 16) On Touchscreen Controller, touch the **MSG** Button and determine if any message related to databases is active.
- 17) Remove power from the system.

Updating Terrain, FliteCharts, and Jeppesen ChartView Databases



NOTE: The Terrain, FliteCharts and Jeppesen ChartView Databases databases must be copied to all three Supplemental Data Cards.



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

- 1) With the system OFF, remove the database SD Cards from the bottom SD slot of each flight display unit.
- 2) Go to www.flygarmin.com or www.jeppesen.com (for ChartView only). Download the applicable software and install the navigation database on a blank SD card.
- 3) Put the database SD Cards back in the bottom SD card slots of each flight display unit.
- 4) Turn the system ON.
- 5) During **MFD** power-up screen, make sure that the database is initialized and shown on the database information.
- 6) Press the right most softkey on MFD display to acknowledge the startup screen.
- 7) From the **Home** Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**. If necessary, touch the **Database** Tab.
- 8) Monitor the updated database synchronization (if applicable) until it finishes.



NOTE: The new database from the display units are synchronized to the touchscreen controllers in this step. Only the ChartView and FliteCharts databases require synchronization.

- 9) Remove and reapply power to the system.
- 10) Press the right most softkey on MFD display to acknowledge the startup screen.
- 11) From the Home Screen on the Touchscreen Controller, touch **Utilities > Setup > Database Status**.
- 12) Verify the correct cycle is indicated for the updated databases.
- 13) To view database update information of each display, scroll down the list shown in the Database Status screen and touch **LRU Database Info**.
- 14) Touch a button from the list to view database information associated with that display.
- 15) Scroll through the database information to view database status.
- 16) On Touchscreen Controller, touch the **MSG** Button and determine if any message related to databases is active.
- 17) Remove power from the system.

LOADING THE MAGNETIC FIELD VARIATION DATABASE UPDATE

- 1) With the MV DB prompt displayed, touch the **OK** Button. A progress monitor is displayed.
- 2) When the upload is complete, the prompt for the next GRS upload is displayed. A database mismatch message indicates the second GRS has not yet been updated.
- 3) Touch the **OK** Button. A progress monitor for the next GRS is displayed as in step 1. When the upload is complete, the system is ready for use.

CLEANING THE TOUCHSCREEN

Screen Cleaning mode makes the touchscreen inactive to facilitate cleaning. The touchscreen can be cleaned using a microfiber or soft cotton cloth dampened with clean water. DO NOT use chemical cleaning agents.

- 1) From the **Home** Screen, touch **Setup > Screen Cleaning**.
- 2) Clean the touchscreen.
- 3) Press or turn any knob to go back.

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GARMIN

Garmin International, Inc.

1200 East 151st Street

Olathe, Kansas 66062, U.S.A.

Tel: 913.397.8200

Fax: 913.397.8282

Aircraft Buy Order (AOG) Hotline: 913.397.0836

Aviation Dealer Technical Support: 888.606.5482

Garmin AT, Inc.

2345 Turner Road SE

Salem, OR 97302, U.S.A.

Tel: 503.581.8101

Fax 503.364.2138

Garmin (Europe) Ltd.

Liberty House, Hounsdown Business Park

Southampton, Hampshire SO40 9LR U.K.

Tel: +44 (0) 238 052 4000

Fax: +44 (0) 238 052 4004

Aviation Support: +44 (0) 370 850 1243

Garmin Corporation

No. 68, Zhangshu 2nd Road

Xizhi District, New Taipei City, Taiwan

Tel: 34-93-357-2608

Fax: 34-93-429-4484

www.garmin.com

