G5000® Integrated Avionics System

Cockpit Reference Guide

Textron Citation 560XL/XLS

System Software Version 3343.02 or later

FLIGHT INSTRUMENTS

EICAS

NAV/COM/TRANSPONDER/AUDIO PANEL

FLIGHT MANAGEMENT SYSTEM

HAZARD AVOIDANCE

AUTOMATIC FLIGHT CONTROL SYSTEM

ADDITIONAL FEATURES

ABNORMAL OPERATIONS

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This manual reflects the operation of System Software version 3343.02 or later for the Textron Citation 560XL/XLS. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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WARNING: *Do not operate this equipment without first obtaining qualified instruction.*

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 older than the indicated weather product age.*

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

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

WARNING: *Do not rely on the autopilot to level the aircraft at the MDA/DH when flying an approach with vertical guidance. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.*

WARNING: *Do not rely on the accuracy of attitude and heading indications in the following geographic areas (due to variations in the earth's magnetic field): North of 72° North latitude at all longitudes; South of 70° South latitude at all longitudes; North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada); North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada); North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia); South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).*

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

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: *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 consider the overflight of thunderstorms to be safe, as extreme turbulence may exist significantly above observed returns.*

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

WARNING: *Do not rely only on the Turbulence Detection function for hazardous weather avoidance, or to maneuver in, near, or around areas of hazardous weather.*

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

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

WARNING: *Always use traffic information shown on system displays only as an aid to visually acquiring traffic. Traffic avoidance maneuvers are based upon TCAS II Resolution Advisories , ATC guidance, or positive visual acquisition of conflicting traffic.*

WARNING: *Do not use QFE altimeter setting outside of the terminal environment for the corresponding issuing airport to ensure adequate obstacle clearance.*

WARNING: *Do not fly QFE procedures above the Transition Altitude or when navigating to a waypoint that contains a QNE (flight level) altitude constraint.*

WARNING: *Always fly a procedure that provides terrain and obstacle clearance from the reference airfield when operating in IMC while conducting QFE procedures.*

WARNING: *Do not use SurfaceWatch™ information as the primary method of flight guidance during airborne or ground operations. SurfaceWatch does not have NOTAM or ATIS information regarding the current active runway, condition, or information about the position of hold lines.*

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

CAUTION: *Do not allow repairs to be made by anyone other than an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and affect the airworthiness of the aircraft.*

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.*

CAUTION: *Avoid areas on the radar display that appear "shadowed" (gray). The accuracy of the intensity of returns in the shaded areas should be treated as suspect. Exercise extreme caution, making maneuvering decisions with this information in mind.*

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

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: *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: *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: *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 that have a Type 2 Letter of Authorization (LOA) from the FAA are assured compliance with all data quality requirements (DQRs). A copy of the Type 2 LOA is available for each applicable database and can be viewed at flygarmin.com by selecting 'Aviation Database Declarations.'*
- *Use of a current Garmin or Jeppesen database in your Garmin equipment is required for compliance with established FAA regulatory guidance, but does not constitute authorization to fly any and all terminal procedures that may be presented by the system. It is the pilot's responsibility to operate in accordance with established pertinent aircraft documents and regulatory guidance or limitations as applicable to the pilot, the aircraft, and installed equipment.*

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 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 flygarmin.com by selecting 'Aviation Database Alerts.'*

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

***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:** Electronic aeronautical charts displayed on this system have been shown to meet the guidance in AC 120-76D as a Type B Electronic Flight Bag (EFB) for FliteCharts and ChartView. The accuracy of the charts is subject to the chart data provider. Own-ship position on airport surface charts cannot be guaranteed to meet the accuracy specified in AC 120-76D. Possible additional requirements may make a secondary source of aeronautical charts, such as traditional paper charts or an additional electronic display, necessary on the aircraft and available to the pilot. If the secondary source of aeronautical charts is a Portable Electronic Device (PED), its use must be consistent with the guidance in AC 120-76D.*

***NOTE:** The navigation databases used in Garmin navigation systems contain Special Procedures. Prior to flying these procedures, pilots must have specific FAA authorization, training, and possession of the corresponding current, and legitimately-sourced chart (approach plate, etc.). Inclusion of the Special Procedure in the navigation database DOES NOT imply specific FAA authorization to fly the procedure.*

***NOTE:** Terrain and obstacle alerting is not available north of 89° North latitude and south of 89° South latitude. This is due to limitations present within the Terrain database and the system's ability to process the data representing the affected areas.*

***NOTE:** The nose of the 'own ship' symbol represents the location of the aircraft. The center of any traffic symbol represents the location of that traffic. The traffic and own ship symbols are an abstract representation and do not reflect the physical extent of the aircraft/traffic, and should not replace other methods for identifying traffic.*

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

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

NOTE: *The purpose of this Cockpit Reference Guide is to provide the pilot a resource with which to find operating instructions on the major features of the system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the Pilot's Guide for this aircraft.*

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Record of Revisions				
Part Number	**Revision**	**Date**	**Page Range**	**Description**
190-02538-00	A	06/05/2019	All	Production Release for GDU 21.17
190-02538-01	A	07/13/2020	All	Production Release for GDU 21.40.1
190-02538-02	A	02/23/2021	All	Revision: - Add FANS 1/A - Clerical updates

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FLIGHT INSTRUMENTS

FLIGHT INSTRUMENTS

AIRSPEED INDICATOR

Setting the target N1% value:

1) From Home, touch **PERF** > **Speed Bugs.**
2) Touch the **N1%** Button.
3) Enter a value using either the Keypad or the large and small right knobs. When finished, touch **Enter** or push the right knob.

Disabling the target N1% value:

1) From Home, touch **PERF** > **Speed Bugs.**
2) Touch the **N1%** Button.
3) Touch the **Target N1 Off** Button.

Manually changing Vspeeds and enabling/disabling Vspeed bugs:

1) From Home, touch **PERF** > **Speed Bugs.**
2) If necessary, touch the **Takeoff** or **Landing** Tab.
3) Scroll as necessary, and touch the enable/disable button for the corresponding Vspeed.
4) To change a Vspeed value, touch the datafield button for the corresponding Vspeed. Then enter a value for the selected Vspeed using either the Keypad or the large and small right knobs. When finished, touch **Enter** or push the right knob. The pencil icon next to the Vspeed value indicates the Vspeed is a crew-entered value.

Enabling/disabling all Takeoff or Landing Vspeed bugs:

1) From Home, touch **PERF** > **Speed Bugs.**
2) Touch either the **Takeoff** or **Landing** Tab.
3) To enable all Vspeed bugs in the selected tab, touch the **All On** Button. To disable all Vspeed bugs in the selected tab, touch the **All Off** Button.

Restoring all Vspeed defaults:

1) From Home, touch **PERF** > **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.

ATTITUDE INDICATOR

ALTIMETER

Selecting the altimeter barometric pressure setting:

1) Turn the **BARO** Knob to select the desired setting. If the setting is entered into the 'Altimeter Setting Preview' Window, proceed to step 2.
2) Push the **BARO** Knob after descending past the barometric transition altitude.

Selecting standard barometric pressure:

Push the **BARO** Knob to select standard pressure; STD BARO is displayed in the 'Barometric Setting' Box.

Changing altimeter barometric pressure setting units:

1) Press the **PFD Settings** Softkey to display the second-level softkeys
2) Press the **Other PFD Settings** Softkey.
3) Press the **Altitude Units** Softkey.
4) Press either the **IN** (Inches) or **HPA** (Hectopascals) Softkey.

Syncing Altimeter BARO Pressure::

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
1) If necessary, touch the **System** Tab.
3) Touch the **Sync Altimeter BARO Pressure Settings** Button.
4) Touch the **On** Button.**Setting the Selected Altitude:**

Turn the **ALT** Knob on the AFCS Controller to update the Selected Altitude in 1000-ft increments or push and hold the **ALT** Knob to update the Selected Altitude in 100-ft increments.

If set, the Minimum Altitude Alert value is also available for the Selected altitude.

Enabling/disabling metric overlays on the Altimeter:

1) Press the **PFD Settings** Softkey to display the second-level softkeys
2) Press the **Other PFD Settings** Softkey.
3) Press the **Altitude Units** Softkey.
4) Press the **Meters** Softkey to toggle the metric altitude overlay.

Setting the Baro Transition Alert:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **Alerts** Tab.
   - To turn the alert on or off, touch the **BARO Transition ALT Climb** Button or the **BARO Transition LVL Descent** Button.

- To set or change the BARO Transition ALT Climb or LVL Descent Altitude, touch the data field. Enter the desired altitude on the keypad, and touch **Enter**.
- To revert to the published altitude, touch the **Revert to Published** Button and touch **OK** on the confirmation screen.

WARNING: *Do not use a QFE altimeter setting outside of the terminal environment for the corresponding issuing airport to ensure adequate obstacle clearance.*

Setting BARO QFE:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **Units** Tab.
3) Touch the **BARO QFE** or **Reference ELEV** Button to display the keypad.
4) Manually enter the QFE Altitude using the Keypad or large and small right knobs.

   Or:

   Touch the **Use FMS Origin** Button or **Use FMS Destination** Button to use the field elevation for the respective origin or destination airport as the reference field elevation value. If the flight plan does not contain an origin or destination airport, the respective button(s) are subdued.

HORIZONTAL SITUATION INDICATOR (HSI)

Enabling/disabling the HSI Map:

1) Press the **PFD Map Settings** Softkey.
2) Press the **Map Layout** Softkey.
3) Press the **HSI Map** Softkey to display the HSI Map.

Adjusting the selected heading:

Turn the **HDG** Knob to set the Selected Heading on both PFDs.

Or:

Push the **HDG** Knob to synchronize the bug to the current heading.

Adjusting the Selected Course:

Turn the **CRS** Knob to set the Selected Course (for each PFD).

Push the **CRS** Knob to re-center the CDI and return the course pointer to the bearing of the active waypoint or navigation station.

Changing the navigation angle setting:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **Units** Tab.
3) Touch the **Nav Angle** Button.
4) Touch either the **Magnetic (°)** or **True (°T)** Button.

Selecting bearing display and changing sources:

1) Press the **PFD Settings** Softkey.
2) Press the **Bearing 1** or **Bearing 2** Softkey to display the desired bearing pointer and information window with a NAV source.
3) Press the **Bearing 1** or **Bearing 2** Softkey again to change the bearing source to FMS, NAV, or ADF.
4) To remove the bearing pointer and information window, press the **Bearing 1** or **Bearing 2** Softkey again.

COURSE DEVIATION INDICATOR (CDI)

Changing navigation sources:

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 FMS.

Synchronizing the CDIs:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **System** Tab.
3) Scroll and touch the Sync CDI Datafield.
4) Touch a button for the desired setting (**On** or **Off**).

Changing the selected FMS CDI setting:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **System** Tab.
3) Scroll if necessary and touch the 'GPS CDI' Datafield.
4) Touch a button for the desired setting (**0.30NM, 1.00NM, 2.00NM,** or **AUTO**).

Enabling/disabling OBS Mode while navigating a GPS flight plan:

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

GARMIN SVT (SYNTHETIC VISION TECHNOLOGY)

***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.*

Enabling SVT depiction:

1) Press the **PFD Settings** Softkey.
2) Press the **Attitude Overlays** Softkey.
3) Press the **Synthetic Terrain** Softkey.

Enabling the display of Horizon Headings:

1) Press the **PFD Settings** Softkey.
2) Press the **Attitude Overlays** Softkey.
3) Press the **Horizon Heading** Softkey.

Enabling the display of Airport Signs:

1) Press the **PFD Settings** Softkey.
2) Press the **Attitude Overlays** Softkey.
3) If the PFD is in Split Mode, press the **SVT Settings** Softkey.
4) Press the **Airport Signs** Softkey.

Enabling Flight Path Angle Reference Settings:

1) Press the **PFD Settings** Softkey.
2) Press the **Attitude Overlays** Softkey.
3) If the PFD is in Split Mode, press the **FPA Ref Settings** Softkey.
4) Press the **FPA MANUAL** Softkey which displays the current Flight Path Angle Reference setting in cyan.
5) Press the appropriate **-1°, -0.1°, +0.1°,** or **+1°** Softkeys as needed to select the desired reference angle.
6) Press the **FPA MANUAL** Softkey to toggle the Flight Path Angle Reference display.
1) Press the **PFD Settings** Softkey.
2) Press the **Attitude Overlays** Softkey.
3) Press the **FPM Settings** Softkey.
4) Press the **FPM Enable** Softkey to Enable/Disable Flight Path Marker. (This button is subdued when Synthetic Terrain is enabled.)

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

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

Toggling the SVT field of view depiction:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If not already selected, 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.

SUPPLEMENTAL FLIGHT DATA

Selecting the AOA Indicator display mode:

1) Press the **PFD Settings** Softkey to display the second-level softkeys.
2) Press the **Other PFD Settings** Softkey.
3) Press the **AOA** Softkey to cycle through AOA Indicator display modes.

Displaying wind data:

1) Press the **PFD Settings** Softkey.
2) Press the **Other PFD Settings** Softkey.
3) Press the **Wind** Softkey to display wind data display options.
4) Press one of the **Option** Softkeys to change how wind data is displayed:
    - **Option 1**: Headwind/tailwind and crosswind arrows with numeric speed components.
    - **Option 2**:Total wind direction arrow with numeric speed.
    - **Option 3**: Total wind direction arrow with direction (°) and speed (KT) components.
5) To remove the window, press the **Off** Softkey.

Setting the generic timer:

1) From Home, touch **Utilities** > **Timer**.
2) Touch the **Time** Button.
3) Input the desired time using the Keypad or large and small right knobs, then touch the **Enter** Button or push the right knob.
4) Touch either the **Up** Button to count up or the **Down** Button to count down.
5) To start the timer, touch the **Start** Button. The button changes to a **Stop** Button.
6) To stop the timer, touch the **Stop** Button.
7) To reset the timer, touch the **Reset** Button.

PFD ANNUNCIATIONS AND ALERTING FUNCTIONS

Setting the Minimum Altitude Alert and bug:

1) From Home, touch **Utilities** > **Minimums** > **Minimums**.
2) Touch the **Baro,** or **Temp Comp** Button (**Off** is selected by default.)
   - If **Temp Comp** is selected, touch **Temp at Dest**. Use the keypad to enter desired temperature, and touch the **Enter** Button.
3) Use the keypad to enter the desired altitude from zero to 16,000 feet (zero to 2,500 feet for RA) and touch the **Enter** Button.

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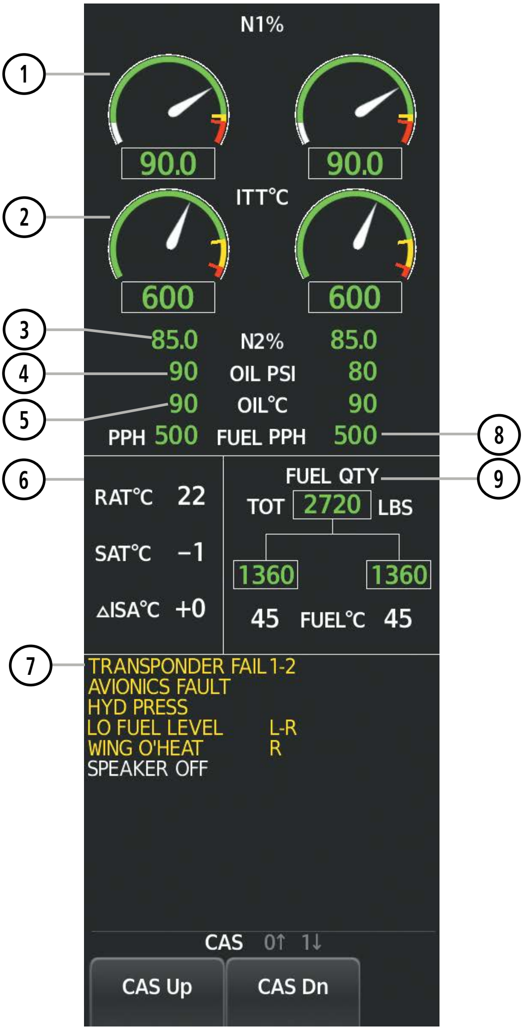
ENGINE INDICATION & CREW ALERTING SYSTEM

ENGINE INDICATION

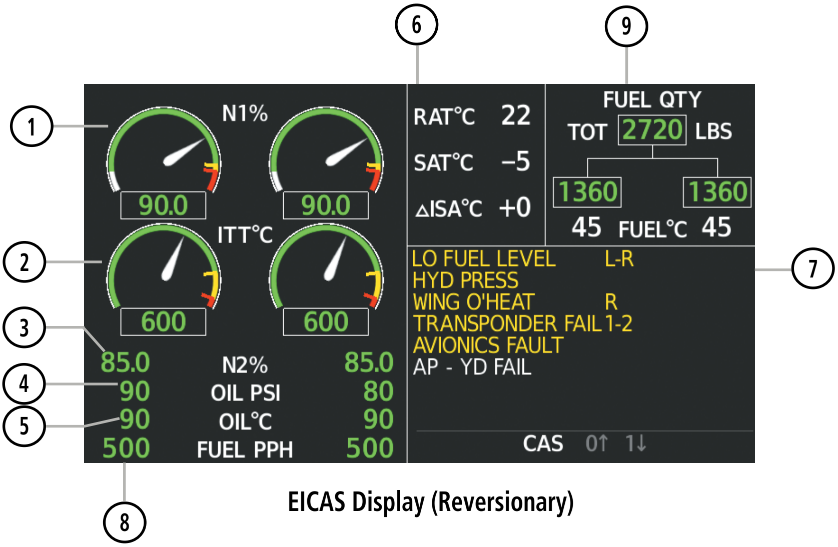
NOTE: *The gauges displayed and the values shown in this section are taken from the Textron Citation XLS configuration. Refer to the current version of the pertinent flight manual for specific values and operating limitations for all configurations.*


N1%
90.0
90.0
ITT°C
600
600
85.0
N2%
85.0
90
OIL PSI
80
90
OIL°C
90
PPH
500
FUEL PPH
500
RAT°C 22
SAT°C −1
ΔISA°C +0
FUEL QTY
TOT 2720 LBS
1360
1360
45 FUEL°C 45
CAS 0↑ 1↓
CAS Up
CAS Dn
1
2
3
4
5
6
7
8
9

TRANSPONDER FAIL 1-2
AVIONICS FAULT
HYD PRESS
LO FUEL LEVEL L-R
WING O'HEAT R
SPEAKER OFF

EICAS Display (Normal)

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

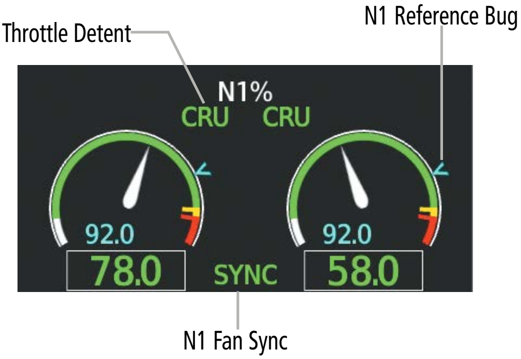

6
9
1
2
3
4
5
7
8
N1%
90.0
90.0
ITT°C
600
600
85.0
N2%
85.0
90
OIL PSI
80
90
OIL°C
90
500
FUEL PPH
500
RAT°C 22
SAT°C –5
ΔISA°C +0
FUEL QTY
TOT 2720 LBS
1360
1360
45 FUEL°C 45
CAS 0↑ 1↓

LO FUEL LEVEL L-R
HYD PRESS
WING O'HEAT R
TRANSPONDER FAIL 1-2
AVIONICS FAULT
AP - YD FAIL

EICAS Display (Reversionary)

① N1%

N1% displays Engine Fan Rotation Speed as a percentage. The throttle detent indication is a textual label to identify the specific throttle detent position of the thrust levers. The N1 (V bug) Reference Bug represents a reference or limit value to be used to assist in setting the throttle position. The reference bug is cyan when crew entered and magenta when calculated by TOLD.



Throttle Detent

The Throttle Detent Indication is a textual label to identify the specific throttle detent position of the thrust levers. The throttle detent indication corresponds to information provided by the LH and RH throttle switches.

Indication	Description
CLB	Climb
CRU	Cruise
TO	Takeoff

N1% Fan Synchronization

N1% fan synchronization is indicated by displaying 'SYNC' between the N1% digital displays. Text is green when landing gear is up and black text on an amber background when the landing gear is down.

② Interstage Turbine Temperature

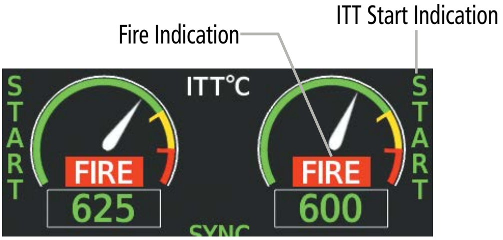
Displays Interstage Turbine Temperature (ITT) in degrees Celsius (°C). The ITT indication consists of a digital display as well as an analog arc display. When the ITT digital display is active, it is displayed in degrees Celsius. The analog arc color band will change during an engine start.

ITT Start Display

'START' is displayed in green text outside of the corresponding engine ITT value when the starter is engaged for the respective engine, or black on amber background when the starter is engaged above 45% N2.

Fire Indication

Red 'FIRE' indications are provided to compliment the existing 'ENGINE FIRE' annunciators in the firetray in the event an engine fire is detected. The 'FIRE' indications are displayed when the existing 'ENGINE FIRE' annunciators in the firetray are active.



③ N2%

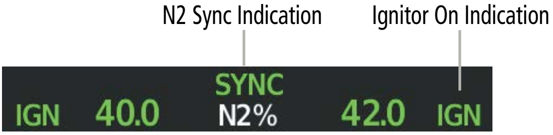
N2% displays turbine/high pressure spool speed as a percentage. N2% digits are green during normal operation (including engine start).

Ignitor Display

'IGN' is displayed in green text outside of the corresponding engine N2% digital value when power is being supplied to the exciter unit.

N2% Synchronization Display

'SYNC' is displayed in green text above 'N2%' to denote N2% fan synchronization.



④ **Oil Pressure**	Displays pressure of oil supplied to the engines in pounds per square inch (PSI)
⑤ **Oil Temperature**	Displays oil temperature in degrees Celsius (°C)
⑥ **OAT**	The following OAT are displayed: Ram Air Temperature (RAT), Static Air Temperature (SAT), Delta ISA - Ram Air Temperature (RAT) is the static air temperature plus the compressive effect of the aircraft airspeed. RAT data is supplied by the right Engine Electronic Controller (EEC). - Static Air Temperature (SAT) is the temperature of the air that would be measured by a stationary thermometer. It is calculated from Total Air Temperature (TAT) and Mach. - Delta ISA is the deviation from International Standard Atmosphere (ISA). Since Delta ISA is a difference, the sign is always shown, even if it is positive. - RAT, SAT, and Delta ISA are displayed in increments of 1°C. The digits are always white. Amber dashes are shown across the display when the RAT value is invalid and the bus is not powered.
⑦ **CAS Display**	Displays Crew Alerting System (CAS) messages. See Crew Alerting System (CAS) in this section for more information.
⑧ **Fuel Flow**	Displays current fuel flow in pounds per hour (PPH)
⑨ **Fuel Quantity**	Displays total fuel quantity in pounds Displays left and right fuel tank quantities Displays fuel temperature in degrees Celsius (°C)

AIRCRAFT SYSTEMS

SYSTEM TESTS

System tests are required for FMS Initialization and should be completed prior to dispatch. The 'System Tests' Screen on the touchscreen controller provides testing functions for the radio altimeter and TCAS.

Touching a button for a specific test activates that particular system test. While a test is active, 'Test In Progress' in will display in the 'Status' Field. The selected button displays "In Progress" in cyan. The "In Progress" text pulses so the crew can quickly identify which test is currently in progress. When the test is complete, the button displays 'Done' (in cyan), or 'Fail' (in amber).

All tests are mutually exclusive. If a system test is selected while another test is already running, the currently active test is cancelled and the new test is activated. Pressing an active system test shall deactivate that test.

Accessing the System Tests:

1) From Home, touch **Aircraft Systems > System Tests**.

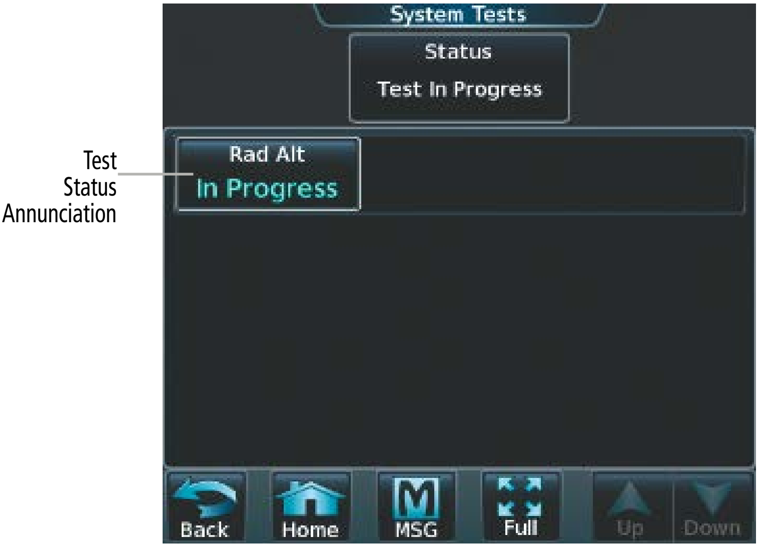
   Or:

   Touch the **System Tests** Button on the 'Initialization' Screen of either Touchscreen Controller.

2) Touch the desired system test.

System Test	Expected Results
Radio Altimeter	- Radio Altimeter indication changes to a 'test' value - RA TEST annunciation displays on PFDs - Altimeter value increases to 40 feet above current altitude for GRA 5500, 50 feet for Collins ALT-55B, or 100 feet above the current altitude for Honeywell RT-300.
TCAS	- If the test passes, a "TCAS System Test passed" aural message is heard - If the test fails, a "TCAS System Test failed" aural message is heard - 'TCAS TEST' indications are shown on the PFDs and on the MFD traffic map. - Red RA visual pitch cues will display on the Vertical Speed Indicator (VSI) and pitch scale.

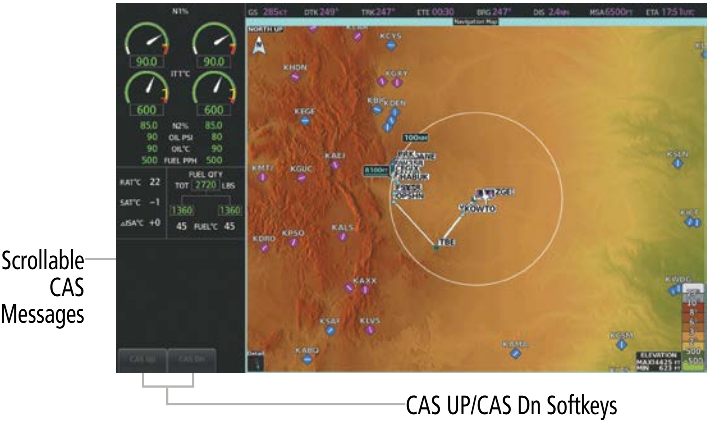
System Tests



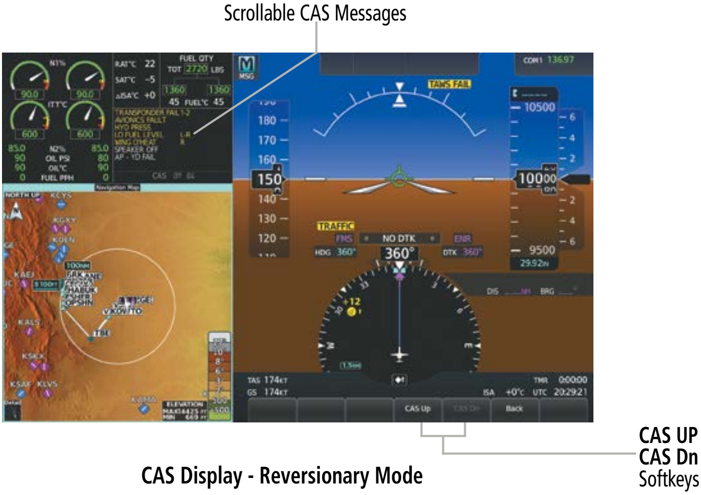
'System Tests' Screen

CREW ALERTING SYSTEM (CAS)

CAS display shows Master Caution (amber) and Master Warning Messages (red), as well as Advisory Messages (White). Messages flash inverse video until acknowledged by depressing the Master Caution or Master Warning switches respectively. Red warning messages cannot be scrolled through and remain at the top of the CAS display. Some alerts include an aural or voice alert. Up to 13 messages can be displayed. Use the **CAS Up** and **CAS Down** Softkeys to scroll through the messages not shown on the display. In Reversionary Mode, press the **CAS** Softkey to access the **CAS Up** and **CAS Down** Softkeys. Caution (amber) and Advisory (white) messages can be scrolled through anytime. A number with an arrow pointer indicates the number of messages currently out of view either up or down.


Scrollable CAS Messages
CAS UP/CAS Dn Softkeys
N1%
ITT°C
N2%
OIL PSI
OIL°C
FUEL PPH
FUEL QTY
CAS Up
CAS Dn

CAS Display - Normal Mode

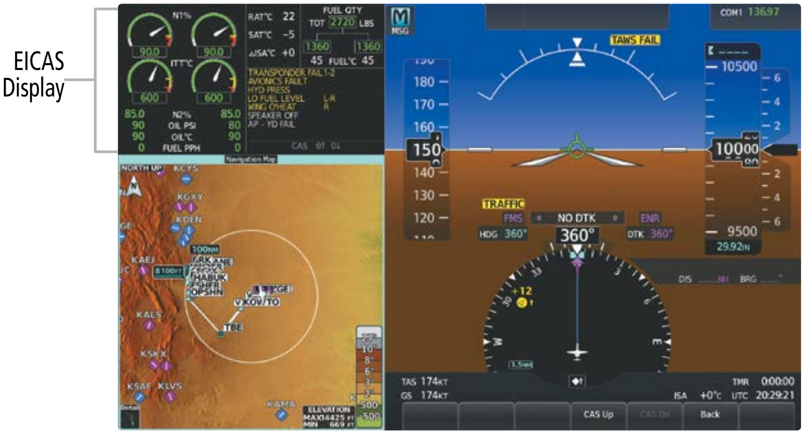

TRANSPONDER FAIL 1-2
AVIONICS FAULT
HYD PRESS
LO FUEL LEVEL L-R
WING O'HEAT R
SPEAKER OFF
AP - YD FAIL

Scrollable CAS Messages
CAS UP
CAS Dn
Softkeys
RAT°C 22
SAT°C -5
ΔISA°C +0
FUEL QTY
TOT 2720 LBS
1360
1360
45 FUEL°C 45
CAS
TAWS FAIL
TRAFFIC
NO DTK
360°
CAS Up
CAS Dn
Back

CAS Display - Reversionary Mode

REVERSIONARY MODE

In the event of a display failure (or in manual reversionary mode), depending on the failed display(s), the operating display(s) may be re-configured to present Primary Flight Display (PFD) symbology together with condensed EICAS and MFD information (refer to the System Overview for more information about Reversionary Mode).


EICAS Display
N1%
90.0
90.0
ITT°C
600
600
85.0 N2% 85.0
90 OIL PSI 80
90 OIL°C 90
0 FUEL PPH 0
RAT°C 22
SAT°C −5
ΔISA°C +0
FUEL QTY
TOT 2720 LBS
1360 1360
45 FUEL°C 45
CAS
Navigation Map
NORTH UP
KCYS
KGXY
KDEN
KAEJ
KALS
KSKX
KSAF
KLVS
KAMA
TBE
KOVTO
100NM
ELEVATION
MAX 14425 FT
MIN 669 FT
COM1 136.97
MSG
TAWS FAIL
TRAFFIC
FMS
NO DTK
ENR
HDG 360°
360°
DTK 360°
180
170
160
150
140
130
120
10500
10000
9500
29.92IN
DIS
BRG
TAS 174KT
GS 174KT
ISA +0°C
TMR 0:00:00
UTC 20:29:21
CAS Up
CAS Dn
Back

TRANSPONDER FAIL 1-2
AVIONICS FAULT
HYD PRESS
LO FUEL LEVEL L-R
WING O'HEAT R
SPEAKER OFF
AP - YD FAIL

EICAS (Reversionary Mode)

NAV/COM/TRANSPONDER/AUDIO

COM OPERATION

Selecting a COM Radio for transmission:

Touch the **MIC** Button in the CNS Bar to switch between COM1 and COM2 radios until the desired COM is selected.

Or:

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 COM radio for transmission.

Selecting a COM Radio for monitoring:

Touch the **MON** Button in the CNS Bar to monitor the COM not selected for transmission.

Or:

1) Touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Touch the **COM1** Button, **COM2** Button, or **COM3** Button to select the COM radio for monitoring.

Enabling COM3 voice communication:

1) Touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) If necessary, scroll to find COM3.
3) Touch the **Datalink** Button.
4) Touch the **OK** Button in response to "Disable Datalink Mode?". To cancel the request, touch the **Cancel** Button.

Disabling COM3 voice communication:

1) Touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) If necessary, scroll to find COM3.
3) Touch the COM3 Frequency Button.
4) Touch the **Datalink** Button to disable COM3 voice communication.

Selecting a COM1 or COM2 frequency using the Touchscreen Controller:

1) Touch the COM1 **STBY** Button or COM2 **STBY** Button in the CNS Bar to display the COM1/COM2 Standby Screen.
2) Use the keypad to select the frequency.
3) Touch the **Enter** Button to accept the new frequency as the COM1/COM2 standby frequency.

Selecting a COM frequency using the PFD Controller:

1) On the PFD Controller, press the **COM/NAV** Button to display the 'COM/NAV' Window on the PFD.
2) Turn the large **PFD** Knob to move the cursor to the Source field.
3) Turn the small **PFD** Knob to select the desired COM.
4) Press the **ENT** Key to accept the selection and move the cursor to the STBY frequency field.

Finding and selecting a COM frequency using the Find Button:

1) From Home, touch the COM1 **STBY** Button or the COM2 **STBY** Button on the CNS Bar to display the COM1/2 Standby Screen.
2) Touch the **Find** Button to display the Find COM1/2/3 Frequency Screen.
3) Touch the tab for the desired type of frequency (Recent, Nearest, Dest, Flight Plan, or Favorite).
4) Scroll the list to find the desired frequency.
5) Touch the frequency button to accept the new frequency as the COM1/COM2/COM3 standby frequency.

Adding a COM frequency to favorites using the CNS bar:

1) From Home, touch **STBY** > **Find** > **Favorite** > **Add Favorite Frequency** > **Name**.
2) Enter the desired frequency name.
3) Touch the **ENTER** Button.
4) Touch the **Frequency** Button.
5) Use the keypad to select the frequency.
6) Touch the **Enter** Button.
7) Touch the **Add Favorite** Button.

Adding a COM frequency to favorites from any 'Load Frequency' Screen:

1) Touch the **Add to Favorites** Button.
2) If desired, touch the **Name** Button to change the name.
3) Touch the **Add Favorite** Button.

Selecting a COM frequency from favorites:

1) From Home, touch **STBY** > **Find** > **Favorite**.
2) Touch the desired frequency button.
3) Touch the **Enter** Button to accept the new frequency as the standby frequency.

Removing a COM frequency from Favorites:

1) From Home, touch **STBY > Find > Favorite**.
2) Touch the **X** Button next to the frequency to be deleted.
3) Touch the **OK** Button to confirm.

Finding and selecting a COM frequency from the 'Airport Information' Screen:

1) From Home, touch **Waypoint Info** > **Airport** to display the 'Airport Information' Screen.
2) If needed, touch the airport button to enter/find the desired airport.
3) Touch the **Freqs** Tab to display the 'Airport Frequencies' Screen.
4) Scroll the list to find the desired frequency.
5) Touch the frequency button to display the 'Load Frequency' Screen.
6) Touch the location button to load the frequency to COM1/2 Active/Standby or Favorites.

Finding and selecting a COM frequency from the 'Nearest Airport' Screen:

1) From Home, touch **Nearest** > **Airport** to display the 'Nearest Airport' Screen.
2) Scroll the list to find the desired airport.
3) Touch the airport button to display the 'Waypoint Options' Window.
4) Touch the **Airport Info** Button to display the 'Airport Information' Screen.
5) Touch the **Freqs** Tab to display the 'Airport Frequencies' Screen.
6) Scroll the list to find the desired frequency.
7) Touch the frequency button to display the 'Load Frequency' Screen.
8) Touch the location button to load the frequency to COM1/2 Active/Standby or Favorites.

Finding and selecting a COM frequency from the Nearest Airspace/ARTCC/FSS/Weather screen:

1) From Home, touch the **Nearest** > (**Airspace** or **ARTCC** or **FSS** or **Weather**) to display the Nearest Airspace/ARTCC/FSS/Weather screen.
2) Scroll the list to find the desired frequency.
3) Touch the frequency button to display the 'Load Frequency' Screen.
4) Touch the location button to load the frequency to COM1/2 Active/Standby or Favorites.

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 desired channel spacing button.

Selecting HF COM Radio for transmission:

1) Touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Touch the HF **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.

Entering the SELCAL Code:

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

Selecting/deselecting SELCAL:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find **SELCAL**.
3) Touch the **SELCAL** Button.

Receiving and Acknowledging a SELCAL transmission:

1) If necessary, touch the **SELCAL** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find the **SELCAL ACK** or **SELCAL ACK ALL** annunciations/buttons.
3) Touch the **SELCAL ACK** Button or the **SELCAL ACK ALL** Button.
4) Touch the appropriate Radio Button (COM3 or HF) to transmit and receive on that radio.

NAV OPERATION

Selecting/deselecting a navigation radio for monitoring:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Touch the **NAV1** or **NAV2** Button on the 'Audio & Radios' Screen to select/deselect the radio for monitoring.

Selecting a NAV frequency using the Touchscreen Controller:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find **NAV1** or **NAV2**.
3) Touch the NAV1/NAV2 frequency button to display the NAV1/NAV2 Standby screen.
4) Use the keypad to select the desired frequency.
5) Touch the **Enter** Button to enter the new frequency as the NAV1/NAV2 standby frequency.

Transferring the active and standby NAV frequencies:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find NAV1 or NAV2.
3) Touch the NAV1 or NAV2 volume slider to select the radio for frequency transfer.
4) Push and hold the small right knob to transfer the frequencies.

Selecting a NAV frequency using the PFD Controller:

1) On the PFD Controller, press the **COM/NAV** Key to display the 'COM/NAV 'Window.
2) Turn the large **PFD** Knob to move the cursor to the Source field.
3) Turn either **PFD** Knob to select the desired NAV.
4) Press the **ENT** Key or push the small **PFD** Knob to accept the selection and move the cursor to the STBY frequency field.
5) Turn the small **PFD** Knob one click to activate the editing cursor (flashing).
6) Turn the large and small **PFD** knobs to tune the frequency (Large knob increases/decreases MHz; Small knob increases/decreases kHz)
7) Press the **ENT** Key or push the small **PFD** Knob to accept the selection and move the cursor to the XFER? field.
8) Press the **ENT** Key or push the small **PFD** Knob to transfer the standby frequency to the active frequency.

Viewing Current NAV selections from any NAV 'Load Frequency' Screen:

1) From any NAV 'Load Frequency' Screen, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen with the current NAV selections in view.
2) Touch the **Back** Button to return to the 'Load Frequency' Screen.

Adding a NAV frequency to favorites using the CNS bar:

1) From Home, touch **STBY > Find > Favorite > Add Favorite Frequency > Name**.
2) Enter the desired frequency name.
3) Touch the **ENTER** Button.
4) Touch the **Frequency** Button.
5) Use the keypad to select the frequency.
6) Touch the **Enter** Button.
7) Touch the **Add Favorite** Button.

Adding a NAV frequency to favorites from any 'Load Frequency' Screen:

1) Touch the **Add to Favorites** Button.
2) If desired, touch the **Name** Button to change the name.
3) Touch the **Add Favorite** Button.

Selecting a NAV frequency from favorites:

1) From Home, touch the **Audio & Radios** Button.
2) Touch any NAV Frequency Button.
3) Touch the **Find** Button.
4) Touch the **Favorite** Tab.
5) Touch the desired frequency button.
6) Touch the **Enter** Button to accept the new frequency as the standby frequency.

Removing a NAV frequency from favorites:

1) From Home, touch the **Audio & Radios** Button.
2) Touch any NAV Frequency Button.
3) Touch the **Find** Button.
4) Touch the **Favorite** Tab.
5) Touch the **X** Button next to the frequency to be deleted.
6) Touch the **OK** Button to confirm.

Finding and selecting a NAV frequency from the 'Airport Information' Screen:

1) From Home, touch **Waypoint Info** > **Airport** to display the 'Airport Information' Screen.
2) If needed, touch the airport button to enter/find the desired airport.
3) Touch the **Freqs** Tab to display the 'Airport Frequencies' Screen.
4) Scroll the list to find the desired frequency.
5) Touch the frequency button to display the 'Load Frequency' Screen.
6) Touch the desired location button to load the frequency to NAV1/2 Active/Standby or Favorites.
7) Touch the **Done** Button to return to the 'Airport Frequencies' Screen.

Finding and selecting a NAV frequency from the 'VOR Information' Screen:

1) From Home, touch **Waypoint Info** > **VOR** to display the 'VOR Information' Screen.
2) If needed, touch the VOR button to enter/find the desired airport.
3) Touch the **Frequency** Button to display the 'Load Frequency' Screen.
4) Touch the desired location button to load the frequency to NAV1/2 Active/Standby or Favorites.
5) Touch the **Done** Button to return to the 'VOR Information' Screen.

Finding and selecting a NAV frequency from the 'Nearest Airport' Screen:

1) From Home, touch **Nearest** > **Airport** to display the 'Nearest Airport' Screen.
2) Scroll the list to find the desired airport.
3) Touch the airport button to display the Waypoint Options Window.
4) Touch the **Airport Info** Button to display the 'Airport Information' Screen.

5) Touch the **Freqs** Tab to display the 'Airport Frequencies' Screen.
6) Scroll the list to find the desired frequency.
7) Touch the frequency button to display the 'Load Frequency' Screen.
8) Touch the desired location button to load the frequency to NAV1/2 Active/Standby or Favorites.
9) Touch the **Done** Button to return to the 'Airport Frequencies' Screen.

Finding and selecting a NAV frequency from the 'Nearest VOR' Screen:

1) From Home, touch the **Nearest** > **VOR** to display the 'Nearest VOR' screen.
2) Scroll the list to find the desired frequency.
3) Touch the frequency button to display the 'Load Frequency' Screen.
4) Touch the desired location button to load the frequency to NAV1/2 Active/Standby or Favorites.
5) Touch the **Done** Button to return to the 'Nearest VOR' screen.

ADF/DME TUNING

Selecting an ADF frequency:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find the ADF.
3) Touch the ADF Control Button to display the 'ADF' 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.

Finding and selecting an ADF frequency:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find the ADF.
3) Touch the ADF Control Button to display the 'ADF' Screen.
4) Touch the **Find** Button to display the 'Find ADF Frequency' Screen.
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.

Transferring the active and standby ADF frequencies:

1) From Home, touch the **Audio & Radios** Button 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) Push and hold the small right knob to transfer the frequencies.

Selecting an ADF receiver mode:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find the ADF.
3) Touch the ADF Control Button to display the 'ADF' Screen.
4) Touch the **ANT**, **ADF**, **ADF/BFO**, or **ANT/BFO** Button to select the ADF mode.

Selecting DME transceiver pairing:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) Scroll the list to find the DME.
3) Touch the DME Mode Control Button to display the DME1/DME2 Screen.
4) Touch the **NAV1**, **NAV2**, or **HOLD** Button to select desired DME mode. DME information will be displayed on the PFD in the Active NAV Source/Frequency Box. An 'H' next to the frequency indicates DME Hold mode.

MODE S TRANSPONDER

Selecting the active transponder:

1) Touch the Transponder Mode Button to display the 'Transponder' Screen.
2) Touch the **Active** Button to display 'Select Active Transponder' Screen.
3) Touch the **XPDR1** or **XPDR2** Button.

Selecting a transponder mode:

1) Touch the Transponder Mode Button to display the 'Transponder' Screen.
2) Touch desired Transponder Mode Button.

Entering a transponder code with the keypad:

1) Touch the Transponder Code Button to display the 'Transponder 1' Screen or the 'Transponder 2' Screen.
2) Use the keypad to select the desired code.
3) Touch the **Enter** Button to enter the new code.

Entering a transponder code with the knobs:

1) Touch the Transponder Code Button to display the 'Transponder 1' Screen or the 'Transponder 2' Screen.
2) Turn the large right knob one click left or right to place the editing cursor on the first digit of the existing code.
3) Turn the small right knob to enter the first digit.
4) Turn the large right knob to move the cursor to the next digit.
5) Turn the small right knob to enter the next digit, repeat steps 4 and 5 until complete.
6) Touch the **Enter** Button to enter the new code.

Entering a Flight ID:

1) From Home, touch the Transponder Mode Button.
2) Touch the **Flight ID** Button to display the keypad.
3) Use the keypad to select the desired flight ID.
4) Touch the **Enter** Button to enter the new flight ID.

CONTROLLER PILOT DATA LINK COMMUNICATIONS

Enabling the Datalink from the 'Audio & Radios' Screen:

1) Touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
2) If the COM3 Frequency is enabled, touch the COM3 Frequency Button.
3) Touch the **Datalink** Button.

Enabling/disabling ACARS: (FANS 1/A+ and FAA Data Comm)

1) From Home, touch **Services** > **ACARS** > **ACARS Settings** > **ACARS Enabled**.
2) Touch the **ACARS Enabled** Button to enable (green annunciation).
3) Touch the **ACARS Enabled** Button again to disable. A confirmation screen is displayed.
4) Touch the **OK** Button to disable (gray annunciation).

Setting up Logon:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Status** Tab to display the Logon Setup buttons.
3) Touch the **Facility** Button to display the 'ATC Facilities Lookup' Screen.
4) Enter the desired facility using the keypad and touch the **Enter** Button.
5) Touch the **Flight ID** Button to display the 'Flight ID' Screen.
6) Enter the Flight ID or aircraft registration number.
7) Touch the **Enter** Button. The Flight ID number is displayed in the **Flight ID** Button.
8) Touch the **Destination Airport** Button to display the 'Destination Airport' Screen.
9) Enter the airport identifier for the destination airport used in the filed flight plan.
10) Touch the **Enter** Button. The airport identifier is displayed in the **Destination Airport** Button.
11) The Filed Departure Airport Button is populated with the airport identifier corresponding to the current aircraft location, in this case KOJC. If the flight plan was filed using a different airport identifier, touch the **Filed Dep Airport** Button and enter the appropriate airport identifier.
12) Touch the **Filed Dep Time** Button to display the 'Filed Departure Time' Screen.
13) Enter the departure time used in filing the flight plan.
14) Touch the **Enter Button**.

15) Touch the **OK** Button when prompted to confirm departure time. The departure time is displayed in the **Filed Dep Time** Button.

Performing the system log-on:

1) After performing the previous Logon Setup procedure, verify the link status display indicates a link with a ground station is available. An available link is indicated by a solid green line between the aircraft symbol and the ground station antenna symbol.
2) Touch the **Logon** Button. The link status display indicates 'Connecting' with an animated dashed green line between the ground station antenna symbol and the ATC facility symbol. Touching the **Cancel** Button will terminate the logon process. When connection is complete, the display indicates 'Connected' with a solid green line between the ground station antenna symbol and the ATC facility symbol. The 'Next Facility' field will be automatically populated by the Current Data Authority at a later time.

Creating a CPDLC Message from a pre-determined list of requests:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Create Message** Button to display the 'Select Message Group' Screen.
3) Touch the **Vertical Requests** Button to display the 'Select Message' Screen.
4) Touch the **Request Level** Button to display the 'New CPDLC Message' Screen.
5) Touch the **Request Level** Button to display the "Altitude Entry' Screen.
6) Touch the desired altitude mode button. Link 2000+ has two altitude modes (Flight Level and FT). FANS 1/A+ and FAA Data Comm have three altitude modes (Flight Level, MSL, and AGL). A green annunciation indicates the selected mode.
7) Use the keypad to enter the requested altitude.
8) Touch the **Enter** Button and the requested altitude is displayed in the **Request Level** Button.
9) Touch the **Reason** Button (optional information, the message can be sent without it). A list of pertinent reasons is presented.
10) Touch the desired reason.
11) Touch the **Send** Button.

Creating a Message using the free text format: (FANS 1/A+ only)

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Create Message** Button to display the 'Select Message Group' Screen.
3) Touch the **Additional Messages** Button to display the 'Select Message' Screen.
4) Touch the **Free Text - Normal** or **Free Text - Distress** Button to display the 'New CPDLC Message' Screen.
5) Touch the **Free Text Message** Button to display the 'New CPDLC Message' Screen.
6) Enter the desired text message.

7) Touch the **Enter** Button.
8) Touch the **Send** Button.

ARMED MESSAGES (FANS 1/A+ AND FAA DATA COMM ONLY)

Flight Crew Armed Uplink MessagesArming a message report to send automatically:

1) From Home, touch the **ATC Datalink** Button.
2) If necessary, touch the **CPDLC** Tab. A list of message dialogs is displayed.
3) Touch the appropriate message dialog box to display the message thread.
4) Touch the **Arm Report** Button. A confirmation prompt appears with the conditions that will trigger the message to be sent.
5) Touch the **OK** Button to arm the report. The message report will be automatically sent when the specified conditions are met.

Viewing Armed Messages:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Options** Button to display the 'CPDLC Options' Screen
3) Touch **Armed Message Status** to display the 'Armed Message Status' Screen.

Cancelling Armed Messages:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Options** Button to display the 'CPDLC Options' Screen.
3) Touch **Armed Message Status** to display messages that are currently armed.
4) Touch the **Cancel** Button on the message that is to be cancelled. A confirmation window is displayed.
5) Touch **OK** to cancel the armed message.

DEPARTURE CLEARANCE (FANS 1/A+ AND FAA DATA COMM ONLY)

Responding to a departure clearance:

1) From Home, touch the **ATC Datalink** Button.
2) If necessary, touch the **CPDLC** Tab.
3) Touch the message dialog box to view the departure message thread.
4) Touch the **Standby** Button to send the Standby message to ATC.
5) Touch the **Yes** Button to choose the individual elements of the DCL to import. Touch the **No** Button to return to the 'CPDLC Thread' Screen with no change.

Viewing messages:

1) From Home, touch the **ATC Datalink** Button.
2) If necessary, touch the **CPDLC** Tab. A list of message dialogs is displayed.
3) Touch a message dialog box to display the message thread.

Deleting a single message dialog:

1) From Home, touch the **ATC Datalink** Button.
2) If necessary, touch the **CPDLC** Tab.
3) Touch the message dialog to open the message thread.
4) Touch the **Delete** Button. A confirmation window is displayed.
5) Touch the **OK** Button to delete the message dialog

Deleting all closed message dialogs:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Option** Button to display the 'CPDLC Options' Screen.
3) Touch the **Delete Closed Messages** Button. A confirmation window is displayed.
4) Touch the **OK** Button. All closed message dialogs are deleted.

LATENCY TIMER (FANS 1/A+ ONLY)

Setting Latency Timer:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **Options** Button to display the 'CPDLC Options' Screen.
3) Touch the **Latency Timer** Button to display the keypad.
4) Enter the desired time for message latency and touch the **Enter** Button.
5) Touch the **Clear Timer** Button to reset the time value to zero.

ADS-C SESSION OVERVIEW (FANS 1/A+ ONLY)

Enabling ADS-C connections:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **ADS-C** Tab to display the ADS-C Connections Screen.
3) Touch the **ADS-C Enabled** Button.

Viewing ADS-C connection details:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **ADS-C** Tab to display the ADS-C Connections Screen.
3) Touch the desired Connection Button to display the 'Connection Details' Screen.

Initiating the ADS-C Emergency Mode:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **ADS-C** Tab to display the ADS-C Connections Screen.
3) Touch the **Emergency Mode** Button.
4) An "Initiate ADS-C Emergency Mode" prompt will appear. Press the **OK** Button.

Disabling ADS-C connections:

1) From Home, touch the **ATC Datalink** Button.
2) Touch the **ADS-C** Tab to display the ADS-C Connections Screen.
3) Touch the **ADS-C Enabled** Button to disable ADS-C connections.
4) A "Terminate all ADS-C connections and contracts" prompt will appear. Press the **OK** Button.

Disconnecting from the CPDLC System:

1) From Home, touch the **ATC Datalink** Button.
2) If necessary, touch the **Status** Tab.
3) Touch the **Logoff** Button.

Activating/Deactivating CPDLC Test mode:

1) From Home, touch the **Utilities** Button.
2) Touch the **Setup** Button.
3) Touch the **ATC Settings** Button.
4) Touch the **CPDLC Test Mode** Button to activate/deactivate the CPDLC Test Mode.
5) When activating the CPDLC Test Mode, a prompt screen will ask if you want to enter CPDLC test mode. Press the **OK** Button.

ADDITIONAL AUDIO FUNCTIONS

Adjusting the intercom volume:

1) From Home, touch the **Intercom** Button to display the 'Intercom' Screen.
2) Touch the Pilot/Copilot Volume Button to display the Pilot/Copilot Intercom Settings Screen.
3) Adjust the volume by using the middle knob or by sliding your finger on the volume slider.

Adjusting the intercom VOX Mic for the Pilot and Copilot:

1) From Home, touch the **Intercom** Button to display the 'Intercom' Screen.
2) Touch the **Pilot Volume** or **Copilot Volume** button to display the Pilot or Copilot Intercom Settings Screen.
3) Touch the VOX Mic **Manual** Button.
4) Adjust the VOX Mic by using the middle knob or by sliding your finger on the squelch slider.

Setting the intercom VOX Mic to Auto for the Pilot and Copilot:

1) From Home, touch the **Intercom** Button to display the 'Intercom' Screen.
2) Touch the **Pilot Volume** or **Copilot Volume** Button to display the Pilot or Copilot Intercom Settings Screen.
3) Touch the VOX Mic **Auto** Button.

Selecting the PA system for transmission:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.

2) Scroll the list to find the PA.

3) Touch the **PA** Button on the 'Audio & Radios' Screen to select the PA for transmission.

Enabling/disabling 3D Audio on the Pilot or Copilot Touchscreen Controller:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.

2) Touch the **Audio** Tab.

3) Touch the 3D Audio Button. A green annunciation indicates the feature is enabled.

Enabling/disabling Left-Right Swap on the Pilot or Copilot Touchscreen Controller:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.

2) Touch the **Audio** Tab.

3) Touch the L-R Swap Button. A green annunciation indicates the feature is enabled.

Selecting/Deselecting SiriusXM Audio:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.

2) Scroll the list to find the **SAT Music** Button.

3) Touch the **SAT Music** Button to select/deselect the SiriusXM Radio input for the selected position (pilot or copilot).

Configuring SiriusXM audio Mute Settings:

1) From Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.

2) Scroll the list to find **SAT Music**.

3) Touch the **Mute Settings** Button to display the 'SAT Music Mute Settings' Screen.

4) Select the **Intercom** and/or the **Radio Inputs** Button to select which items will mute SiriusXM audio.

FLIGHT MANAGEMENT

Changing a field in the MFD Navigation Data Bar:

1) From Home, touch **Utilities** > **Setup > Avionics Settings.**
2) Touch the **MFD Fields** Tab.
3) Touch the desired MFD Data Bar Field button. The respective 'Select MFD Data Bar Field' Screen will open.
4) Scroll as required and touch the desired field description to replace the previous information.
5) Repeat Steps 3 and 4, as necessary.

USING MAP DISPLAYS

Viewing the map settings:

1) From Home, touch **Map**.
2) Touch the **Map Selection** Button, if necessary. This button is only available if IFR/VFR charts are installed.
3) Touch the **Map Settings** Button. The 'Map Settings' Screen is displayed.

Or:

1) From Home, touch **Flight Plan**.
2) Touch the **Flight Plan Options** Button.
3) Touch the **Map Settings** Button. The 'Map Settings' Screen is displayed.

MAP SETTINGS SYNCHRONIZATION

Enabling/disabling map settings synchronization:

1) From Home, touch **Map** > **Map Selection > Map Settings** > **Map Sync**.
2) Touch the **Onside** Button or the **All** Button.
3) Touch the **L PFD**, **MFD Left**, **R PFD**, or **MFD Right** Button to initially synchronize the onside map settings or all map settings with the selected display.

Or:

Touch the **Off** Button to disable synchronization.

MAP ORIENTATION

Changing the map display orientation:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Orientation** Button.
3) Touch the **Heading Up**, **Track Up**, or **North Up** Button to select the orientation.

Enabling/disabling North Up Above and selecting the minimum switching range:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Other** Tab to display the options list.
3) Touch the **North Up Above** Button to enable/disable the function.
4) Touch the North Up Above range button to display the 'Map North Up Above' Window.
5) Scroll the list if necessary to find the desired range, and touch the range button.

MAP RANGE

Auto Zoom

Configuring automatic zoom:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Other** Tab to display the options list.
3) Touch the **Auto Zoom** Button to enable/disable auto zoom.
4) Touch the Auto Zoom **Settings** Button to display the 'Auto Zoom Settings' Screen.
5) Touch the **Auto Zoom Max Look Fwd** Button to display the numeric keyboard.
6) Use the keypad to enter the maximum look forward time. Times are from zero to 999 minutes.
7) Repeat Steps 5 and 6 for 'Auto Zoom Min Look Fwd' (zero to 99 minutes) and 'Auto Zoom Time Out' (zero to 99 minutes) functions using the corresponding button names.

Panning the map:

1) Push the **Joystick** to display the Map Pointer.
2) Move the **Joystick,** or slide your finger on the **Touchpad**, to move the Map Pointer on the map. The map will pan when the pointer approaches the edge of the map.
3) Push **Joystick** to remove the Map Pointer and recenter the map on the aircraft's current position.

   Or:

   Touch the **Back** Button on the Touchscreen Controller to remove the Map Pointer and recenter the map on the aircraft's current position.

Reviewing information for a waypoint or airspace:

1) Place the Map Pointer on an airport, intersection, NAVAID, VRP, user waypoint, or airspace.
2) Touch the **Info** Button to display the respective information screen.
3) Touch the **Back** Button on the Touchscreen Controller to return to the 'Map Pointer Control' Screen without removing the Map Pointer from the map.

   Or:

   Push the **Joystick** to exit the waypoint information screen, remove the Map Pointer and recenter the map on the aircraft's current position.

MEASURING BEARING AND DISTANCE

Measuring bearing and distance between the aircraft present position and any other point:

1) Push the **Joystick**. (Measure Pointer functionality is not available for traffic and terrain panes.)

2) Touch the **BRG/DIS** Button. A Measure Pointer is displayed on the map at the aircraft's present position.

3) Move the pointer using the **Joystick** or the **Touchpad** to the desired location. A dashed Measurement Line is drawn from the aircraft present position to the location of the Measure Pointer. The latitude/longitude, distance, bearing and elevation data of the Measure Pointer are displayed at the top left of the map. Move the pointer again to measure to any other point.

4) To exit the Measure Bearing/Distance function, push the **Joystick** or touch the **Back** Button.

Measuring bearing and distance between any two points:

1) Push the **Joystick**. (Measure Pointer functionality is not available for traffic and terrain panes.)

2) Touch the **BRG/DIS** Button. A Measure Pointer is displayed on the map at the aircraft's present position.

3) Move the pointer using the **Joystick**, or the **Touchpad** to the desired reference location. A dashed Measurement Line is drawn from the aircraft present position to the location of the Measure Pointer. The latitude/longitude, distance, bearing and elevation data of the Measure Pointer are displayed at the top left of the map.

4) Touch the **Select Ref** Button to set the Measure Pointer location as the new reference point for measurement. The dashed Measurement Line is erased.

5) Move the pointer using the **Joystick**, or the **Touchpad** to the desired location. A dashed Measurement Line is drawn from the reference point to the location of the Measure Pointer. The latitude/longitude, distance, bearing and elevation data of the Measure Pointer are displayed at the top left of the map.

6) Repeat Steps 3 through 5 to measure between other points.

7) To exit the Measure Bearing/Distance function, push **Joystick**, or touch the **Back** Button.

ABSOLUTE TERRAIN

Displaying/removing absolute terrain data:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) Touch the **Sensor** Tab, if necessary.

3) Touch the **Terrain** Button to display the 'Map Terrain Displayed' Window.

4) Touch the **Absolute** Button to display absolute terrain data, or touch the **Off** Button to remove absolute terrain data.

Displaying/removing absolute terrain data on the PFD Map:

1) Press the **PFD Map Settings** Softkey on the PFD.
2) Display or remove absolute terrain data:

   Press the **Terrain** Softkey until **Absolute** is selected to display absolute terrain data.

   Or:

   Press the **Terrain** Softkey until **Off** is selected to remove absolute terrain data.

Selecting an absolute terrain data range:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Sensor** Tab, if necessary.
3) Touch the Terrain **Settings** Button. A window is displayed providing terrain functions allowed by the system.
4) Touch the **Map Settings** Button. A window is displayed providing terrain settings.
5) Touch the **Terrain** Button to display the 'Map Terrain Range' Window.
6) Scroll the list if necessary to find the desired range, and touch the range button.

Displaying/removing the absolute terrain scale:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Sensor** Tab, if necessary.
3) Touch the Terrain **Settings** Button. A window is displayed providing terrain functions allowed by the system.
4) Touch the **Map Settings** Button. A window is displayed providing terrain settings.
5) Touch the **Absolute Terrain Scale** Button to display/remove the absolute terrain scale.

Symbol Setup

Displaying/removing a land or aviation symbol type:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Aviation** Tab or the **Land**, Tab, if necessary.
3) Scroll the list to find the desired item.
4) Touch the annunciator button to display/remove the symbol type.

Displaying and removing airspace altitude labels:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Aviation** Tab.
3) Touch the Airspaces **Settings** Button to display the 'Airspace Settings' Screen.
4) Touch the **Airspace Altitude Labels** Button to display/remove the labels.

Selecting an Aviation or Land item maximum range:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Aviation** Tab or **Land** Tab, if necessary.
3) Scroll the list to find the desired item.
4) If necessary, touch the **Settings** Button to display the range buttons.
5) Touch the range button to display the range choices.
6) Touch a range selection button to select the maximum range.
7) Repeat Steps 3 through 6 as necessary.

Displaying/removing the VOR compass rose:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Aviation** Tab, if necessary.
3) Scroll the list to find the VOR buttons.
4) Touch the VOR **Settings** Button to display the 'VOR Settings' Window.
5) Touch the **Compass Rose** Button to display/remove the VOR compass rose.

Map Detail

Adjusting the map detail:

1) From Home, touch **Map** > **Map Selection** > **Map Settings > Map Detail**.
2) Slide up or down on the Map Detail Slider to adjust the map detail.

Adjusting the PFD Map Detail:

1) Press the **PFD Map Settings** Softkey on the PFD.
2) Press the **Detail** Softkey, as required, to cycle to the desired PFD Map detail.

ADDITIONAL MAP DISPLAY ITEMS

Displaying/removing other map items:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Other** Tab, if needed.
3) Scroll as required and touch the desired button to display/remove Map Items:

Track Vector

Selecting track vector look-ahead time:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Other** Tab, if needed.
3) Touch the Track Vector Time Button to display the time selection buttons in the 'Map Track Vector Time' Window.
4) Scroll the list, if needed, and touch a time selection button to select the look-ahead time.

Fuel Range Ring

Selecting fuel reserve time:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Other** Tab, if needed.
3) Touch the Fuel RNG (RSV) Time Button to display the keypad.
4) Use the keypad to enter the fuel reserve time.

Latitude/Longitude Lines

Selecting the lat/lon line maximum range:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Other** Tab, if necessary.
3) Touch the latitude/longitude lines range button to display the range selection buttons.
4) Touch a range selection button to select the maximum map display range.

WAYPOINTS

AIRPORTS

Selecting an airport for review by identifier:

1) From Home, touch **Waypoint Info** > **Airport**.
2) Touch the **Info** Tab, if necessary.
3) Touch the Selected Airport Button to display the keypad.
4) Use the keypad to enter the airport identifier.
5) Touch the **Enter** Button to accept the identifier and display the airport information on the Touchscreen Controller.
6) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the 'Airport Information' Pane, if necessary.

Finding and selecting an airport for review by facility name or city name:

1) From Home, touch **Waypoint Info** > **Airport**.
2) Touch the **Info** Tab, if necessary.
3) Touch the Selected Airport Button to display the keypad.
4) Touch the **Find** Button to display the 'Find Waypoint' Screen.
5) Touch the **Search** Tab to display the **Search By** Button.
6) If necessary, touch the **Search By** Button to choose Search by City or Search by Facility.
7) Touch the **Facility Name** Button or the **City Name** Button to display the keypad.
8) Use the keypad to enter the name.
9) Touch the **Enter** Button to accept the entry and display the search results.

10) Touch an airport selection button to display the airport information on the Touchscreen Controller.

11) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the 'Airport Information' Pane, if necessary.

Finding and selecting an airport for review by category (Recent, Nearest, Flight Plan, or Favorites):

1) From Home, touch **Waypoint Info** > **Airport**.
2) Touch the **Info** Tab, if necessary.
3) Touch the Selected Airport Button to display the keypad.
4) Touch the **Find** Button to display the 'Find Waypoint' Screen.
5) Touch the **Recent** Tab, **Nearest** Tab, **Active Flight Plan** Tab, or the **Favorites** Tab to display a list of airports in the selected category.
6) Touch an airport selection button to display the airport information on the Touchscreen Controller.
7) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the 'Airport Information' Pane, if necessary.

Selecting a runway:

1) From Home, touch **Waypoint Info** > **Airport**.
2) Touch the **Runways** Tab to display the runway information buttons.
3) Touch a Runway Information Button to select the runway.
4) Touch the **Waypoint Options** Button, then the **Show on Map** Button to view the runway on the active display pane, if necessary.

Nearest Airport

Viewing information for a nearest airport:

1) From Home, touch **Nearest** > **Airport**.
2) Touch a nearest airport button to display the 'Waypoint Options' Window. If necessary, touch the **Show On Map** Button to highlight the airport on the 'Nearest Airport' Pane.
3) Touch the **Airport Info** Button to display the 'Airport Information' Screen.
4) Touch any tab to display the desired information on the Touchscreen Controller.

Selecting nearest airport surface matching criteria:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **System** Tab, if necessary.
3) Scroll the list to display the Nearest Airport Runway Surface Button.
4) Touch the Nearest Airport Runway Surface Button to display the surface choices.
5) Touch a Surface Selection Button to set the surface criteria.

Selecting nearest airport minimum runway length matching criteria:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**.
2) Touch the **System** Tab, if necessary.
3) Scroll the list to display the Nearest Airport MIN RWY Length Button.
4) Touch the Nearest Airport MIN RWY Length Button to display the keypad.
5) Use the keypad to enter the minimum length.
6) Touch the **Enter** Button to accept the length criteria.

NON-AIRPORT AND USER CREATED WAYPOINTS

Waypoint Information

Selecting a non-airport waypoint or User Waypoint:

1) From Home, touch the **Waypoint Info** Button**.**
2) Select the **INT, VRP, VOR, NDB,** or **User Waypoint** Button.
3) Choose the desired waypoint:
    a) Touch the Selected Waypoint or available user waypoint button to display the keypad.
    b) Use the keypad to enter the identifier or name.
    c) Touch the **Enter** Button to accept the identifier and display the waypoint's information on the Touchscreen Controller.

    Or:

    a) For choosing a User Waypoint, touch the **WPT List** Tab.
    b) Touch the desired waypoint button.
4) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the Intersection, VRP, VOR, NDB, or User Waypoint Information Pane, if needed.

Finding and selecting a non-airport or User Waypoint by category (Recent, Nearest, Flight Plan, or Favorites):

1) From Home, touch **Waypoint Info > INT, VRP, VOR, NDB** or **User Waypoint.**
2) Touch the Selected Waypoint Button to display the keypad.
3) Touch the **Find** Button to display the 'Find Waypoint' Screen.
4) Touch the **Recent** Tab, **Nearest** Tab, **Active Flight Plan** Tab, or the **Favorites** Tab to display a list of waypoints in the selected category.
5) Touch a Waypoint Selection Button to display that waypoint's information on the Touchscreen Controller.
6) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the Intersection, VRP, VOR, NDB, or User WPT Information Pane, if needed.

Finding and selecting a non-airport waypoint for review by facility name or city name:

1) From Home, touch **Waypoint Info > INT, VRP, VOR,** or **NDB.**
2) Touch the Selected 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 needed, 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 Waypoint Selection Button to display the waypoint information on the Touchscreen Controller.
10) Touch the **Waypoint Options** Button, then the **Show on Map** Button to display the Intersection, VRP, VOR, NDB, or User WPT Information Pane, if needed.

Nearest Waypoints

Viewing information for nearest Intersection, VRP, VOR, NDB, or User Waypoint:

1) From Home, touch **Nearest > INT, VRP, VOR, NDB,** or **User.**
2) Touch a Nearest Waypoint Button to display the 'Waypoint Options' Window.
3) Touch the **Show on Map** Button to display the Nearest Intersection/VRP/VOR/NDB/User pane, if needed.
4) Touch the **Intersection**, **VRP**, **VOR**, **NDB**, or **User Waypoint Info** Button to display the selected waypoint's information screen.

User Waypoints

Creating user waypoints from the 'Create User Waypoint' Screen:

1) From Home, touch **Waypoint Info**.
2) Access the 'Create User Waypoint' Screen:

   Touch the **Create Waypoint** Button.

   Or:

   a) Touch the **User Waypoint** Button.
   b) Touch the **WPT List** Tab.
   c) Touch the **Add User Waypoint** Button.
3) Touch the User Waypoint Name Button to display the keypad.
4) Use the keypad and the **Enter** Button to select a User Waypoint Name (up to six characters).
5) If desired, touch the **Type** Button to open the 'Select User Waypoint Type' Screen to change the setting from Route to Airport.

   a) Touch the **Airport** Button.
   b) Touch the **Elevation** Button.
   c) Use the keypad and the **Enter** Button to select the airport elevation.

6) If desired, define the location parameters of the waypoint in one of the following ways:
   a) Touch the **Mode** Button to display the 'Select User Waypoint Mode' Screen.
   b) Touch the **RAD/DIS** Button to select the bearing/distance from a waypoint.
   c) Touch the **REF** Button to display the keypad.
   d) Use the keypad and the **Enter** Button, or the Find function, to select the reference 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 **Mode** Button to display the 'Select User Waypoint Mode' Screen.
   b) Touch the **RAD/RAD** Button to select the bearings from two waypoints.
   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 through F for the second reference waypoint (**REF2** Button) and radial (**RAD2** Button).

   Or:

   a) Touch the **Mode** Button to display the 'Select User Waypoint Mode' Screen.
   b) Touch the **LAT/LON** Button to select the latitude/longitude mode.
   c) Touch the **LAT/LON** Button to display the keypad.
   d) Use the keypad and the **Enter** Button to select the latitude and longitude.

   Or:

   a) Touch the **Mode** Button to display the 'Select User Waypoint Mode' Screen.
   b) Touch the **P. POS** Button to select the present position type as defined by latitude/longitude values.

7) 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.

8) 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 subdued, the waypoint is stored until manually erased.

9) 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 displays:

1) Push the **Joystick** to activate the panning function and display the 'Map Pointer Control' Screen on the Touchscreen Controller.

2) Use the **Joystick** 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, touch the **Type** Button to open the 'Select User Waypoint Type' Screen to change the setting from Route to Airport:
   a) Touch the **Airport** Button.
   b) Touch the **Elevation** Button
   c) Use the keypad and the **Enter** Button to select the airport elevation.

7) 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.

8) Touch the **Create** Button to create the new waypoint.

9) Touch the **Back** Button to deactivate the panning function and return to the previous display on the Touchscreen Controller.

Editing a user waypoint comment:

1) From Home, touch **Waypoint Info** > **User Waypoint**.

2) If needed, 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 Home, touch **Waypoint Info** > **User Waypoint**.
2) If needed, 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, mode, elevation, and location:

1) From Home, touch **Waypoint Info** > **User Waypoint**.
2) If needed, 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) To edit the type of User Waypoint:
    a) Touch the **Type** Button to display the 'User Waypoint Type' Window.
    b) Touch the **Route** Button to select the type and return to the previous screen.

    Or:

    a) Touch the **Type** Button to display the 'User Waypoint Type' Window.
    b) Touch the **Airport** Button or the **Heliport** Button to select the type and return to the previous screen.
    c) Touch the **Elevation** Button.
    d) Use the keypad and the **Enter** Button to select the airport elevation and return to the previous screen.
6) To edit the mode of User Waypoint:
    a) Touch the **Mode** Button to display the 'Select User Waypoint Mode' Window.
    b) Touch the **RAD/DIS** Button, the **RAD/RAD** Button, the **LAT/LON** Button, or the **P. POS** Button to select the mode and return to the previous screen.

7) If the P. POS Mode is selected, skip to step 8. Otherwise, perform the following to edit the location parameters of the waypoint:
   a) Touch the **REF** Button, the **RAD** Button, the **DIS** Button, or the **LAT/LON** Button to bring up the keypad.
   b) Use the keypad and the **Enter** Button to select the user waypoint location.
   c) Repeat as necessary until the location changes are complete (Reference Waypoint, Radial, Distance, or Latitude and Longitude).
8) Touch the **Save** Button to accept the changes.
9) 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 Home, touch **Waypoint Info** > **User Waypoint**.
2) If needed, 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 <waypoint>?".

Deleting all user waypoints:

1) From Home, touch **Waypoint Info** > **User Waypoint**.
2) If needed, touch the **WPT List** Tab to display the list of user waypoints, and touch any 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?".

Importing user waypoints:

1) From Home, touch **Waypoint Info** > **User Waypoint**.
2) Touch the **Waypoint Options** Button.
3) Touch the **Import** Button.
4) Touch the **OK** Button.

Exporting user waypoints:

1) From Home, touch **Waypoint Info** > **User Waypoint**.
2) Touch the **WPT List** Tab to display the list of user waypoints.
3) Scroll the list, if needed, and touch a User Waypoint Button Information for the selected waypoint is displayed.

4) Touch the **Waypoint Options** Button**.**
5) Touch the **Export** Button.
6) Touch the **OK** Button in response to the question, 'Would you like to export user waypoints?'.

AIRSPACES

NEAREST AIRSPACE

Setting Airspace Alerts

Setting the altitude buffer distance:

1) From Home, touch **Utilities > Setup** > **Avionics Settings**.
2) Touch the **Alerts** Tab.
3) Touch the Airspace Alert Alt Buffer altitude button (displays current selection in cyan).
4) Enter the desired altitude buffer value and touch the **Enter** Button.

Enabling/disabling an airspace alert:

1) From Home, touch **Utilities > Setup** > **Avionics Settings**.
2) Touch the **Alerts** Tab.
3) Scroll as needed and touch any of the of the following buttons to enable/disable the corresponding alert: **CL B/TMA/AWY**, **CL C/CTA**, **CL A/D**, **Restricted**, **MOA (Military)**, **Other**. The button annunciator is green when alert is enabled, subdued when disabled.

Viewing Nearest Airspace Information

Viewing information for the Nearest Airspace:

1) From Home, touch **Nearest** > **Airspace**.
2) Touch a Nearest Airspace button to display the 'Airspace Options' Window. If no airspace is projected, the 'Nearest Airspace' Screen will read "No Results Found".
3) Touch the **Show on Map** Button to display the selected airspace, if needed.
4) Touch the **Details** Button to display the selected 'Nearest Airspace' Screen information.

SMART AIRSPACE

Enabling/disabling the Smart Airspace function:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) Touch the **Aviation** Tab, if necessary.
3) Touch the Airspaces **Settings** Button to display the 'Airspace Settings' Screen.
4) Touch the **Smart Airspace** Button to enable/disable the Smart Airspace function.

FLIGHT PLANNING

FLIGHT PLAN DISPLAY

Displaying/removing the flight plan preview:

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

Or:

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

Or:

For the stored flight plan:

  a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

  b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

  c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

  d) Touch the **Flight Plan Options** Button.

2) Touch the Show on Map Button. A preview of the flight plan is shown on the active display pane.

3) To view a flight plan segment:

  a) Touch the **Back** Button.

  b) Scroll as needed, and touch the selection button corresponding to the desired segment of the flight plan.

  c) Touch the **Back** Button to return to the flight plan preview.

4) Touch the Show on Map Button again or return to the 'Home' Screen to disable the Show on Map Button and remove the preview from the display.

Displaying/removing the Flight Plan Text Inset:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) Touch the **Inset Window** Tab.

3) Touch the **Flight Plan Text** Button to display/remove the active flight plan text on the 'Navigation Map' Pane.

4) Waypoint distances shown on the Flight Plan Text Inset may be set as leg to leg distances or cumulative distance by selecting the **CUM** Button or **Leg-Leg** Button next to the **Flight Plan Text** Button.

Displaying/removing the Flight Plan Progress Inset:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) Touch the **Inset Window** Tab.

3) Touch the **Flight Plan Progress** Button to display/remove the flight plan progress inset.

DIRECT-TO NAVIGATION

Selecting a nearby airport as a direct-to destination:

1) From Home, touch **Nearest** > **Airport**.

2) Touch a Nearest Airport Button to display the 'Waypoint Options' Window. If desired, highlight the airport on the active display pane by touching the **Show On Map** Button.

3) Touch the D→ Button to choose the waypoint as the direct-to destination, and display the 'Direct To' Screen.

4) To activate direct-to navigation:

Touch the **Activate** D→ Button to activate the direct-to.

Or:

a) Touch the **Activate and Insert in Flight Plan** Button or the **Insert in Flight Plan** Button (only available if the selected waypoint is not in the flight plan) to display the 'Insert and Activate D→ <waypoint> Before?' Window.

b) Touch the Waypoint Selection Button to select the flight plan location to insert the direct to waypoint, and to activate the direct-to.

Selecting any waypoint as a direct-to destination:

1) Select the screen containing the desired waypoint and select the desired waypoint.

2) If necessary, touch the **Waypoint Options** Button.

3) Touch the D→ Button to choose the waypoint as the direct-to destination, and display the 'Direct To' Screen.

4) To activate direct-to navigation:

Touch the **Activate** D→ Button to activate the direct-to.

Or:

a) Touch the **Activate and Insert in Flight Plan** Button or the **Insert in Flight Plan** Button (only available if the selected waypoint is not in the flight plan) to display the 'Insert and Activate D→ <waypoint> Before?' Window.

b) Touch the Waypoint Selection Button to select the flight plan location to insert the direct to waypoint, and to activate the direct-to.

Selecting any waypoint as a direct-to destination using the PFD Controller:

1) On the PFD Controller, press the D→ Key.

2) Turn the large **PFD** Knob to move the cursor to the identifier field, if necessary.

3) Turn the small **PFD** Knob one click to activate the editing cursor (flashing).

4) Turn the large and small **PFD** Knobs to select the identifier (large knob moves the cursor; small knob selects the character).

5) Press the **ENT** Key or the small **PFD** Knob to accept the selection and move the cursor.

6) Press the **ENT** Key or the small **PFD** Knob to activate the direct-to.

Selecting a waypoint as the direct-to destination by identifier, facility, or city name:

1) From Home, touch -D→.
2) Touch the Waypoint Selection Button to display the keypad (available waypoints in flight plan).

   Or:

   Touch the **Select Waypoint** Button to display the keypad.
3) Select a waypoint as a direct-to destination:

   Input the waypoint identifier using the keypad and touch the **Enter** Button to accept the identifier, and return to the 'Direct To' Screen.

   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 needed, 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 to select the name.
   f) Touch the **Enter** Button to accept the entry and display the search results.
   g) Touch a Waypoint Selection Button to choose the waypoint as the direct-to destination, and return to the 'Direct To' Screen.
4) To activate direct-to navigation:

   Touch the **Activate** -D→ Button to activate the direct-to.

   Or:

   a) Touch the **Activate and Insert in Flight Plan** Button or the **Insert in Flight Plan** Button (only available if the selected waypoint is not in the flight plan) to display the 'Insert and Activate -D→ <waypoint> Before?' Window.
   b) Touch the Waypoint Selection Button to select the flight plan location to insert the direct to waypoint, and to activate the direct-to.

Selecting a waypoint as the direct-to destination by facility or city name using the PFD Controller:

1) On the PFD Controller, press the -D→ Key.
2) Turn the large **PFD** Knob to move the cursor to the facility name or city name field.
3) Turn the small **PFD** Knob one click to activate the editing cursor (flashing).
4) Turn the large and small **PFD** Knobs to select the facility or city (large knob moves the cursor; small knob selects the character).
5) Press the **ENT** Key or the small **PFD** Knob to accept the selection and move the cursor.
6) Press the **ENT** Key or the small **PFD** Knob to activate the direct-to.

Selecting a waypoint as the direct-to destination by category (Nearest or Recent):

1) From Home, touch Ð→.
2) Touch the **Nearest** Tab or the **Recent** Tab, as necessary.
3) Touch a Waypoint Selection Button to choose the waypoint as the direct-to destination, and return to the 'Direct To' Screen.
4) Touch the **Activate Ð→** Button to activate the direct-to.

   Or:

   a) Touch the **Activate and Insert in Flight Plan** Button or the **Insert in Flight Plan** Button (only available if the selected waypoint is not in the flight plan) to display the 'Insert and Activate Ð→ <waypoint> Before?' Window.
   b) Touch the Waypoint Selection Button to select the flight plan location to insert the direct to waypoint, and to activate the direct-to.

Selecting a waypoint as the direct-to destination by category (Flight Plan, Nearest, Recent, or User) using the PFD Controller:

1) On the PFD Controller, press the Ð→ Key.
2) Turn the large **PFD** Knob counter-clockwise one click to display the Waypoint Submenu. Then, turn the small knob clockwise to view a list of nearest waypoints. Turn the small knob clockwise again to view a list of recent waypoints.
3) If necessary, turn the small **PFD** Knob clockwise to display the 'Flight Plan', 'Nearest', 'Recent', or 'User' list.
4) Turn the large **PFD** Knob clockwise to select the desired item.
5) Press the **ENT** Key or the small knob to accept the selection and move the cursor.
6) Press the **ENT** Key or the small **PFD** Knob again to activate the direct-to.

Selecting an active flight plan waypoint as the direct-to destination:

1) From Home, touch **Flight Plan.**
2) Touch a Waypoint Selection Button to display the 'Waypoint Options' Window.
3) Touch the Ð→ Button to choose the waypoint as the direct-to destination and display the 'Direct To' Screen.
4) Touch the **Activate Ð→** Button to activate the direct-to.

   Or:

1) From Home, touch Ð→.
2) Touch the **Flight Plan** Tab.
3) Touch a Waypoint Selection Button to choose the waypoint as the direct-to destination, and return to the **Waypoint** Tab of the 'Direct To' Screen.
4) Touch the **Activate Ð→** Button to activate the direct-to.

   Or:

1) From Home, touch the Ð→ Button to display the 'Direct To' Screen with the active flight plan waypoint selected as the direct-to destination.

2) Touch the **Activate** Ð→ Button to activate the direct-to.

Or:

1) From Home, touch **Flight Plan.**

2) Touch the Ð→ Button to display the 'Direct To' Screen with the active flight plan waypoint selected the direct-to destination.

3) Touch the **Activate** Ð→ Button to activate the direct-to.

Selecting an active flight plan waypoint as the direct-to destination using the PFD Controller:

1) On the PFD Controller, press the Ð→ Key.

2) Turn the large **PFD** Knob to move the cursor, if necessary, and highlight the desired waypoint.

3) Press the **ENT** Key or the small **PFD** Knob to accept the selection and move the cursor.

4) Press the **ENT** Key or the small **PFD** Knob again to activate the direct-to.

Selecting a waypoint as a direct-to destination using the Map Pointer:

1) Push the **Joystick** to display the pointer.

2) Use the **Joystick or Touchpad** on the Touchscreen Controller to place the pointer at the desired destination location.

3) If the pointer is placed on an existing airport, NAVAID, or user waypoint, the waypoint ID is highlighted, and the Ð→ Button is activated.

4) Touch the Ð→ Button to display the 'Direct To' Screen with the selected point entered as the direct-to destination.

5) To activate direct-to navigation:

Touch the **Activate** Ð→ Button to activate the direct-to.

Or:

a) Touch the **Activate and Insert in Flight Plan** Button or the **Insert in Flight Plan** Button (only available if the selected waypoint is not in the flight plan) to display the 'Insert and Activate Ð→ <waypoint> Before?' Window.

b) Touch the Waypoint Selection Button to select the flight plan location to insert the direct to waypoint, and to activate the direct-to.

Cancelling a Direct To:

1) From Home, touch Ð→.

2) Touch the **Cancel** Ð→ Button.

3) Touch the **OK** Button in response to the question “Cancel Ð→ <waypoint>”.

Or:

1) On the PFD Controller, press the -D► Key.
2) Turn the large **PFD** Knob to move the cursor to the **Cancel** or **Remove** -D► Field.
3) Press the **ENT** Key or the small **PFD** Knob to cancel the direct-to.

Selecting a manual direct-to course:

1) From Home, touch -D►.
2) If necessary, touch the Waypoint Selection Button to enter the waypoint as the direct-to destination. Then, touch the **Course** Button to display the keypad.
3) Use the keypad to select the course.
4) Touch the **Enter** Button to accept the course, and return to the 'Direct To' Screen.
5) Touch the **Activate** -D► Button to activate the direct-to using the manually selected course.

Selecting a manual direct-to course using the PFD Controller:

1) On the PFD Controller, press the -D► Key.
2) Turn the large **PFD** Knob to move the cursor to the course input field.
3) Turn the small **PFD** Knob one click to activate the editing cursor (flashing).
4) Turn the large and small **PFD** Knobs to select the course (large knob moves the cursor; small knob selects the character)
5) Press the **ENT** Key or the small **PFD** Knob to accept the selection and move the cursor.
6) Press the **ENT** Key or the small **PFD** Knob to activate the direct-to using the manually selected course.

Reselecting the direct course from the current position:

1) From Home, touch -D►.
2) Touch the **Activate** -D► Button to activate the direct-to using the direct course.

Reselecting the direct course from the current position using the PFD Controller:

1) On the PFD Controller, press the -D► Key.
2) Press the **ENT** Key or the small **PFD** Knob to accept the selection and move the cursor.
3) Press the **ENT** Key or the small **PFD** Knob to activate the direct-to using the direct course.

FLIGHT PLAN KEYPAD OPERATION

Enabling/Disabling the Full-Screen Flight Plan Keypad:

1) From Home, touch **Utilities** > **Setup** > **Avionics Settings**. The System Tab is highlighted.
2) Touch the Full-Screen Flight Plan Keyboard Button to enable/disable (button displays 'Off' or 'On' in cyan).

Route Entry

Route Entry	Description
"<entry wpt>*<airway>*<exit wpt>" Or "*<airway>*<exit wpt>"	Basic Airway Segment with a specified exit waypoint.
"<entry wpt>*<airway1>*<airway2>*" Or "*<airway1>*<airway2>*"	Airway-to-airway transition. Airways must meet at a transition waypoint recognized by the system.
"<wpt1>*<wpt2>"	Direct routing (back-to-back waypoint entry)

Acceptable Route Entry Patterns

Airway to Airway Route Entry	Description
"<entry wpt>*<airway>*<exit wpt>"	The entry waypoint is specified.
"*<airway>*<exit wpt>"	The entry waypoint already exists in the flight plan and is selected as the insertion point for the route entry.

Acceptable Airway to Airway Route Entry Patterns

Airway to Airway Route Entry	Description
"<entry wpt>*<airway1>*<airway2>*"	The entry waypoint is specified.
"*<airway1>*<airway2>*"	The entry waypoint is implied (already in the flight plan) by the insertion point.

Airway to Airway Route Entry Descriptions

Keypad Entry of Route Segment (In Sequential Order)	Flight Plan Action	Characters Displayed in the Route Entry Field After the Flight Plan Action
“**MCI*J24*WELTS***”	Review and load J24 airway with entry point "MCI" and exit point "WELTS" into flight plan.	WELTS*
WELTS* "**JIGSY***"	WELTS to JIGSY leg added into flight plan.	JIGSY*
JIGSY* "**J134*FLM***"	Review and load J134 airway with entry point "JIGSY" and exit point "FLM" into flight plan.	FLM*
FLM* "**J24*BIGAL***"	Review and load J24 airway with entry point "FLM" and exit point "BIGAL" into flight plan.	BIGAL*

Keypad Entry of Route Segment (In Sequential Order)	Flight Plan Action	Characters Displayed in the Route Entry Field After the Flight Plan Action
BIGAL* "**AML**" **Enter** Key	BIGAL to AML leg added into flight plan. The flight plan is displayed showing all route segments that were added.	

Example Sequence of Entries for Flight Plan

Adding User Waypoints Using Route Entry

Latitude	Longitude	Identifier
N 38° 00'	W 94° 00'	3894N
N 38° 00'	E 94° 00'	3894E
S 38° 00'	E 94° 00'	3894S
S 38° 00'	W 94° 00'	3894W
N 38° 00'	W 104° 00'	38N04
N 38° 00'	E 104° 00'	38E04
S 38° 00'	E 104° 00'	38S04
S 38° 00'	W 104° 00'	38W04

Latitude/Longitude – Oceanic Shortcuts

Keypad Entry of Route Segment (In Sequential Order)	Flight Plan Action	Characters Displayed in the Route Entry Field After the Flight Plan Action
"**GLAZR*Q118*MZZ***"	Review and load Q118 airway with entry point "GLAZR" and exit point "MZZ" into flight plan.	MZZ*
MZZ* "**MZZ344/33***"	Edit and review the new user waypoint. "<waypoint name>" is created and placed into flight plan.	MZZ344/33*
MZZ344/33* "**OXI***" **Enter** Key	"<waypoint name>" to "OXI" leg is added into flight plan. The flight plan is displayed showing all route segments that were added.	

Example Sequence of Entries, Creating and Adding a User Waypoint into Route Segment

CREATING A BASIC FLIGHT PLAN

Creating an active, standby or stored flight plan:

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

Or:

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

Or:

For a stored flight plan:

a) From Home, touch **Flight Plan > Flight Plan Options**.

b) Touch the **Flight Plan Catalog** Button to display the 'Flight Plan Catalog' Screen.

c) Touch the **Create New Catalog Flight Plan** Button to display the 'Edit Stored Flight Plan' Screen.

2) If no change is necessary to the Origin auto-designated by the system, proceed to Step 4.

Or:

To input or change the departure runway, proceed to Step 4.

Or:

To change the Origin, touch the **Origin** Button. Then, touch the **Select Origin Airport** Button.

Or:

When there is no Origin in the flight plan, touch the **Add Origin** Button.

3) Enter the origin waypoint:

Use the right knobs, or the keypad to enter the origin waypoint.

Or:

Touch the **Find** Button to display the 'Find Waypoint' Screen. Then, 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. Then, touch the **Search** Tab to display the **Search By** Button.

b) If necessary, touch the **Search By** Button to choose Search by City or Search by Facility.

c) Touch the **Facility Name** Button or the **City Name** Button to display the keypad.

d) Use the keypad to select the name, and the **Enter** Button to accept the entry and display the search results.

e) Touch a Waypoint Selection Button to choose the waypoint.

4) To input the departure runway, touch the **Origin** Button to display the 'Select Runway' Screen. Touch a Runway Selection Button to select the departure runway and return to the flight plan.

Or:

To change the departure runway, touch the **Origin** Button to display the 'Origin Options' Window. Then, touch the **Select Departure Runway** Button. Touch a Runway Selection Button to select the runway and return to the flight plan.

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' Window. 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 flight plan.

8) Enter the enroute waypoints:

If adding a waypoint to the end of the enroute segment of te flight plan, touch the **Add Waypoint or Route** Button to display the keypad

Or:

a) Touch a Waypoint Selection Button to display the 'Waypoint Options' Window.

b) Touch the **Insert Before** Button or the **Insert After** Button to select where the new waypoint or route will be placed in relation to the selected waypoint. The keypad is displayed.

Or:

a) If adding a waypoint or route to the beginning of the enroute segment of the flight plan, touch the **Enroute** Button to display the 'Enroute Options' Window.

b) Touch the **Insert Waypoint** Button to display the keypad.

9) Use the keypad and the Enter Button to enter the waypoint or route into the flight plan.

10) Repeat Steps 8 and 9 until finished adding enroute waypoints.

11) If you are finished adding enroute waypoints, touch the **Done** Button to remove the **Add Waypoint or Route** Button and the **Done** Button (This step is only necessary if creating a flight plan on the 'Active Flight Plan' Screen).

12) If needed, touch the **Origin** Button to display the 'Origin Options' Window to select a new origin airport, departure runway, departure procedure or to remove the origin airport.

13) If needed, touch the **Destination** Button to display the 'Destination Options' Window to select a new destination airport, arrival runway, arrival procedure, approach procedure, or to remove the destination airport.

Creating an active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.

2) Turn the small **PFD** Knob to display the 'Waypoint Information' Window. (Turning it clockwise displays a blank 'Waypoint Information' Window, turning it counter-clockwise displays the 'Waypoint Information' Window with a waypoint selection submenu allowing selection of active flight plan waypoints, recent waypoints, user waypoints, or nearest airports).

3) Enter the identifier, city name, or facility name of the departure waypoint (as the small PFD Knob is turned, the system displays a waypoint matching the characters entered), or select a waypoint from the submenu of waypoints and press the **ENT** Key or the small **PFD** Knob. The active flight plan is modified as each waypoint is entered.

4) Repeat step numbers 2 and 3 to enter the destination waypoint and each additional flight plan waypoint.

5) When all waypoints have been entered, press the **FPL** Key or hold down the **CLR** Key to remove the 'Waypoint Information' Window.

FLIGHT PLAN MODIFICATION AND NAVIGATION

Waypoints

ADDING AND REMOVING WAYPOINTS

Adding a waypoint to a flight plan:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

   c) Touch the **Edit** Button.

2) Enter waypoints in the flight plan:

   Input a route entry using the Flight Plan Keypad (process previously discussed in this section).

   Or:

   If adding a waypoint to the end of the enroute segment of the flight plan, touch the **Add Waypoint or Route** Button to display the keypad.

   Or:

   a) Touch a waypoint selection button to display the 'Waypoint Options' Window.

   b) Touch the **Insert Before** Button or the **Insert After** Button to select where the new waypoint or route will be placed in relation to the selected waypoint. The keypad is displayed.

   Or:

   a) If adding a waypoint or route to the beginning of the enroute segment of the flight plan, touch the **Enroute** Button to display the 'Enroute Options' Window.
   b) Touch the **Insert Waypoint** Button to display the keypad.

3) Use the keypad, right knobs, or the Find function to select the new waypoint; or use the keypad to create a route entry.
4) Touch the **Enter** Button to accept the waypoint or route and place it in the flight plan.
5) If you are finished adding waypoints and routes, touch the **Back** Button to return to the previous screen.

Adding a waypoint to the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.
2) Turn the large **PFD** Knob to highlight the waypoint.
3) Press the **CLR** Key. The 'Remove <waypoint name>' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key or the small **PFD** Knob to remove the waypoint.

Adding waypoints to a flight plan using the Map Pointer:

1) For the active flight plan: Go to Step 2.

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button.

2) Push the **Joystick** to the display 'Map Pointer Control' Screen on the Touchscreen Controller, and to activate the Map Pointer. Use the **Joystick 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 FPL** 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. Push the **Joystick** to deactivate the map pointer and return to the previous screen.

Adding a waypoint to the active flight plan using the Waypoint Info Button:

1) From Home, touch **Waypoint Info.**
2) Touch the **Airport** Button, **INT** Button, **NDB** Button, **VRP** Button, or the **User Waypoints** Button.

3) Choose the desired waypoint:

  a) Touch the Selected Waypoint Button to display the keypad.

  b) Use the keypad to enter the identifier or name of the desired waypoint.

  c) Touch the **Enter** Button to accept the entry and display the waypoint's information on the Touchscreen Controller.

  Or:

  a) To display the list of user waypoints, touch the **WPT List** Tab.

  b) Scroll the list as necessary and touch the desired User Waypoint Button.

4) Touch the **Waypoint Options** Button.

5) Touch the **Insert in Flight Plan** Button. The 'Insert Before Waypoint' Window is displayed

6) Scroll the list as necessary, and touch the waypoint selection button to select where to insert the new waypoint. The waypoint is inserted into the active flight plan before the selected waypoint.

Or:

Touch the **Insert at End** Button. The waypoint is inserted as the last waypoint in the active flight plan.

Adding a waypoint into the active flight plan using the Nearest Button:

1) From Home, touch **Nearest**.

2) Touch the **Airport**, **INT**, **VOR**, **NDB**, **VRP**, or **User** Button.

3) Scroll as necessary and touch the desired waypoint button.

4) Touch the **Insert in Flight Plan** Button.

5) Scroll the list as necessary, and touch the Waypoint Selection Button to select where to insert the new waypoint. The waypoint will be inserted into the active flight plan before the selected waypoint.

Or:

Touch the **Insert at End** Button. The waypoint is inserted as the last waypoint in the active flight plan.

Removing an individual waypoint or multiple waypoints from a flight plan:

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

Or:

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

Or:

For the stored flight plan:

  a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button.

2) Scroll the list if necessary and touch a waypoint options button to display the 'Waypoint Options' Window. Then, touch the **Remove WPT(s)** Button.

3) To remove an individual waypoint, touch the **OK** Button in response to 'Remove <waypoint name>?'. The waypoint is removed. To cancel the request, touch the **Cancel** Button.

Or:

To remove a series of multiple waypoints:

   a) Touch the **Remove Multiple** Button to display the 'Remove From <waypoint> Through' Window.
   b) Touch a waypoint button that is sequenced before or after the previously selected waypoint. The confirmation window 'Remove <waypoint> Through <waypoint>?'.
   c) Touch the **OK** Button to confirm the removal of the two selected waypoints and all waypoints sequenced between them, the **Edit** Button to return to the previous step, or the **Cancel** Button.

Removing a waypoint from the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.
2) Turn the large **PFD** Knob to highlight the waypoint.
3) Press the **CLR** Key. The 'Remove <waypoint name>' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key or the small **PFD** Knob to remove the waypoint.

FLY-OVER WAYPOINTS

Enabling/disabling a fly over waypoint:

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

Or:

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

Or:

For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

2) Touch a Waypoint Selection Button to display the 'Waypoint Options' Window.

3) Touch the **Fly Over Waypoint** Button to enable/disable the waypoint as a fly-over waypoint.

Airways

Adding and Removing Airways

Adding an individual airway to a flight plan:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
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. The airway waypoint sequence is now show on the 'Airway Selection' Screen.
7) Touch the **Show on Map** Button to preview the airway on the active display pane.
8) Touch the **Load Airway** Button to insert the airway into the active or standby flight plan.

Removing an entire airway from the flight plan:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

2) Scroll the list if necessary and touch an airway selection button 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, but the starting and ending waypoints remain in the flight plan. To cancel the request, touch the **Cancel** Button.

Removing an entire airway from the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.
2) Turn the large **PFD** Knob to highlight the airway header.
3) Press the **CLR** Key. The 'Remove <airway name> from flight plan?' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key or the small **PFD** Knob. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key or the small **PFD** Knob.

COLLAPSING AND EXPANDING AIRWAYS

Collapsing/expanding the airways in the flight plan:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
2) Scroll the list if necessary and touch an airway selection button to display the 'Airway Options' Window.
3) Touch the desired selection button to collapse/expand an individual airway, or collapse/expand all airways.
4) Touch the **Back** Button to return to the flight plan.

Changing Collapsed/Expanded settings for newly loaded airways:

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

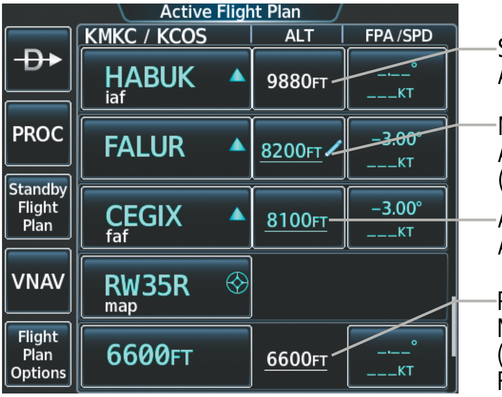
   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby Flight Plan**. (Not available for stored flight plans)

2) Scroll the list if necessary and touch an airway selection button to display the 'Airway Options' Window.
3) Touch the **Load New Airways** Button.
4) Touch the selection button for the desired setting.

Altitude Constraints

Altitude Constraints within a Flight Plan


Active Flight Plan
KMKC / KCOS
ALT
FPA /SPD
PROC
Standby Flight Plan
VNAV
Flight Plan Options
HABUK
iaf
9880FT
_._ _°
_ _ _KT
FALUR
8200FT
-3.00°
_ _ _KT
CEGIX
faf
8100FT
-3.00°
_ _ _KT
RW35R
map
6600FT
6600FT
_._ _°
_ _ _KT

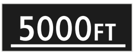
System Calculated Advisory Altitude (White Text)

Modified Altitude Constraint AT or ABOVE (Cyan Text with Pencil Icon)

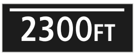
Auto Designated Altitude AT or ABOVE (Cyan Text)

Published Altitude Not Designated (White Text with Altitude Restriction Bar)

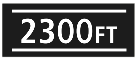
Altitude Constraint Types



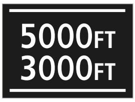
Cross AT or ABOVE 5,000 ft



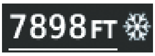
Cross AT or BELOW 3,000 ft



Cross AT 2,300 ft

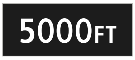
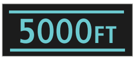
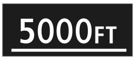
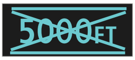

5000FT
3000FT

Cross BETWEEN 3,000 ft & 5,000 ft



Manual Input of Temperature Compensation

Active Flight Plan – Waypoint Altitude Constraints

White Text	Cyan Text
 Advisory altitudes calculated by the system estimating the altitude of the aircraft as it passes the navigation point.	 Altitude is designated for use in determining vertical guidance. A pencil icon indicates manual designation or manual data entry.
 Altitude retrieved from the navigation database. White line above and/or below indicates the type of constraint, as shown in the preceding figure. These altitudes are provided as a reference, and are not designated for vertical guidance.	 The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.

Altitude Constraint Color Coding

Entering or modifying an altitude constraint:

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

   Or:

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

2) Scroll the list, if necessary, and touch the desired VNAV ALT Button. If the desired altitude is already displayed, skip to Step 8 to designate the altitude constraint for vertical guidance.

3) If the 'Enter Altitude' Window is not automatically displayed, touch the VNAV Constraint Button to display it. Then, use the keypad to input the altitude.

4) If necessary, touch the **Flight Level** Button or the **MSL** Button to select the altitude mode.

5) Touch the **Enter** Button to accept the altitude entry and return to the 'VNAV Constraint' Window.

6) If necessary, touch the **Phase** Button, then touch the **Climb** Button or the **Descent** Button.

7) If necessary, touch the **Type** Button, then touch the **At**, **At or Above**, **At or Below** or **Between** Button. If the **Between** Button is selected, use the keypad to enter the second altitude.

8) Touch the **Create** or **Save** Button to designate the new altitude constraint. The altitude is now shown in cyan, indicating it is designated for vertical guidance.

Removing/undesignating an altitude constraint:

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

   Or:

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

2) Scroll the list, if necessary, and touch the desired VNAV ALT Button.

3) Touch the **Remove Constraint** Button. A 'Remove Altitude Constraint?' window is displayed.

4) Touch the **OK** Button. The altitude is now shown in white (or possibly as white dashes if there are no other constraints in the flight plan), 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) For the active flight plan: From Home, touch **Flight Plan**.

Or:

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

2) Scroll the list, if necessary, and touch the desired VNAV ALT Button.

3) Touch the **Remove Constraint** 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.

Vertical Navigation Direct-To

Activating a vertical navigation direct-to for an existing altitude constraint:

1) From Home, touch **Flight Plan**.

2) Scroll the list, if necessary, and touch a VNAV Waypoint Selection Button.

3) Touch the **VNAV D→** Button to activate the vertical navigation direct-to. Vertical guidance begins to the altitude constraint for the selected waypoint.

Removing an altitude constraint when vertical navigation direct-to is active:

1) From Home, touch **Flight Plan**.

2) Scroll the active flight plan list and touch the VNAV ALT Button for the waypoint receiving VNAV direct-to guidance.

3) Touch the **Remove Constraint** Button.

4) Touch the **OK** Button in response to the question "Remove Altitude Constraint?". Vertical navigation direct-to guidance for the altitude constraint is canceled, and the altitude constraint is removed from the flight plan.

QFE Constraints

WARNING: *Do not fly QFE procedures above the Transition Altitude or when navigating to a waypoint that contains a QNE (flight level) altitude constraint.*

***WARNING:** Always fly a procedure that provides terrain and obstacle clearance from the reference airfield when operating in IMC while conducting QFE procedures.*

Entering, modifying, or designating an altitude constraint with Baro-QFE enabled:

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

Or:

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

2) Scroll the list, if necessary, and touch the desired VNAV ALT Button. If the desired altitude is already displayed, skip to Step 4 to designate the altitude constraint for vertical guidance.

3) If the 'Enter Altitude' Window is not automatically displayed, touch the VNAV Constraint Button to display it. Then, use the keypad to input the altitude.

4) Touch the **Flight Level, MSL** or **QFE** Button to select the altitude mode.

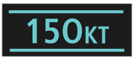
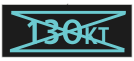
5) Touch the **Enter** Button to accept the altitude entry and return to the 'VNAV Constraint' Window.

6) If necessary, touch the **Phase** Button, then touch the **Climb** Button or the **Descent** Button.

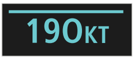
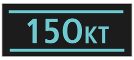
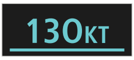
7) If necessary, touch the **Type** Button, then touch the **At**, **At or Above**, **At or Below** or **Between** Button. If the **Between** Button is selected, use the keypad to enter the second altitude.

8) Touch the **Create** or **Save** Button to designate the new altitude constraint. The altitude is now shown in cyan, indicating it is designated for vertical guidance.

Speed Constraints

Cyan Text

Speed is designated in the flight plan for crossing speed guidance. A pencil icon indicates manual data

The system cannot use this speed because of an invalid constraint condition.

Speed Constraint Color Coding

Constraint Type	Departure or Missed Approach	Arrival or Approach
 AT or BELOW	Do not exceed PRIOR	Do not exceed AT and AFTER
 AT	Do not exceed PRIOR, do not go below AFTER, cross AT	Do not go below PRIOR, do not exceed AFTER, cross AT
 AT or ABOVE	Do not go below AT and AFTER	Do not go below PRIOR to and AT

Speed Constraint Application

Entering or modifying a flight plan waypoint speed constraint:

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

   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby Flight Plan**.
2) Scroll the list, if needed, and touch an FPA/SPD Button.
3) Touch the **Speed Constraint** Button to display the 'Enter Speed' Window.
4) Use the keypad to select the speed.
5) If needed, touch the **IAS** Button or the **Mach** Button to select the speed units.
6) If needed, touch the **At**, **Above**, or **Below** Button to select the constraint type.
7) Touch the **Enter** Button to accept the new speed constraint.

Removing a flight plan waypoint speed constraint:

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

   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby Flight Plan**.
2) Scroll the list, if needed, and touch a FPA/SPD Button.
3) Touch the **Speed Constraint** Button. The 'Enter Speed' Window is displayed.
4) Touch the **Remove Speed** Button. A 'Remove Speed Constraint?' confirmation window is displayed.
5) Touch the **OK** Button. The speed constraint is removed. To cancel the request, touch the **Cancel** Button.

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

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

   Or:

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

2) Scroll the list, if needed, and touch a FPA/SPD Button to display the **Speed Constraint** Button.
3) Touch the **Speed Constraint** Button. The 'Enter Speed' Window is displayed.
4) Touch the **Remove Speed** Button. A ‘Remove or Revert to published speed of nnnKT?’ confirmation window is displayed.
5) Touch the **Revert** Button.

Flight Path Angle Constraints

Entering or modifying a flight path angle constraint:

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

   Or:

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

2) Scroll the list, if needed, and touch a FPA/SPD Button to display the **Flight Path Angle** Button.
3) Touch the **Flight Path Angle** Button. The 'VNAV Flight Path Angle' Screen is displayed.
4) Use the keypad to select the angle.
5) Touch the **Enter** Button to accept the new FPA constraint.

Removing a flight path angle constraint:

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

   Or:

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

2) Scroll the list, if needed, and touch a FPA/SPD Button.
3) Touch the **Flight Path Angle** Button. The 'VNAV Flight Path Angle' Screen is displayed.
4) Touch the **Remove FPA** Button.
5) Touch the **OK** Button. The FPA reverts to the FMS computed value, or to dashes. To cancel the request, touch the **Cancel** Button.

VNAV Enablement

Enabling/disabling VNAV guidance:

1) From Home, touch **Flight Plan** > **VNAV.**

   Or:

From Home, touch **PERF** > **VNAV.**

2) Touch the **VNAV Enabled** Button to enable/disable vertical navigation.

Active Vertical Speed Target and Flight Path Angle

Modifying the VS Target and FPA:

1) From Home, touch **Flight Plan** > **VNAV.**

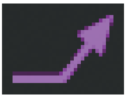
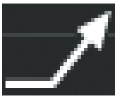
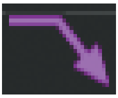
Or:

From Home, touch **PERF** > **VNAV.**

2) Touch the **VS Target** Button or the **FPA** Button to display the keypad.

3) Use the keypad and the **Enter** Button to select the vertical speed target or the flight path angle.

Vertical Situation Display

Condition	Climb/Descend Icon
If the active leg's flight plan line is above the highest altitude shown on the VSD, a magenta climb icon will be displayed to the right of the ownship symbol	
If a future leg's flight plan line is above the highest altitude shown on the VSD during the climb phase of flight, a white climb icon will be displayed to the right of the last leg visible on the VSD	
If the active leg's flight plan line is below the lowest altitude shown on the VSD, a magenta descend icon will be displayed to the right of the ownship symbol	

VSD Climb/Descent Icons

Enabling/disabling the VSD:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) Touch the **Inset Window** Tab.

3) Touch the **VERT Situation Display** Button to enable/disable display of the VSD.

Changing the VSD Mode:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) Touch the **Inset Window** Tab.

3) Touch the VERT Situation Display **Settings** Button.

4) Touch the **Mode** Button to display the 'Mode Selection' Window.

5) Touch a Mode button to select the mode and return to the 'Vertical Situation Display Settings' Window.

FLIGHT PLAN OPERATIONS

Flight Plan Operations with FANS CPDLC

Route Clearance with CPDLC

Copying a flight plan to FANS CPDLC to request route clearance:

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

   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby Flight Plan > Flight Plan Options**.
2) Touch the **Copy to FANS CPDLC** Button. The 'Select Message' Window appears listing reasons for the request.
3) Touch the desired reason from the list that best explains the request.
4) The applicable message builder will open showing the chosen parameters for the message verifying the contents of either the Active or Standby Flight Plan and the Reason.
5) Touch the **Send** Button.

Route Modifications With CPDLC

Previewing route modifications from a CPDLC message:

1) To view the CPDLC message:
   a) From Home, touch **ATC Datalink.**
   b) If necessary, touch the **CPDLC** Tab, and select the message dialog box to open the message thread.

      Or:
   a) Touch the **CPDLC** Button on the Button Bar to view the message on the 'Notifications' Screen.
   b) Select the message dialog box to open the message thread.
2) Touch the **Preview** Button. The 'Clearance Preview' Screen is displayed, showing a preview of the modified flight plan. The route modifications will be highlighted as shown in the following figure.
3) Touch the **Show on Map** Button to view a preview on the active display pane.
4) If desired, touch the **Copy to Standby** Button to copy the data from the 'Clearance Preview' Screen to the Standby Flight Plan. Otherwise, touch the **Back** Button to return to the message thread.

Accepting and activating route modifications from a CPDLC message:

1) To view the CPDLC message:
   a) From Home, touch **ATC Datalink.**
   b) If necessary, touch the **CPDLC** Tab, and select the message dialog box to open the message thread.

Or:

   a) Touch the **CPDLC** Button on the Button Bar to view the message on the 'Notifications' Screen.

   b) Select the message dialog box to open the message thread and read the message.

2) If necessary, touch the **Response** Button to display the different responses and touch the **WILCO** Button. Confirm that a WILCO response has been generated in the message thread and touch the **Send** Button.

3) 'Copy Active flight plan to Standby and apply applicable route modifications?' Window is displayed. Touch the **Yes** Button. The system copies the Active Flight Plan to the Standby and applies the accepted route modifications.

4) The 'Standby Flight Plan' Screen is displayed. To begin navigation guidance for this flight plan, touch the **Activate Standby** Button.

Importing route modifications from a previously closed CPDLC message:

1) To view the CPDLC message:

   a) From Home, touch **ATC Datalink.**

   b) If necessary, touch the **CPDLC** Tab, and select the desired message dialog box to open the message thread.

2) Touch the **Import** Button, or for a direct to clearance, touch the **-D→** Button.

Importing data from a CPDLC message into the 'Direct To', 'Parallel Track', or 'Procedures' Screen:

1) To view the CPDLC message:

   a) From Home, touch **ATC Datalink.**

   b) If necessary, touch the **CPDLC** Tab, and select the message dialog box to open the message thread.

   Or:

   a) Touch the **CPDLC** Button on the Button Bar to view the message on the 'Notifications' Screen.

   b) Select the message dialog box to view the open message thread.

2) After reading the message, touch the **Response** Button to send a WILCO response. The system then displays a pop up asking to import the data to the applicable screen.

3) Touch the **Yes** Button. The appropriate screen opens and the data to be imported will be filled in. Please refer to the Direct To, Parallel Track, and Procedures description in this section for specific instructions for completing task necessary.

Sending a negative response to deny route modifications from a CPDLC message:

1) To view the CPDLC message:

   a) From Home, touch **ATC Datalink.**

   b) If necessary, touch the **CPDLC** Tab, and select the message dialog box to open the message thread.

   Or:

   a) Touch the **CPDLC** Button on the Button Bar to view the message on the 'Notifications' Screen.

   b) Select the message dialog box to view the open message thread.

2) Touch the **Response** Button. The 'Response' Window opens listing the different response messages which can be generated.
3) Touch the button for the desired negative response. After selecting a response, a return to the CPDLC message thread is made, showing the chosen response.
4) Touch the **Send** Button.

Activating a Flight Plan Leg

Activating a flight plan leg:

1) From Home, touch **Flight Plan**.
2) Scroll the list, if necessary, and touch the waypoint options 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.

Along Track Offsets

Inserting an along track offset waypoint into the active or standby flight plan:

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

   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby Flight Plan**.
2) Touch a waypoint options button to display the 'Waypoint Options' Window.
3) Touch the **Along Track Waypoint** Button to bring up the 'Along Track Waypoint Offset' Window.
4) Enter a positive or negative offset distance in the range of ±1 to 999 nm (offset must fall between the first and last waypoint within the flight plan).
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.

Removing an along track offset waypoint from the active or standby flight plan:

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

   Or:

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

2) Touch the along track offset waypoint options button to display the 'Waypoint Options' Window.
3) Touch the **Remove WPT(s)** Button.
4) Touch the **OK** Button to delete the waypoint from the flight plan.

Parallel Track

Activating parallel track:

1) From 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.

Cancelling parallel track:

1) From Home, touch **Flight Plan** > **Flight Plan Options > Parallel Track**.
2) Touch the **Cancel Parallel Track** Button to cancel the parallel track function.

Closest Point of Flight Plan

Determining the closest point along the flight plan to a selected waypoint:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
2) Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.
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

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

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

   Or:

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

2) Scroll the list, if necessary, to display the waypoint at which to define the holding or edit the existing holding:

   a) To create holding, touch the Waypoint Selection Button to select the waypoint at which to define the holding pattern. The 'Waypoint Options' Window is displayed.

   b) Touch the **Hold at Waypoint** Button. The 'Hold at Waypoint' Screen is displayed.

   Or:

   a) To edit, touch the Hold Waypoint Selection Button. The 'Waypoint Options' Window is displayed.

   b) Touch the **Edit Hold** 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 (Inbound or Outbound) Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.

5) Touch the **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. A system message (HOLD EXPIRED Holding EFC time expired.) will be triggered at the selected time.

9) Touch the **Create** Button to create and add the hold into the flight plan.

   Or:

   Touch the **Save** Button to save the changes and return to the flight plan.

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

1) From 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 (Inbound or Outbound) Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.

5) Touch the **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 Selection Button to display the 'Direct To' Screen.

11) Touch the **Insert in Flight Plan** Button. The 'Insert D→ PPOS-H Before?' Window 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 Home, touch **Flight Plan**.

2) Touch the D→ 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 (Inbound or Outbound) Button, and touch the **Inbound** Button or the **Outbound** Button to select the course direction.

6) Touch the **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 D→** 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 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 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.

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

1) From Home, touch **Flight Plan**.
2) Scroll the list, if necessary, and touch the PPOS-H waypoint options button, or touch the D→ 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.

Arrival Alert settings

Changing the Arrival Alert settings:

1) From Home, touch **Utilities > Setup > Avionics Settings**.
2) Touch the **Alerts** Tab. Scroll to view the Arrival Alert settings.
3) Touch the **Arrival Alert** Button to enable/disable the alert.
4) Touch the Arrival Alert Distance Button to display the keypad.
5) Enter the arrival alert distance and touch the **Enter** Button.

Inverting a Flight Plan

Inverting the active or standby flight plan:

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

   Or:

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

2) Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.
3) Touch the **Invert** Button.
4) Touch the **OK** Button in response to "Invert flight plan?". The flight plan is inverted. To cancel the request, touch the **Cancel** Button.

Inverting a stored flight plan:

1) From 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 **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
5) Touch the **Flight Plan Options** Button.
6) Touch the **Invert** Button. Touch the **OK** Button to continue. The flight plan and flight plan comment is inverted (all procedures are removed). Touch the **Back** Button to save the changes and return to the 'Flight Plan Catalog' Screen.

Using the Standby Flight Plan

Switching between the active and standby flight plan screen:

1) From Home, touch **Flight Plan**.
2) Touch the **Standby Flight Plan** Button to display the 'Standby Flight Plan' Screen.
3) Touch the **Active Flight Plan** Button to return to the 'Active Flight Plan' Screen.

Activating the standby flight plan:

1) From Home, touch **Flight Plan** > **Standby Flight Plan.**
2) Touch the **Activate Standby** Button.
3) Touch the **OK** Button in response to "Activate Standby Flight Plan and Replace Current Active Route?". To cancel the request, touch the **Cancel** Button.

Linking aircraft present position (Join From P. POS) to the standby flight plan:

1) From Home, touch **Flight Plan** > **Standby Flight Plan**.
2) Touch a waypoint options button desired for linking the aircraft present position.
3) Touch the **Join From P. POS** Button.
4) A **P. POS** Button is added to the standby flight plan with a white arrow drawn to indicate the link created. To change the waypoint that P. POS is linked to, repeat steps 2-4 for the desired waypoint.

Removing P. POS link from the standby flight plan:

1) From Home, touch **Flight Plan** > **Standby Flight Plan**.
2) Touch the **P. POS** Button.

3) Touch the **Remove Link** Button.

4) Touch the **OK** Button in response to "Remove link from P. POS?". To cancel the request, touch the **Cancel** Button.

MANAGING FLIGHT PLANS

Importing and Exporting Flight Plans

Ignoring a pending flight plan transfer from a wireless connection:

1) When a flight plan transfer has been initiated from a mobile device, the notification button will change to a flashing **Connext** Button on the Touchscreen Controller, and a Connext annunciation appears on the PFD.

2) Touch the **Connext** Button to see the notification of the pending flight plan on the 'Notifications' Screen.

3) Touch the **Connext** Button again to ignore the pending flight plan and return to the previous screen. The pending flight plan is not loaded into the system, though the notification message will still remain on the 'Notifications' Screen under the **Connext** Tab for future use.

Viewing and activating a pending flight plan from a wireless connection:

1) When a flight plan transfer has been initiated from a mobile device, the notification button will change to a flashing **Connext** Button on the Touchscreen Controller, and a Connext annunciation appears on the PFD.

2) Touch the **Connext** Button to see the notification of the pending flight plan on the 'Notifications' Screen.

3) Touch the **Flight Plan Received** Button to preview and add the pending flight plan to the standby flight plan. If there is already a loaded standby flight plan, a pop up window will confirm 'Replace Standby Flight Plan?'. Touch **OK** to continue.

4) The 'Standby Flight Plan' Screen is now shown on the Touchscreen Controller containing the flight plan which was transferred from the mobile device.

5) To activate the standby flight plan, touch the **Activate Standby** Button.

Importing a Flight Plan from an SD Card:

1) Insert the SD card containing the flight plan in the top card slot on the MFD.

2) From 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 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' Window.

Deleting the Active or Standby Flight Plan

Deleting the active or standby flight plan:

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

   Or:

   For the standby flight plan: From Home, touch **Flight Plan** > **Standby 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 flight plan is deleted. To cancel the request, touch the **Cancel** Button.

Stored Flight Plan Functions

Viewing information about a stored flight plan:

1) From Home, touch **Flight Plan** > **Flight Plan Options**.
2) Touch the **Flight Plan Catalog** Button to display the 'Flight Plan Catalog' Screen. The flight plan information is displayed showing departure, destination, and total distance information for the stored flight plans.
3) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
4) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen to view the waypoints in the stored flight plan.

Storing a Flight Plan from the Active or Standby Flight Plan

Storing a flight plan:

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

   Or:

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

2) Touch the **Store** Button.
3) Touch the **OK** Button in response to the question “Store <origin>/<destination> into catalog?”.

ACTIVATING A STORED FLIGHT PLAN

Activating a stored flight plan:

1) From 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 needed and 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.

Inverting and activating a stored flight plan:

1) From 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.

COPYING A STORED FLIGHT PLAN

Copying a stored flight plan to another flight plan memory slot:

1) From 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 needed and 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 in the list of stored flight plans. To cancel the request, touch the **Cancel** Button.

Copying a stored flight plan to the standby flight plan:

1) From 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 needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

4) Touch the **Copy to Standby** Button. If the standby flight plan is empty, the selected flight plan is copied to the standby flight plan. If there is already a standby flight plan, then a confirmation message is displayed.

5) If necessary, touch the **OK** Button in response to "Copy Selected Flight Plan and Replace Current Standby Flight Plan?". The selected flight plan is copied to the standby flight plan. To cancel the request, touch the **Cancel** Button.

DELETING A STORED FLIGHT PLAN

Deleting a stored flight plan:

1) From 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 needed and 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.

Changing Flight Plan Comments (Names)

Changing a flight plan comment:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan** > **Flight Plan Options**.

   b) Touch the **Flight Plan Catalog** Button to display the 'Flight Plan Catalog' Screen.

   c) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

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.

Changing a flight plan comment using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.

2) Turn the large **PFD** Knob to move the cursor to the comment field at the top of the flight plan (e.g. KMKC/KCOS), if necessary.
3) Turn the small **PFD** Knob one click to activate the editing cursor.
4) Turn the large and small **PFD** Knobs to select the comment (large knob moves the cursor; small knob selects the character).
5) Press the **ENT** Key or the small **PFD** Knob to accept the selection.

PROCEDURES

Viewing available procedures at an airport:

1) From 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 active display pane or touch the **Show Chart** Button to show the chart instead.
6) Touch the **Cancel** 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 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 active display pane or touch the **Show Chart** Button to show the procedure chart instead.
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 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 active display pane or touch the **Show Chart** Button to show the procedure chart instead.

7) Select a different procedure, if desired.

8) Touch the **Load** Button to insert the procedure into the active flight plan.

Removing an entire procedure from a flight plan:

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

   Or:

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

   Or:

   For the stored flight plan:

   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

   b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

   c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

2) Scroll the list if necessary and touch a departure, arrival, or approach selection button to display the 'Departure Options', 'Arrival Options', or 'Approach Options' Window.

3) Touch the **Remove Departure** Button, the **Remove Arrival** Button, or the **Remove Approach** Button.

4) Touch the **OK** Button in response to "Remove <procedure> – <procedure name> from flight plan?". The procedure is removed. To cancel the request, touch the **Cancel** Button.

Removing an entire procedure from the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.

2) Turn the large **PFD** Knob to highlight the procedure header.

3) Press the **CLR** Key. The 'Remove <procedure name> from flight plan?' window is displayed.

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

Loading a departure into the flight plan using the Touchscreen Controller:

1) For the active flight plan:

- **a)** From Home, touch **PROC**.
- **b)** Touch the **Departure** Button to display the 'Departure Selection' Screen.

Or:

For the standby flight plan:

- **a)** From Home, touch **Flight Plan** > **Standby Flight Plan > PROC**.
- **b)** Touch the **Departure** Button to display the 'Departure Selection' Screen.

Or:

For the stored flight plan:

- **a)** From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
- **b)** Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
- **c)** Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
- **d)** Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.
- **e)** Touch the **Load Departure** Button to display the 'Departure Selection' Screen.

2) To access the 'Select Departure' Screen for the departure airport:

If the desired departure airport is already selected, touch the **Departure** Button. The 'Select Departure' Screen is displayed.

Or:

- **a)** Touch the **Airport** Button.
- **b)** Use the keypad and the **Enter** Button to select the departure airport. The 'Select Departure' Screen is displayed.

3) Scroll the list if needed and touch a Departure Selection Button to select a departure. The 'Select Transition' Screen may open.

4) Scroll the list if needed and available. Touch a Transition Selection Button to select the transition if necessary. The 'Select Runway' Screen will open.

5) Scroll the list if needed and touch a Runway Selection Button to select the runway and return to the 'Departure Selection' Screen.

6) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the departure on the active display pane or touch the **Show Chart** Button to show the departure chart instead.

7) Touch the **Load** Button to insert the departure into the flight plan.

Loading a departure into the active flight plan using the PFD Controller:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Departure'.
3) Press the **ENT** Key or the small knob. The 'Select Departure' Window is displayed.
4) Select an airport and press the **ENT** Key or the small knob.
5) Select a departure from the list and press the **ENT** Key or the small knob.
6) Select a runway (if required) and press the **ENT** Key or the small knob.
7) Select a transition (if required) and press the **ENT** Key or the small knob. 'Load?' is highlighted.
8) Press the **ENT** Key or the small knob to load the departure procedure.

Removing a departure from a flight plan using the Touchscreen Controller:

1) For the active flight plan:
   a) From Home, touch **PROC**.
   b) Touch the **Departure** Button to display the 'Departure Selection' Screen.
   c) Touch the **Remove** Button. A 'Remove Departure – <departure identifier> from flight plan?' Window is displayed.

   Or:

   a) From Home, touch **Flight Plan**.
   b) Touch the Departure Header Button to display the 'Departure Options' Window.
   c) Touch the **Remove Departure** Button. A 'Remove Departure – <departure identifier> from flight plan?' Window is displayed.

   Or:

   For the standby flight plan:
   a) From Home, touch **Flight Plan** > **Standby Flight Plan > PROC**.
   b) Touch the **Departure** Button to display the 'Departure Selection' Screen.
   c) Touch the **Remove** Button. A 'Remove Departure – <departure identifier> from flight plan?' Window is displayed.

   Or:

   a) From Home, touch **Flight Plan** > **Standby Flight Plan**.
   b) Touch the Departure Header Button to display the 'Departure Options' Window.
   c) Touch the **Remove Departure** Button. A 'Remove Departure – <departure identifier> from flight plan?' Window is displayed.

   Or:

   For the stored flight plan:
   a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

   - **b)** Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   - **c)** Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
   - **d)** Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.
   - **e)** Touch the **Load Departure** Button to display the 'Departure Selection' Screen.
   - **f)** Touch the **Remove** Button. A 'Remove Departure – <departure identifier> from flight plan?' Window is displayed.

2) Touch the **OK** Button. The departure is removed from the flight plan.

Removing a departure from the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.

2) Turn the large knob to highlight the departure header in the active flight plan.

3) Press the **CLR** Key. The ‘Remove <departure name> from flight plan?’ window is displayed.

4) With ‘OK’ highlighted, press the **ENT** Key or the small knob to remove the departure.

ARRIVALS

Loading an arrival into the flight plan using the Touchscreen Controller:

1) For the active flight plan:
   - **a)** From Home, touch **PROC**.
   - **b)** Touch the **Arrival** Button to display the 'Arrival Selection' Screen.

   Or:

   For the standby flight plan:
   - **a)** From Home, touch **Flight Plan** > **Standby Flight Plan > PROC**.
   - **b)** Touch the **Arrival** Button to display the 'Arrival Selection' Screen.

   Or:

   For the stored flight plan:
   - **a)** From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.
   - **b)** Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
   - **c)** Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.
   - **d)** Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.
   - **e)** Touch the **Load Arrival** Button to display the 'Arrival Selection' Screen.

2) To access the 'Select Arrival' Screen for the arrival airport:

   If the desired arrival airport is already selected, touch the **Arrival** Button. The 'Select Arrival' Screen is displayed.

Or:

- **a)** Touch the **Airport** Button.
- **b)** Use the keypad and the **Enter** Button to select the arrival airport. The 'Select Arrival' Screen is displayed.

3) Scroll the list if needed and touch an Arrival Selection Button to select the arrival. The 'Select Transition' Screen may open.

4) Scroll the list if needed and available. Touch a Transition Selection Button to select the transition. The 'Select Runway' Screen will open.

5) Scroll the list if needed and touch a Runway Selection Button to select the runway and return to the 'Arrival Selection' Screen.

6) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the arrival on the active display pane or touch the **Show Chart** Button to show the arrival chart instead.

7) Touch the **Load** Button to insert the arrival into the flight plan.

Loading an arrival into the active flight plan using the PFD Controller:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.

2) Highlight 'Select Arrival'.

3) Press the **ENT** Key or the small knob. The 'Select Arrival' Window is displayed.

4) Select an airport and press the **ENT** Key or the small knob.

5) Select an arrival from the list and press the **ENT** Key or the small knob.

6) Select a transition (if required) and press the **ENT** Key or the small knob.

7) Select a runway (if required) and press the **ENT** Key or the small knob. 'Load?' is highlighted.

8) Press the **ENT** Key or the small knob to load the arrival procedure.

Removing an arrival from a flight plan using the Touchscreen Controller:

1) For the active flight plan:

- **a)** From Home, touch **PROC**.
- **b)** Touch the **Arrival** Button to display the 'Arrival Selection' Screen.
- **c)** Touch the **Remove** Button. A 'Remove Arrival – <arrival identifier> from flight plan?' Window is displayed.

Or:

- **a)** From Home, touch **Flight Plan**.
- **b)** Touch the Arrival Header Button to display the 'Arrival Options' Window.
- **c)** Touch the **Remove Arrival** Button. A 'Remove Arrival – <arrival identifier> from flight plan?' Window is displayed.

Or:

For the standby flight plan:

a) From Home, touch **Flight Plan** > **Standby Flight Plan > PROC**.

b) Touch the **Arrival** Button to display the 'Arrival Selection' Screen.

c) Touch the **Remove** Button. A 'Remove Arrival – <arrival identifier> from flight plan?' Window is displayed.

Or:

a) From Home, touch **Flight Plan** > **Standby Flight Plan**.

b) Touch the Arrival Header Button to display the 'Arrival Options' Window.

c) Touch the **Remove Arrival** Button. A 'Remove Arrival – <arrival identifier> from flight plan?' Window is displayed.

Or:

For the stored flight plan:

a) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

b) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

c) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

d) Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.

e) Touch the **Load Arrival** Button to display the 'Arrival Selection' Screen.

f) Touch the **Remove** Button. A 'Remove Arrival – <arrival identifier> from flight plan?' Window is displayed.

2) Touch the **OK** Button. The arrival is removed from the flight plan.

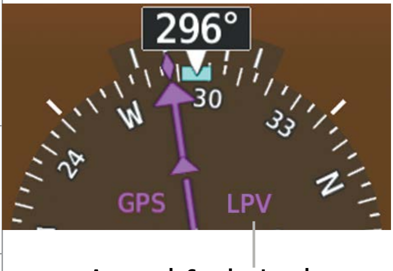
Removing an arrival from the active flight plan using the PFD Controller:

1) On the PFD Controller, press the **FPL** Key.
2) Turn the large knob to highlight the arrival header in the active flight plan.
3) Press the **CLR** Key. The 'Remove <arrival name> from flight plan?' window is displayed.
4) With 'OK' highlighted, press the **ENT** Key or the small knob to remove the arrival.

APPROACHES

Instrument Approaches

Published Approaches using GPS

HSI Annunciation	Description	Example on HSI
LNAV	Approach to the published MDA	 **Approach Service Level** **– LNAV, LNAV+V, L/VNAV, LP, LP+V, LPV**
LP		
LNAV+V	Approach with advisory vertical guidance to the published MDA	
LP+V		
L/VNAV	Approach with approved vertical guidance to the published DA	
LPV		

Approach Service Levels

Approach Service Level	Lateral Navigation Source	Vertical Navigation Source
LNAV	GPS	N/A
LNAV+V	GPS	GPS (advisory only)
LNAV/VNAV	GPS	GPS [1] or Baro VNAV [2]
LP	GPS [1]	N/A
LP+V	GPS [1]	GPS [1] (advisory only)
LPV	GPS [1]	GPS [1]

[1] *SBAS required*

[2] *See Approach Downgrade Behavior Table*

Source of Lateral and Vertical Navigation per Approach Service Level

Loss of SBAS

Due to the high level of precision required by some approach service levels, losing SBAS may require the pilot to acknowledge a downgrade of approach service level, or to abort the approach. See the following table for approach degradation behavior:

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LNAV	Approach phase not specified	SBAS not required. The approach is continued.	None	N/A
LNAV+V				
LNAV/ VNAV	Prior to the FAF	HSI displays approach service level in amber; VDI displays ‘NO GP’. [2]	Acknowledge message to display Baro VNAV Glidepath	N/A
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays ‘NO GP’.	None	LNAV [1]
LP	More than 1 min prior to the FAF	HSI displays approach service level in amber.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. [2]	Acknowledge message to redisplay CDI with LNAV	LNAV [1]
	At/after the FAF	CDI is removed. [2]	Acknowledge ABORT APR message to redisplay CDI	N/A
LP+V	More than 1 min prior to the FAF	HSI displays approach service level in amber; VDI displays ‘NO GP’.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. VDI displays ‘NO GP’. [2]	Acknowledge message to redisplay CDI with LNAV	LNAV [1]
	At/after the FAF	CDI is removed; VDI displays ‘NO GP’. [2]	Acknowledge ABORT APR message to redisplay CDI	N/A

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LPV	More than 1 min prior to the FAF	HSI displays approach service level in amber;	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in amber; VDI displays 'NO GP'. [2]	Acknowledge message to display Baro VNAV Glidepath	LNAV/ VNAV [1]
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV [1]

[1] If there are no LNAV minimums available for the approach, abort.
[2] System message is generated.

Approach Degradation Behavior

Loss of GPS

When GPS sensors no longer have sufficient integrity while on the final segment of a GPS approach, the approach service level on the HSI will turn amber, and the annunciation 'GPS LOI' will be displayed on the PFD, and the 'Notifications' Screen will display a 'LOI' message. If the aircraft is at or beyond the FAF when the condition occurs, the 'ABORT APR' message is displayed, and the CDI deviation bar is removed from the HSI. The CDI deviation bar will reappear when the 'ABORT APR' message is acknowledged.

If a total loss of GPS positioning occurs while on the final segment of a GPS approach, the approach service level on the HSI will turn amber, and the annunciation 'GPS LOI' will be displayed on the PFD, and the 'Notifications' Screen will display a 'LOSS OF GPS NAVIGATION' message. If the aircraft is at or beyond the FAF when the condition occurs, the 'ABORT APR' message is displayed. The CDI deviation bar is removed from the HSI and cannot be restored when GPS positioning is unavailable.

Loading and Activating an Approach

Loading an approach into the active/standby flight plan using the Touchscreen Controller:

1) For the active flight plan: From Home, touch **PROC**.

Or:

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

2) Touch the **Approach** Button to display the 'Approach Selection' Screen.

3) To select the approach:

- **a)** If the desired approach airport is already selected, touch the **Approach** Button. The 'Select Approach' Screen is displayed.
- **b)** Scroll the list, if needed, and touch the desired Approach Selection Button.
- **c)** The 'Select Transition' Screen is automatically displayed after selecting an approach from the 'Select Approach' Screen. Touch the desired Transition Selection Button to select the transition.

Or:

- **a)** Touch the **Airport** Button.
- **b)** Use the keypad and the **Enter** Button to select the approach airport. The 'Select Approach' Screen is displayed.
- **c)** Scroll the list, if needed, and touch the desired Approach Selection Button.
- **d)** The 'Select Transition' Screen is automatically displayed after selecting an approach from the 'Select Approach' Screen. Touch the desired Transition Selection Button to select the transition.

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 as needed and 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.
- **c)** Touch the **Transition** Button to display the 'Select Transition' Screen.

4) Scroll the list, if needed, and touch a Transition Selection Button to select the transition.

5) To set the minimums, touch the **Minimums** Button to display the ‘Minimums’ Screen.

- **a)** If Baro is desired, touch the **Minimums** Button to display the ‘Minimums Source’ Window.
- **b)** Touch the **Baro** Button to select barometric minimums and return to the ‘Minimums’ Screen.
- **c)** Use the keypad to select the minimums altitude.
- **d)** Touch the **Enter** Button to accept the barometric minimum altitude 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. The first time temperature compensation is enabled, the 'Destination Temp' Screen is displayed. Use the keypad and the **Enter** Button to select the temperature at the airport. If temperature compensation was previously enabled, the previous entry for destination temperature is automatically entered.

   c) Use the keypad to select the minimums altitude.

   d) Touch the **Enter** Button to accept the temperature compensated minimums and return to the 'Approach Selection' Screen.

6) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the approach on the active display pane or touch the **Show Chart** Button to show the approach chart instead.

7) Touch the **Load** Button to insert the approach into the flight plan.

If a visual approach was selected, the message 'Obstacle clearance is not provided for visual approaches' is displayed. Touch the **OK** Button to continue.

Loading an approach procedure into a stored flight plan:

1) From 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' Screen.

4) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

5) Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.

6) Touch the **Load Approach** Button to display the 'Approach Selection' Screen.

7) Select the airport and approach:

   a) If needed, 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 needed, touch the **Approach** Button to display the 'Select Approach' Screen with a list of available approaches.

   d) Scroll the list if needed and touch a approach selection button to select the approach and display the 'Select Transition' Screen.

   e) Scroll the list if needed and touch a transition selection button to select the transition and return to the 'Approach Selection' Screen.

   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 or GPS based approach is selected, or no approach is selected).

   Or:

   If the **SBAS** Button is not available , touch the **Approach** Button to display the 'Select Approach' Screen. Scroll as needed and 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.

c) Touch the **Transition** Button to display the 'Select Transition' Screen with a list of available transitions.

d) Scroll the list if needed and touch a transition selection button to select the transition and return to the 'Approach Selection' Screen.

8) Touch the **Preview** Button, then the **Show on Map** Button to show the preview of the approach on the active display pane or touch the **Show Chart** Button to show the approach chart instead.

9) Touch the **Load** Button to insert the approach into the stored flight plan.

Activating a previously loaded approach using the Touchscreen Controller:

1) From Home, touch **PROC**.

2) Touch the **Activate Approach** Button to activate the approach.

Or:

1) From 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.

Activating a previously loaded approach using the PFD Controller:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.

2) Highlight 'Activate Approach'.

3) Press the **ENT** Key or the small **PFD** Knob. The approach is activated.

Activating a previously loaded approach with vectors to final using the Touchscreen Controller:

1) From Home, touch **PROC**.

2) Touch the **Activate Vectors To Final** Button to activate vectors to final.

Or:

1) From 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.

Activating a previously loaded approach with vectors to final using the PFD Controller:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.

2) Highlight 'Activate Vector-To-Final'.

3) Press the **ENT** Key or the small **PFD** Knob. Vector to final is activated.

Removing an Approach

Removing an approach from the active/standby flight plan using the Touchscreen Controller:

1) For the active flight plan: From Home, touch **PROC**.

Or:

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

2) Touch the **Approach** Button to display the 'Approach Selection' Screen.

3) Touch the **Remove** Button. A 'Remove approach <approach> from flight plan?' Window is displayed.

4) Touch the **OK** Button. The approach is removed from the active flight plan. To cancel the request, touch the **Cancel** Button.

Or:

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

Or:

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

2) Touch the Approach Header Button to display the 'Approach Options' Screen.

3) Touch the **Remove Approach** Button. A 'Remove Approach – <approach> from flight plan?' Window is displayed.

4) Touch the **OK** Button. The approach is removed from the active flight plan. To cancel the request, touch the **Cancel** Button.

Removing an approach from a stored flight plan using the Touchscreen Controller:

1) From Home, touch **Flight Plan > Flight Plan Options > Flight Plan Catalog** to display the 'Flight Plan Catalog' Screen.

2) Scroll the list if needed and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.

3) Touch the **Edit** Button to display the 'Edit Stored Flight Plan' Screen.

4) Select the approach to remove:

  a) Touch the Approach Header Button to display the 'Approach Options' Window.

  b) Touch the **Remove Approach** Button. A 'Remove Approach – <approach identifier> from flight plan?' Window is displayed.

  Or:

  a) Touch the **Flight Plan Options** Button to display the 'Flight Plan Options' Window.

  b) Touch the **Load Approach** Button to display the 'Approach Selection' Screen.

  c) Touch the **Remove** Button. A 'Remove Approach – <approach identifier> from flight plan?' Window is displayed.

5) Touch the **OK** Button. The approach is removed from the stored flight plan. To cancel the request, touch the **Cancel** Button.

Missed Approach

Activating a missed approach in the active flight plan:

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

Or:

Fly past the MAP and press the **SUSP** Softkey on the PFD.

Or:

1) From Home, touch **PROC**.
2) Touch the **Activate Missed Approach** Button to activate the missed approach. The system begins automatic sequencing through the missed approach waypoints to the MAHP. (The **Activate Missed Approach** Button is available after the leg to the FAF becomes active and FMS is the active NAV source on the PFD.)

Or:

1) From Home, touch **Flight Plan**.
2) Touch the **Approach Header** Button to display the 'Approach Options' Screen.
3) Touch the **Activate Missed Approach** Button to activate the missed approach. The system begins automatic sequencing through the missed approach waypoints to the MAHP. (The **Activate Missed Approach** Button is available after the leg to the FAF becomes active and FMS is the active NAV source on the PFD.)

Or:

1) Press the **PROC** Key on the PFD Controller. The 'Procedures' Window is displayed.
2) Highlight 'Activate Missed Approach'.
3) Press the **ENT** Key or the small **PFD** Knob to activate the missed approach. The system begins automatic sequencing through the missed approach waypoints to the MAHP.

Temperature Compensation

TEMPERATURE COMPENSATION FOR APPROACH ALTITUDES

Manually enabling/disabling temperature compensation for approach waypoint altitudes:

1) From Home, touch **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) The first time temperature compensation is enabled, the 'Destination Temp' Screen is displayed. Use the keypad and the **Enter** Button to select the temperature at the airport. Touch the **Back** Button to return to the 'Temp Compensation' Screen. If temperature compensation was previously enabled, the previous entry for destination temperature is automatically entered.
5) To edit the airport temperature, touch the **Temp at Dest** Button and use the keypad and the **Enter** Button to select the temperature at the airport.

TEMPERATURE COMPENSATION FOR APPROACH MINIMUMS

Entering a temperature compensated minimum into an approach:

1) From Home, touch **PROC** > **Approach** to display the 'Approach Selection' Screen.

   Or:

   a) From Home, touch **Flight Plan**.
   b) Touch the Approach Header Button to display the 'Approach Options' Window.
   c) Touch the **Edit Approach** Button to display the 'Approach Selection' Screen.
2) Touch the **Minimums** Button to display the 'Minimums' Screen.
3) Touch the **Minimums** Button to display the 'Minimums Source' Window.
4) Touch the **Temp Comp** Button. If necessary, use the keypad and touch the **ENT** Button to enter the destination airport temperature. If temperature compensation was previously enabled, the previous entry for destination temperature is automatically entered.
5) If not already entered, use the keypad to select the minimums altitude.
6) Touch the **Enter** Button to return to the 'Approach Selection' Screen.

Entering a temperature compensated minimum into an approach using the PFD Controller:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Use the large **PFD** Knob to highlight 'Select Approach'.
3) Press the **ENT** Key or the small **PFD** Knob. The 'Select Approach' Window is displayed.
4) Press the **CLR** Key to close the approach selection window.
5) Use the large **PFD** Knob to highlight the 'Minimums' Field.
6) Use the small **PFD** Knob to select 'TEMP COMP', then press the **ENT** Key or the small **PFD** Knob. The altitude field is highlighted.
7) If not already entered, use the **PFD** knobs to select the minimums altitude, then press the **ENT** Key or the small **PFD** Knob. The "TEMP AT DEST' Field is highlighted.
8) Use the small **PFD** Knob to select the temperature at the destination, then press the **ENT** Key or the small **PFD** Knob. The temperature compensated altitude is computed and displayed.

Calculating basic operating weight for the active flight plan:

1) From Home, touch **PERF** > **Weight and Fuel**.

   Or:

   From Home, touch **Utilities** > **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 Home, touch **PERF** > **Weight and Fuel**.

   Or:

   From Home, touch **Utilities** > **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 Home, touch **PERF** > **Weight and Fuel**.

   Or:

   From Home, touch **Utilities** > **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 Home, touch **PERF** > **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 Home, touch **PERF** > **Weight and Fuel**.

   Or:

   From Home, touch **Utilities** > **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.

GENERAL PERFORMANCE AND TRIP PLANNING

CLIMB / CRUISE / DESCENT MANAGEMENT

Climb

Entering the climb schedule:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Climb** Tab.
3) To enter a Pilot-Defined climb schedule, skip to Step 5. Otherwise, touch the **Climb Schedule** Button to bring up a list of already defined climb schedules.
4) Touch the button for the desired climb schedule to select it and return to the previous screen.
5) To enter Pilot-Defined values for the climb schedule, touch the **Climb Schedule** Button to display a list of climb schedule options.
6) Touch the **Pilot-Defined Climb** Button. Then, use the keypad and the **Enter** Button, as necessary, to input the desired climb schedule values.

Modifying the climb transition altitude:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Climb** Tab.
3) Touch the **Transition Altitude** Button to display the keypad.
4) Use the keypad and the **Enter** Button to select the desired transition altitude.

Or:

Touch the **Revert to Published** Button. Then, touch the **OK** Button to revert the transition altitude to the published altitude.

Entering climb speed limits:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Climb** Tab.
3) Touch the **Altitude Speed Limit** Button or the **Terminal Area Speed Limit** Button to display the keypad for the selected setting.
4) Use the keypad and the **Enter** Button to select the desired values and return to the previous screen.
5) Repeat Steps 3 and 4, as necessary, to enter the speed, altitude, and distance values.

Cruise

Entering the cruise schedule:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Cruise** Tab.
3) To enter a Pilot-Defined cruise schedule, skip to Step 5. Otherwise, touch the **Cruise Schedule** Button to bring up a list of already defined cruise schedules.
4) Touch the button for the desired cruise schedule to select it and return to the previous screen.
5) To enter Pilot-Defined values for the cruise schedule, touch the **Cruise Schedule** Button to display a list of cruise schedule options.
6) Touch the **Pilot-Defined Cruise** Button. Then, use the keypad and the **Enter** Button, as necessary, to input the desired cruise schedule values.

Descent

Entering the descent schedule:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Descent** Tab.
3) To enter a Pilot-Defined descent schedule, skip to Step 5. Otherwise, touch the **Descent Schedule** Button to bring up a list of already defined descent schedules.

4) Touch the button for the desired descent schedule to select it and return to the previous screen.
5) To enter Pilot-Defined values for the descent schedule, touch the **Descent Schedule** Button to display a list of descent schedule options.
6) Touch the **Pilot-Defined Descent** Button. Then, use the keypad and the **Enter** Button as necessary to input the desired descent schedule values.

Modifying the descent transition level:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Descent** Tab.
3) Touch the **Transition Level** Button to display the keypad.
4) Use the keypad and the **Enter** Button to select the desired transition level.

   Or:

   Touch the **Revert to Published** Button. Then, touch the **OK** Button to revert the transition level to the published altitude.

Entering descent speed limits:

1) From Home, touch **Flight Plan > VNAV.**

   Or:

   From Home, touch **PERF > VNAV.**
2) Touch the **Descent** Tab.
3) Touch the **Altitude Speed Limit** Button or the **Terminal Area Speed Limit** Button to display the keypad for the selected setting.
4) Use the keypad and the **Enter** Button to select the desired value and return to the previous screen.
5) Repeat Steps 3 and 4, as necessary, to enter the speed, altitude, and distance values.

TRIP PLANNING

Selecting the Stored Flight Plan – Cumulative trip route mode:

1) From Home, 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 Home, 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 Home, 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 Home, 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 to select the mode and return to the 'Trip Planning' Screen.

Selecting the waypoints trip route mode:

1) From Home, 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) 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.

When the manual entry mode is selected, the other eight trip input data fields must be entered by the pilot, in addition to flight plan and leg selection.

Entering manual data for trip statistics calculations:

1) From Home, 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.

TAKEOFF AND LANDING

TAKEOFF AND LANDING DATA (OPTIONAL)

Accessing TOLD

After applying power to the system, the 'Initialization' Screen allows entry of Takeoff Data, and then primary access to the 'Takeoff Data' Screen and the 'Landing Data' Screen is from the 'PERF' Screen, as indicated by the procedures throughout this section. Access to the 'Takeoff Data' Screen and the 'Landing Data' Screen is also available from the active flight plan.

Accessing the 'Takeoff Data' Screen from the 'Home' Screen:

From Home, touch **PERF** > **Takeoff Data**.

Accessing the 'Takeoff Data' Screen from the active flight plan:

1) From Home, touch **Flight Plan**.
2) Touch the **Origin** Button to display the 'Origin Options' Window.

   Or:

   Touch the **Departure** Button to display the 'Departure Options' Window.
3) Touch the **Takeoff Data** Button.

Accessing the 'Landing Data' Screen from the 'Home' Screen:

From Home, touch **PERF** > **Landing Data**.

Accessing the 'Landing Data' Screen from the active flight plan:

1) From Home, touch **Flight Plan**.
2) Touch the **Arrival** Button to display the 'Arrival Options' Window.

   Or:

   Touch the **Approach** Button to display the 'Approach Options' Window.

   Or:

Touch the **Destination** Button to display the 'Destination Options' Window.

3) Touch the **Landing Data** Button.

Takeoff Data

Origin Tab

Manually selecting an origin airport and runway on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Origin** Tab, if necessary, to display the origin airport data.
3) Touch the origin airport button to display the keypad.
4) Use the keypad to enter the origin airport.
5) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.
6) Touch the **Runway** Button to display the 'Select Runway' Window.
7) Touch the desired runway selection button.

Importing the planned takeoff weight to the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Origin** Tab, if necessary, to display the **Reload Weight** Button.
3) Touch the **Reload Weight** Button (if enabled) to select the weight from the 'Weight and Fuel' Screen.

Weather Tab

Selecting the runway surface condition on the Takeoff Data Screen:

1) From **Home**, touch **PERF** > **Takeoff Data**.
2) Touch the **Weather** Tab, if necessary, to display the runway surface data.
3) Touch the **Runway Surface** Button to display the Runway Condition window.
4) Touch the desired runway condition button to select the runway condition.
5) The system returns to the 'Takeoff Data' Screen.

Selecting wind value on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Weather** Tab, if necessary, to display the wind data.
3) Select the wind value:

    Touch the **Load METAR Wind** Button to use METAR winds for the Origin airport.

    Or:

    a) To enter winds manually, touch the **Wind** Button to display the keypad.
    b) Touch the desired Mode Button for magnetic or true winds.
    c) Use the keypad to enter the wind direction.
    d) Touch the **Enter** Button to accept the entry, and display the Wind Speed keypad.

   e) Use the keypad to enter the wind speed.
   f) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

Selecting temperature value on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Weather** Tab, if necessary, to display the wind data.
3) Select the temperature value:

   Touch the **Sync Temp** Button to use the aircraft RAT.

   Or:

   a) To enter manually, touch the **Temperature** Button to display the keypad.
   b) Use the keypad to enter the temperature.
   c) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

Selecting barometric pressure value on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Weather** Tab, if necessary, to display the wind data.
3) Select the pressure value:

   Touch the **Sync Baro** Button to use the aircraft setting for the selected PFD.

   Or:

   a) To enter manually, touch the **Barometric Pressure** Button to display the keypad.
   b) Use the keypad to enter the pressure.
   c) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

RUNWAY TAB

Selecting runway elevation, heading, or gradient on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Runway** Tab, if necessary, to display the runway data.
3) Touch a runway data button to display the keypad.
4) Use the keypad to enter the value.
5) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

Entering takeoff run available:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Runway** Tab.
3) Touch the **Takeoff Run Available** Button to display the 'Takeoff Run Available' Screen.
4) Enter or change the takeoff run available distance:
   a) Touch the **Shorten DEP End** Button to display the keypad.
   b) Use the keypad to enter the reduction distance from the departure end of the runway.

Or:

- **a)** Touch the **Takeoff Run Available** Button to display the keypad.
- **b)** Use the keypad to enter the shortened takeoff run available distance.
- **c)** If an Origin runway had been selected, touch the **DEP** Button or **APPR** Button to shorten the distance from the approach or departure end.

Or:

- **a)** Touch the **Shorten APPR End** Button to display the keypad.
- **b)** Use the keypad to enter the reduction distance from the approach end of the runway.

5) Repeat Step 4 until the takeoff run data is displayed correctly.

6) Touch the **Save** Button to make the changes and return to the 'Takeoff Data' Screen.

TAKEOFF CONFIG TAB

Selecting a takeoff configuration setting on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.

2) Touch the **Takeoff Config** Tab.

3) Input the configuration settings:

- **a)** Touch a takeoff configuration button to display a list of settings.
- **b)** Touch the desired setting button to choose the setting and return to the 'Takeoff Data' Screen.

Or:

- **a)** Touch a takeoff configuration button to display the keypad.
- **b)** Use the keypad to enter the value.
- **c)** Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

Selecting a default value for a takeoff configuration item on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.

2) Touch the **Takeoff Config** Tab.

3) Touch the **Change Defaults** Button to display the 'Defaults' Screen.

4) Touch a default takeoff configuration button to display a list of settings.

5) Touch the desired setting button to choose the setting and return to the 'Defaults' Screen. Repeat steps 4 and 5 as desired.

6) Touch the **Back** Button to return to the 'Takeoff Data' Screen.

DESTINATION TAB

Selecting a destination airport and runway on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.

2) Touch the **DEST** Tab, if necessary, to display the destination airport and runway data.

3) Touch the destination airport button to display the keypad.

4) Use the keypad to enter the destination airport.
5) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.
6) Touch the **Runway** Button to display the 'Select Runway' Window.
7) Touch the desired runway selection button.

Selecting the landing weight:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **DEST** Tab, if necessary.
3) Enter a weight:

   Touch the **Reload Weight** Button to select the estimated landing weight from the 'Weight and Fuel' Screen.

   Or:

   a) Touch the **Landing Weight** Button.
   b) Enter the weight on the keypad and touch the **Enter** Button.

WEATHER TAB

Selecting a manual wind value on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Weather** Tab, if necessary, to display the wind data.
3) Touch the **Wind** Button to display the 'Wind Direction' keypad.
4) Touch the desired Mode Button for magnetic or true winds.
5) Use the keypad to enter the wind direction.
6) Touch the **Enter** Button to accept the entry, and display the 'Wind Speed' keypad.
7) Use the keypad to enter the wind speed.
8) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Selecting a manual temperature value on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Weather** Tab, if necessary, to display the temperature data.
3) Touch the **Temperature** Button to display the keypad.
4) Use the keypad to enter the temperature.
5) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Selecting a manual barometric pressure value on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Weather** Tab, if necessary, to display the barometric pressure data.
3) Touch the **Barometric Pressure** Button to display the keypad.
4) Use the keypad to enter the barometric pressure.
5) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Runway Tab

Entering landing distance available:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Runway** Tab.
3) Touch the **Landing DIS Available** Button to display the 'Landing Distance Available' Screen.
4) Enter or change the landing distance available:
    a) Touch the **Shorten DEP End** Button to display the keypad.
    b) Use the keypad to enter the reduction distance from the departure end of the runway.

    Or:

    a) Touch the **Landing Distance Available** Button to display the keypad.
    b) Use the keypad to enter the shortened available landing distance.
    c) If an Destination runway had been selected, touch the **DEP** or **APPR** Button to shorten the distance from the approach or departure end.

    Or:

    a) Touch the **Shorten APPR End** Button to display the keypad.
    b) Use the keypad to enter the reduction distance from the approach end of the runway.
5) Touch the **Save** Button to make the changes and return to the 'Landing Data' Screen.

Selecting landing runway elevation, heading, or slope:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Runway** Tab, if necessary, to display the runway data.
3) Touch a runway data button to display the keypad.
4) Use the keypad to enter the value.
5) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Landing Config Tab

Selecting a landing configuration setting on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Landing Config** Tab, if necessary, to display the landing configuration settings.
3) Input the configuration settings:

    Touch the desired setting button to choose the setting and return to the 'Landing Data' Screen.

    Or:

    a) Touch a landing configuration button to display the keypad.
    b) Use the keypad to enter the value.
    c) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Selecting a default value for a landing configuration item on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.
2) Touch the **Landing Config** Tab, if necessary, to display the landing configuration settings.
3) Touch the **Change Defaults** Button to display the 'Defaults' Screen.
4) Touch a default landing configuration button to display a list of settings or keypad.
5) Enter the desired value and touch the **Enter** Button or touch the desired setting button, and return to the 'Defaults' Screen. Repeat steps 4 and 5 as desired.
6) Touch the **Back** Button to return to the 'Landing Data' Screen.

Message	Condition
CHK WEIGHT	The estimated landing weight used for TOLD is different from a newly calculated estimated landing weight by 2000 lbs.
CHK STEEP	Steep Approach has been selected by the flight crew; TOLD must be calculated manually.

Takeoff Data

Selecting an origin airport, runway, and required takeoff distance on the 'Takeoff Data' Screen:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Origin** Tab, if necessary, to display the origin airport and runway data.
3) Touch the origin airport button to display the keypad.
4) Use the keypad to enter the origin airport.
5) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.
6) Touch the **Runway** Button to display the 'Select Runway' Window.
7) Touch the desired runway selection button, and return to the 'Takeoff Data' Screen.
8) Touch the **Required Takeoff DIS** Button to display the keypad.
9) Use the keypad to enter the required takeoff distance.
10) Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.

Entering takeoff run available:

1) From Home, touch **PERF** > **Takeoff Data**.
2) Touch the **Runway** Tab.
3) Touch the **Takeoff Run Available** Button to display the 'Takeoff Run Available' Screen.
4) Enter or change the takeoff run available distance:
   a) Touch the **Shorten DEP End** Button to display the keypad.
   b) Use the keypad to enter the reduction distance from the departure end of the runway.

Or:

a) Touch the **Takeoff Run Available** Button to display the keypad.

b) Use the keypad to enter the shortened takeoff run available distance.

c) If an Origin runway had been selected, touch the **DEP** Button or the **APPR** Button to shorten the distance from the approach or departure end.

Or:

a) Touch the **Shorten APPR End** Button to display the keypad.

b) Use the keypad to enter the reduction distance from the approach end of the runway.

5) Repeat Step 4 until the takeoff run data is displayed correctly.

6) Touch the **Save** Button to make the changes and return to the 'Takeoff Data' Screen.

Landing Data

Selecting a destination airport, runway, and required landing distance on the 'Landing Data' Screen:

1) From Home, touch **PERF** > **Landing Data**.

2) Touch the **DEST** Tab, if necessary, to display the destination airport and runway data.

3) Touch the destination airport button to display the keypad.

4) Use the keypad to enter the origin airport.

5) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

6) Touch the **Runway** Button to display the 'Select Runway' Window.

7) Touch the desired runway selection button, and return to the 'Landing Data' Screen.

8) Touch the **Required Landing DIS** Button to display the keypad.

9) Use the keypad to enter the required landing distance.

10) Touch the **Enter** Button to accept the entry, and return to the 'Landing Data' Screen.

Entering landing distance available:

1) From Home, touch **PERF** > **Landing Data**.

2) Touch the **Runway** Tab.

3) Touch the **Landing DIS Available** Button to display the 'Landing Distance Available' Screen.

4) Enter or change the landing distance available:

a) Touch the **Shorten DEP End** Button to display the keypad.

b) Use the keypad to enter the reduction distance from the departure end of the runway.

Or:

a) Touch the **Landing Distance Available** Button to display the keypad.

b) Use the keypad to enter the shortened available landing distance.

c) If an Destination runway had been selected, touch the **DEP** Button or the **APPR** Button to shorten the distance from the approach or departure end.

Or:

a) Touch the **Shorten APPR End** Button to display the keypad.

b) Use the keypad to enter the reduction distance from the approach end of the runway.

5) Touch the **Save** Button to make the changes and return to the 'Landing Data' Screen.

RAIM (RECEIVER AUTONOMOUS INTEGRITY MONITORING) PREDICTION

In most cases performing a RAIM prediction is not necessary. However, in some cases, the selected approach may be outside the SBAS coverage area and it may be necessary to perform a RAIM prediction for the intended approach.

Receiver Autonomous Integrity Monitoring (RAIM) is a GPS receiver function that performs a consistency check on all tracked satellites. RAIM ensures the available satellite geometry allows the receiver to calculate a position within a specified RAIM protection limit (2.0 nautical miles for oceanic and enroute, 1.0 nm for terminal, and 0.3 nm for non-precision approaches). During oceanic, enroute, and terminal phases of flight, RAIM is available nearly 100% of the time.

The RAIM prediction function also indicates whether RAIM is available at a specified date and time. RAIM computations predict satellite coverage within ±15 min of the specified arrival date and time.

Because of the tighter protection limit on approaches, there may be times when RAIM is not available. The system automatically monitors RAIM and warns with an alert message when it is not available. If RAIM is not predicted to be available for the final approach course, the approach does not become active, as indicated by the messages “Approach is not active” and “RAIM not available from FAF to MAP”. If RAIM is not available when crossing the FAF, the missed approach procedure must be flown.

***NOTE:** The system RAIM prediction capability does not meet all RAIM prediction requirements. Reference the RAIM/Fault Detection and Exclusion (FDE) Prediction Tool at flygarmin.com as required.*

***NOTE:** The GPS STATUS Pane cannot be viewed in a reversionary display pane. Use the Joystick to highlight the PFD to access RAIM prediction, or highlight a non-reversionary display pane to view the GPS STATUS Pane and/or access RAIM prediction.*

Predicting RAIM availability:

1) From Home, touch **Utilities** > **GPS Status**.

2) Touch the **Location** Button to enter the location for which RAIM will be predicted. Touch the **Present Position** Button to enter the aircraft's current position as the prediction location or touch the **Waypoint** Button to enter waypoint information.

3) If the **Waypoint** Button was touched in step 2, enter the waypoint identifier using the alphanumeric buttons. If the **Present Position** Button was touched in step 2, proceed to step 5.

4) Touch the **Enter** Button.

5) The location selected for RAIM prediction is now displayed on the **Location** Button.

6) Touch the **Arrival Time** Button.

7) Enter the planned arrival time for the selected location using the numeric buttons

8) Touch the **Enter** Button. The time is now displayed on the **Arrival Time** Button.

9) Touch the **Arrival Date** Button.

10) Touch the button for the desired year. If necessary, touch and drag in the window, or use the **Up** and **Down** Buttons to display the desired year.

11) Touch the button for the desired month. If necessary, touch and drag in the window, or use the **Up** and **Down** Buttons to display the desired month.

12) Touch the button for the desired day. If necessary, touch and drag in the window, or use the **Up** and **Down** Buttons to display the desired day. The selected date is now displayed on the **Arrival Date** Button.

13) Touch the **Compute RAIM** Button. One of the following will be displayed in the 'RAIM Status' Field.

- "Computing" — RAIM calculation in progress
- "Available" — RAIM is predicted to be available for the specified waypoint, time, and date
- "Not Available" — RAIM is predicted to be unavailable for the specified waypoint, time, and date
- "--------" — RAIM has not been computed for the specified waypoint, time, and date combination

HAZARD AVOIDANCE

DATA LINK WEATHER

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

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

Activating the SiriusXM Weather Service

Before SiriusXM Weather and SiriusXM Satellite Radio can be used, the services must be activated by providing SiriusXM's customer service the coded IDs unique to the installed receiver. SiriusXM Satellite Radio (audio) and SiriusXM Weather (data) services each have coded IDs. The Data and Audio Radio IDs must be provided to activate the weather service and entertainment subscriptions, respectively. These IDs are in the following locations:

- The SiriusXM Info Screen on the Touchscreen Controller.
- The label on the back of the data link receiver.
- The GDL 69A SiriusXM Satellite Radio Activation Instructions included with the unit.

Contact the installer if the Audio and Data Radio IDs cannot be located.

SiriusXM uses the coded IDs to send an activation signal to enable the system to receive weather data and/or entertainment programming. Note that weather product softkeys and enable/disable buttons are not shown or available

Establishing a SiriusXM Weather Data account:

1) From Home, touch **Utilities** > **Setup** > **SiriusXM Info**.
2) Note the ID shown in the 'Data Radio' Window.
3) Contact SiriusXM customer service through the telephone number listed on its website, www.siriusxm.com. Follow the instructions provided by SiriusXM customer service.

Activating SiriusXM Weather services:

1) Position the aircraft so the GDL 69A antenna has an unobstructed view of the sky, away from buildings.
2) From Home, touch **Utilities** > **Setup** > **SiriusXM Info**.

3) Touch the **Start** Button in the Activation Window. The Activation Window shows 'ACTIVATING' while processing the activation.

4) In the Weather Products Window, scroll as needed to view available weather products. Available weather products appear as white text; unavailable weather products appear in subdued (gray) text. It may take several minutes before all subscribed-to weather products become available.

5) When the available weather products match all the weather products in the SiriusXM weather subscription, touch the **Lock** Button to save the activation changes, or touch the **Cancel**, **Back**, or **Home** Buttons to exit without saving changes.

Activating Garmin Connext Weather

Garmin Connext weather requires an active Iridium satellite network account and an active subscription to the Garmin Connext Weather service.

Registering the system to receive Garmin Connext Weather:

1) Ensure the aircraft is outside and has a clear view of the sky (if connecting via the Iridium network), or a WiFi Internet connection has been established (using the GDL 59). Refer to the Additional Features section for more information about using the GDL 59.

2) From Home, touch **Utilities > Setup > Connext Registration**. If the Registration Information Window indicates 'Not Registered', continue with this procedure.

3) Touch the **Register** Button.

4) Use the Touchscreen Controller **Keypad** or large and small right knobs to supply the access code provided from Garmin Connext customer service.

5) Touch the **Enter** Button or push the right knob. The system contacts the Garmin Connext Weather service. Registration is complete when the Registration Information Window displays the name of the airframe, tail number, and the serial numbers for the airframe and Iridium unit.

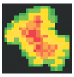
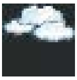
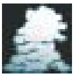
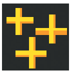
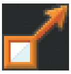
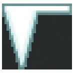
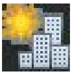
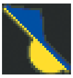
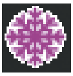
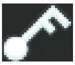
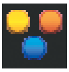
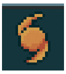
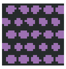
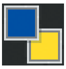
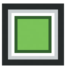
WEATHER PRODUCT AGE

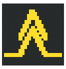
WARNING: *Do not use the indicated data link weather product age to determine the age of the weather information shown by the data link weather product. Due to time delays inherent in gathering and processing weather data for data link transmission, the weather information shown by the data link weather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

Displaying/Removing Weather Product Age Information on the PFD Navigation Maps:

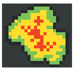
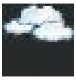
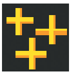
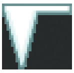
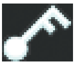
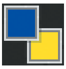
1) With the PFD Inset Map or HSI Map displayed, press the **PFD Map Settings** Softkey.

2) Press the **WX Overlay** Softkey until the cyan SiriusXM is displayed.

SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
Next-generation Radar (NEXRAD)		30
Cloud Tops		60
Echo Tops		30
SiriusXM Lightning		30
Storm Cell Movement		30
SIGMETs	SIGM	60
AIRMETs	AIRM	60
METARs		90
City Forecast		90
Surface Analysis		60
Freezing Levels		120
Winds Aloft		90
County Warnings		60
Cyclone (Hurricane) Warnings		60
Icing Potential (CIP and SLD)		90
Pilot Weather Report (PIREPs)		90
Air Report (AIREPs)		90

SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
Turbulence		180
No Radar Coverage	No product symbol	30
Temporary Flight Restrictions (TFRs)	TFR	60
Terminal Aerodrome Reports (TAFs)	No product symbol	60

SiriusXM Weather Product Symbols and Data Timing

Garmin Connext Weather Product	Product Symbol	Expiration Time (Minutes)
Connext Radar		30
IR Satellite		60
Connext Lightning		30
SIGMETs	SIGM	60
AIRMETs	AIRM	60
Meteorological Aerodrome Report (METARs)		90
Winds Aloft		90
Pilot Weather Reports (PIREPs)		90
Temporary Flight Restrictions (TFRs)	TFR	60
Terminal Aerodrome Reports (TAFs)	No product symbol	60

Garmin Connext Weather Product Symbols and Data Timing

DISPLAYING DATA LINK WEATHER PRODUCTS

Weather Data Link Pane

Viewing the Weather Data Link Pane and changing the data link weather source, if applicable:

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 'Data Link Weather' is shown (such as 'Weather Radar' in the pane title), continue with the procedure to view the desired Weather Pane. (SiriusXm or Connext).
2) Touch the **Weather Selection** Button. The 'Weather Selection' Screen appears.
3) Touch either **SiriusXM or Connext Weather** Button. Button is highlighted and becomes **SiriusXM or Connext Settings** Button. The system shows the selected weather pane.
4) If necessary, touch either the **SiriusXM or Connext Settings** Button to access controls for the selected weather pane.

Selecting a Data Link Weather Source for 'Navigation Map' Panes:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** tab.
3) Scroll if necessary to view the **WX Source** Button. Cyan text on the button indicates currently selected weather data link weather source.
4) Touch the **WX Source** Button.
5) Touch the button for the data link weather source to be used (such as **SiriusXM or Connext**).

Selecting a Data Link Weather source for the (PFD Inset Map or HSI Map):

1) Press the **PFD Map Settings** Softkey.
2) Press the **Data Link Settings** Softkey.
3) Press the **Data Link** Softkey. Each selection of the softkey changes the source, which is displayed in cyan on the softkey.

NOTE: *The availability of specific Garmin Connext Weather products varies by region and by subscription type. For Garmin Connext weather product coverage information, refer to* **Selecting Maximum Navigation Map Range for Data Link Weather Products:**

1) From Home, touch **Map** > **Map Selection** > **Map Settings.**
2) If necessary, touch the **Sensor** Tab.
3) Scroll through the list to view the available weather products.
4) Touch a range button next to the corresponding weather product, then touch to select the maximum navigation map range at which the system will display the selected weather product.

Viewing legends for weather products enabled on the 'Data Link' (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings.**
2) Scroll as necessary and touch the **Legend** Button. The 'Weather Legends' Window appears on the Touchscreen Controller.
3) Scroll as needed to view the weather legends in the 'Weather Legends' Window.
4) To remove the 'Weather Legends' Window, touch the **Back** Button or the **Home** Button.

Selecting a map orientation for the Data Link (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Touch the **Orientation** Button to change the selected map orientation (displayed in cyan).
3) Touch the desired map orientation button (**Heading Up, Track Up, North Up, Sync to Nav Map**).

Displaying/Removing Weather Product Age Information on the (PFD Inset Map or HSI Map):

1) Press the **PFD Map Settings** Softkey.
2) Select the **Weather Legend** Softkey to enable/disable the weather product age information.

CONNEXT WEATHER DATA REQUESTS

Defining Weather Data Request Coverage Area:

1) From Home, touch **Weather** > **Weather Selection** > **Connext Weather** > **Connext 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 Connext Weather Settings Screen, or touch the **Home** Button.

Sending/Cancelling an Immediate Weather Data Request:

1) From Home, touch **Weather > Weather Selection > Connext Weather > Connext Settings**.
2) Touch the **Send Immediate Request** Button. The system contacts Garmin Connext 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 Connext Data Requests:

1) From Home, touch **Weather > Weather Selection > Connext Weather > Connext 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 Connext Data Requests.

WEATHER PRODUCT OVERVIEW

NEXRAD (SiriusXM)

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

Displaying NEXRAD weather information ('SiriusXM Weather' Pane):

1) From Home, touch **Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.**
2) Touch the **NEXRAD** Button in the Background Window to enable/disable the display of NEXRAD information.

Displaying NEXRAD weather information ('Navigation Map' Pane)

1) From Home, touch **Map > Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the **NEXRAD Data** Button in the Overlays Window to enable/disable the display of the NEXRAD weather product on the 'Navigation Map' Pane.

Changing the NEXRAD coverage area ('Navigation Map' Pane):

1) From Home, touch **Map > Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the NEXRAD Data **Settings** Button.
4) Touch the **NEXRAD Data** coverage Button (displaying either '**Composite Reflectivity CONUS**' or '**Base Reflectivity All Regions**' in cyan).
5) Touch the '**Composite Reflectivity CONUS**' or '**Base Reflectivity All Regions**' Button, or touch **Back** or **Home** to exit without changing the coverage area.

Displaying NEXRAD weather information (PFD Inset Map or HSI Map):

1) If necessary, enable the Inset Map or HSI Map.
2) Press the **PFD Map Settings Softkey.**
3) Press the **WX Overlay** Softkey to enable/disable the display of NEXRAD Data.

Changing the NEXRAD coverage area (PFD Inset Map or HSI Map):

1) Press the **PFD Map Settings** Softkey.
2) Press the **Data Link Settings** Softkey.
3) Press the **Data Link** Softkey as needed to cycle among the options (SiriusXM, Connext, and ACARS) until 'SiriusXM' appears on the softkey.
4) Press the **Source** Softkey. Each selection of the softkey changes the source 'CMP' or 'BAS', which is displayed in cyan on the softkey.

Changing the NEXRAD coverage area ('SiriusXM Weather' Pane):

1) From Home, 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 **Composite Reflectivity** Button.
5) Touch either **Composite Reflectivity CONUS** or **Base Reflectivity All Regions** Button.
6) When finished, touch the **Back** Button or the **Home** Button.

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

1) From Home, 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 NEXRAD animation.
5) When finished, touch the **Back** Button or the **Home** Button.

Displaying Time-Lapse NEXRAD Animation on the 'Navigation Map' Pane:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll if necessary and touch the NEXRAD Data **Settings** Button.
4) Touch the **NEXRAD Animation** Button to enable/disable the animated NEXRAD information.
5) When finished, touch the **Back** Button or the **Home** Button.

Precipitation (Garmin Connext)

Displaying Garmin Connext Radar information ('Navigation Map' Panes):

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

Displaying Garmin Connext Radar information ('Connext Weather' Pane):

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

Displaying Garmin Connext Radar information (PFD Inset Map or HSI Map):

1) Press the **PFD Map Settings** Softkey.
2) Press the **WX Overlay** Softkey as needed to cycle among the options until the desired data link weather source is displayed.

DATALINK WEATHER PRODUCT OVERLAYS

Echo Tops (SiriUSXM)

Enabling/Disabling Echo Tops information:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Touch the **Echo Tops** Button in the Background Window.

Cloud Tops (SiriusXM)

Enabling/Disabling Cloud Tops information:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Touch the **Cloud Tops** Button in the Background Window.

Data Link Lightning (SiriusXM, Garmin Connext)

Enabling/Disabling Data Link Lightning information (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Touch the **Lightning** Button in the 'Overlays' Window.

Displaying 'Data Link' Lightning information (SiriusXM or Connext on 'Navigation Map' Panes):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the **'Data Link' Lightning** Button.

Displaying Data Link Lightning information on PFD maps:

1) Press the **PFD Map Settings** Softkey.
2) Press the **Data Link Setting** Softkey.
3) Press the **Data Link** Softkey until "SiriusXM" or "Connext" options are displayed.
4) Press the **Back** Softkey.
5) Press the **SiriusXM Lightning** or **Connext Lightning** Softkey to enable/disable display lightning information.
6) Press the **Back** Softkey to return to the top-level softkeys.

Cell Movement (SiriusXM)

Enabling/Disabling Storm Cell Movement Information (SiriusXM Weather Pane):

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Touch the **Storm Cell Movement** Button in the 'Overlays' Window.

Displaying Storm Cell Movement Information (Navigation Map Panes):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the NEXRAD Data **Settings** Button.

4) Touch the **Storm Cell Movement** Button. When button annunciator is green, the system shows Storm Cell Movement with the NEXRAD weather product on navigation map panes. When button annunciator is gray, system will not show the Storm Cell Movement weather product on navigation map panes.

Displaying Storm Cell Movement on PFD maps:

1) Press the **PFD Map Settings** Softkey.
2) Press the **Data Link Settings** Softkey.
3) Press the **Data Link** Softkey until "SiriusXM" option is displayed.
4) Press the **Storm Cell Movement** Softkey.

Infrared Satellite (Garmin Connext)

Displaying Cloud Tops information (Connext Weather Pane):

1) From Home, touch **Weather** > **Weather Selection** > **Connext Weather** > **Connext Settings.**
2) Touch the **IR Satellite** Button in the 'Overlays' Window.

To display the IR Satellite legend, touch the **Legend** Button on the Connext Weather Settings Screen when the Cloud Tops weather product is enabled for display.

SIGMETS and AIRMETS

Enabling/Disabling AIRMET and SIGMET information (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Scroll as needed and touch the **AIRMETs** and/or **SIGMETs** Buttons in the 'Overlays' Window.
3) To view the text of an AIRMET or SIGMET, press the **Joystick** and move the map pointer with the **Joystick** or **Touchpad** over the SIGMET or AIRMET until it is highlighted.
4) Touch the **Info** Button to show the AIRMET / SIGMET Information Screen with the selected AIRMET or SIGMET.
5) Scroll as needed to view full text of the report, then touch the **Back** Button or the **Home** Button.

METARs and TAFs

Showing METAR text (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Touch the **METARs** Button in the 'Overlays' Window. The system displays METAR flags at available reporting stations when METARs are enabled (button annunciator is green).

3) To view METAR text, press the **Joystick** and move the map pointer with the **Joystick** or **Touchpad** over a METAR flag. The system displays the original METAR text near the METAR flag. If the display has not yet received the METAR text associated with the selected flag, it displays "Waiting for METAR text," until it receives this information.

Showing METAR information ('Navigation Map' Pane):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the **Graphical METARs** Button. The system displays METAR flags at available reporting stations when METARs are enabled (button annunciator is green).
4) To view METAR text, press the **Joystick** and move the map pointer with the **Joystick** or **Touchpad** over a METAR flag. The system displays the original METAR text near the METAR flag. If the GDU has not yet received the METAR text associated with the selected flag, it displays "Waiting for METAR text." until it receives this information.

Showing METAR information PFD Maps:

1) Press the **PFD Map Settings**.
2) Press the **METAR** Softkey.

Viewing textual METAR/TAF information on the 'Airport Information' Screen:

1) From Home, touch **Waypoint Info** > **Airport**.
2) If the desired airport identifier and name already appears in the airport button near the top of the screen, go to step 5.
3) Touch the airport button.
4) Input the airport identifier using the keypad or the large and small right knobs, then touch **Enter** or push the right knob.
5) Touch the **Weather** Tab.
6) Touch a button for an available weather product (**METAR Raw**, **METAR Decoded**, **TAF Raw**, **TAF Decoded**). If a button is subdued, that weather product is currently unavailable for the selected airport.
7) Scroll as necessary to view the weather text. Note raw weather products may provide additional information not present in the decoded version.

Surface Analysis and City Forecast (SiriusXM)

Displaying Surface Analysis and City Forecast information:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll as needed in the Overlays Window and touch the **Surface Analysis** Button.
3) If needed, touch the Surface Analysis forecast period button (to the right of the **Surface Analysis** Button)and select from **Current**, **12 Hours**, **24 Hours**, **36 hours**, or **48 Hours** forecast periods from the pop-up selection window.

Freezing Level (SiriusXM)

Displaying Freezing Level information:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll as needed and touch the **Freezing Level** Button.

Winds Aloft

Displaying Winds Aloft data:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Scroll as needed in the 'Overlays' Window and touch the **Winds Aloft** Button.
3) To change the selected winds aloft altitude, touch the Winds Aloft altitude button and select the desired winds aloft altitude from Surface to 42,000 feet MSL from the pop-up Window.

Enabling/Disabling VSD (containing winds aloft data):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Inset Window** Tab.
3) Touch the **VERT Situation Display** Button to enable/disable the VSD Inset Window. If the winds aloft weather product icon does not appear in the inset window, continue with this procedure to enable winds aloft information.
4) Touch the VERT Situation Display **Settings** Button.
5) Touch the **Winds** Button. When enabled, the system displays the winds aloft weather product inside the Vertical Situation Display.

County Warnings (SiriusXM)

Displaying County Warning information:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll as needed in the 'Overlays' Window and touch the **County Warnings** Button.
3) To view additional information (such as county name), press the **Joystick** to activate the map pointer and move the **Joystick** or **Touchpad** to highlight a selected County Warning. County Warning information appears in a box near the map pointer.
4) When finished, press the Joystick to deactivate the map pointer.

Cyclone (SiriusXM)

Enabling/Disabling cyclone (hurricane) weather product:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll as needed in the 'Overlays' Window and touch the **Cyclone Warnings** Button.

Icing (CIP & SLD) (SiriusXM)

Displaying Icing data:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll as needed in the 'Overlays' Window and touch the **Current Icing Potential** Button to enable/disable icing information.
3) Touch the altitude button (to the right of the **Current Icing Potential** annunciator Button) and scroll to and touch the desired altitude Button (from 1,000 feet up to 30,000 feet).

Turbulence (SiriusXM)

Displaying Turbulence data:

1) From Home, touch **Weather** > **Weather Selection** > **SiriusXM Weather** > **SiriusXM Settings**.
2) Scroll in the 'Overlays' Window and touch the **Turbulence** Button.
3) Touch the Turbulence altitude button (to the right of the **Turbulence** annunciator button) and touch to select an altitude from which to display turbulence data (from 21,000 feet up to 45,000 feet).

PIREPs and AIREPs

Displaying PIREP or AIREP information (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Scroll in the 'Overlays' Window as needed and touch the **AIREPs** or **PIREPs** Buttons.
3) To view PIREP/AIREP text, push the joystick to activate the map pointer and move the pointer with the joystick until the selected report is highlighted, then touch the **PIREP Info** or **AIREP Info** Button.
4) Scroll as needed through the report text, then touch the **Back** Button or the **Home** Button.

Temporary Flight Restrictions (TFRs)

Enabling/disabling TFR information (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **'Data Link' Weather** > **'Data Link' Weather Settings**.
2) Scroll as needed and touch the **TFRs** Button.
3) To view TFR text, push the **Joystick** to activate the map pointer and move the pointer with the **Joystick** or **Touchpad** until the selected TFR is highlighted. The TFR text appears near the map pointer for the selected TFR.
4) When finished, push the **Joystick**, or touch **Back** Button or the **Home** Button.

Enabling/disabling TFR information (Navigation Maps):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll to find the **TFR** Button, and touch to enable/disable TFR information.

Setting up and customizing TFR data for maps on which TFR data can be displayed:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the TFR Range Button.
4) Scroll as necessary and touch the maximum navigation map range to display TFR information.

ACARS WEATHER

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

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

ACCESSING ACARS WEATHER PRODUCTS

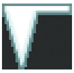
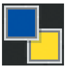
Viewing the 'ACARS Weather' Pane:

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 'ACARS Weather' is shown (such as 'Weather Radar' in the pane title), continue with the procedure to view the 'ACARS Weather' Pane.
2) Touch the **Weather Selection** Button. The Weather Selection Screen appears.
3) Touch the **ACARS Weather** Button. Button is highlighted and becomes **ACARS Settings** Button. The system shows the 'ACARS Weather' Pane.
4) If necessary, touch the **ACARS Settings** Button to access controls for the 'ACARS Weather' Pane, viewing weather legends, as well as controls for defining and sending ACARS Weather Data Requests.

Displaying/Removing Weather Product Age Information on the PFD Inset Map:

1) With the PFD Inset Map displayed, press the **PFD Map Settings** Softkey.

2) Press the **Weather Legend** Softkey to show/remove the weather product age information for PFD Inset Map.

ACARS Weather Product	Product Symbol	Expiration Time (Minutes)
Meteorological Aerodrome Report (METARs)		90
Metro Weather	no product image	Not Applicable
Pilot Weather Reports (PIREPs)		90
Terminal Aerodrome Forecast (TAFs)	no product image	540 (9 hours)
Terminal Weather Information for Pilots (TWIP)	no product image	Not Applicable

ACARS Weather Product Symbols and Data Timing

Selecting Maximum Navigation Map Range for ACARS Weather Products:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll through the list to view the available weather products (Graphical METARs, TFR).
4) Touch a range button next to the corresponding weather product, then touch to select the maximum navigation map range at which the system will display the selected weather product.

Selecting a map orientation for the Data Link (SiriusXM or Connext) Weather Pane:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS Weather** > **ACARS Settings**.
2) Touch the **Orientation** Button to change the selected map orientation (displayed in cyan).
3) Touch the desired map orientation button (**Heading Up, Track Up, North Up, Sync to Nav Map**).

Selecting a 'Data Link' Weather Source for Navigation Maps Panes:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll if necessary to view the **WX Source** Button. Cyan text on the button indicates currently selected weather data link weather source.
4) Touch the **WX Source** Button.
5) Touch the button for the data link weather source to be used.

Selecting a Data Link Weather source for the (PFD Inset Map or HSI Map):

1) Press the **PFD Map Settings** Softkey.
2) Press the **Data Link Settings** Softkey.
3) Press the **Data Link** Softkey. Each selection of the softkey changes the source, which is displayed in cyan on the softkey.

Viewing legends for weather products enabled on the 'ACARS Weather' Pane:

1) From Home, touch **Weather > Weather Selection > ACARS Weather > ACARS Weather Settings.**
2) Scroll to the bottom of the 'Overlays' Window and touch the **Legend** Button. The 'Weather Legends' Window appears on the Touchscreen Controller.
3) To remove the 'Weather Legends' Window, touch the **Back** Button or the **Home** Button.

REQUESTING ACARS WEATHER DATA

Defining an ACARS Weather Data Request area:

1) From Home, touch **Weather > Weather Selection > ACARS Weather > ACARS Settings**.

   Or:

   From Home, touch **Services > ACARS > Weather Settings**.
2) On the 'ACARS Weather Settings' Screen, touch the **Define Weather Request** Button. The 'ACARS Weather Coverage' Screen appears.
3) Touch the **Origin** Button to include the active flight plan origin in the request.
4) Touch the **P.POS** Button to include the present position in the request.
5) Touch the **Destinatio**n Button to include the active flight plan destination in the request.
6) Touch the **FPL** Button to include the active flight plan in the request.
7) Touch the **MAX Data PTS** Button to change the maximum number of waypoints to include in the request. Scroll as necessary, and touch a button for the desired number.
8) Touch the **Flight Plan Distance** Button to select how much of the flight plan is included in the request.
   a) Touch the **Remaining FPL** Button to only include upcoming waypoints in the request.
   b) Touch the **Entire FPL** Button to include the entire flight plan in the request.
9) Touch the **Add Waypoint** Button to include additional waypoints in the request.
   a) Use the **Keypad** or large and small right knobs to enter a waypoint.
   b) When finished, touch **Enter** or push the right knob. The waypoint appears in the Additional Waypoints Window. Repeat this step to add additional waypoints to the request.
10) When finished defining the request, touch the **Back** Button or the **Home** Button.

Removing additional waypoints from an ACARS weather data request:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS Weather** > **ACARS Settings**.

   Or:

   From Home, touch **Services** > **ACARS** > **Weather Settings**.

2) Touch the desired waypoint button in the 'Additional Waypoints' Window.

3) Touch either the **Remove** Button to remove the selected additional waypoint, or touch the **Remove All** Button to remove all additional waypoints from the request.

4) Touch the **OK** Button to confirm waypoint removal or touch the **Cancel** Button to exit without removing.

Sending an ACARS Weather Data Request:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS** > **ACARS Settings**.

   Or:

   From Home, touch **Services** > **ACARS** > **Weather Settings**.

2) On the 'ACARS Weather Settings' Screen, touch the annunciator button in the Request column corresponding to the weather product to include/exclude from the data request. The button annunciator is green if a weather product is included, gray when excluded.

3) For automatically recurring weather requests, touch the **Auto Request** Button.

   a) Scroll as needed and touch a button for the desired number of between requests.

   b) To disable automatically recurring weather requests, touch the **Off** Button.

4) Touch the **Send Request** Button.

Enabling/disabling automatic ACARS Weather Data Requests:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS** > **ACARS Settings**.

   Or:

   From Home, touch **Services** > **ACARS** > **Weather Settings**.

2) Touch the **Auto Request** Button.

3) Scroll and touch a button to select the rate at which the automatic data request to recur, or touch the **Off** Button to disable the automatic data request.

ACARS WEATHER PRODUCTS

METARs and TAFs

Showing METAR information 'ACARS Weather' Pane:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS Weather** > **ACARS Settings**.

2) Touch the **METARs** Button in the 'Overlay' Window.

3) To view METAR text, push the **Joystick** and move the Map Pointer with the **Joystick** or **Touchpad** over a METAR flag.

Showing METAR information 'Navigation Map' Pane:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If needed, touch the **Sensor** Tab.
3) Touch the **Graphical METARs** Button.

Showing METAR information (PFD Inset/HSI Map)

1) With the PFD Inset/HSI Map displayed, press the **PFD Map Settings** Softkey.
2) Select the **METAR** Softkey. The system displays METAR flags at available reporting stations when METARs are enabled (button annunciator is green).
3) To view METAR text, press the GTC Controller **Joystick** and move the map pointer with the **Joystick** over a METAR flag. The system displays the original METAR text near the METAR flag. If the GDU has not yet received the METAR text associated with the selected flag, it displays "Waiting for METAR text." until it receives this information.

Viewing textual METAR/TAF information on the 'Airport Information' Screen:

1) From Home, touch **Waypoint Info** > **Airport**.
2) If the desired airport identifier and name already appears in the airport button near the top of the screen, go to step 5.
3) Touch the **Airport** Button.
4) Input the airport identifier using the keypad or the large and small right knobs, then touch **Enter** or push the right knob.
5) Touch the **METAR/TAF** Tab.
6) Touch a button for an available weather product (**METAR Raw**, **METAR Decoded**, **TAF Raw**, **TAF Decoded**). If a button is subdued, that weather product is currently unavailable for the selected airport.
7) Scroll as necessary to view the weather text. Note raw weather products may provide additional information not present in the decoded version.

PIREPs

Displaying PIREP information on the 'ACARS Weather' Pane:

1) From Home, touch **Weather** > **Weather Selection** > **ACARS Weather** > **ACARS Settings**.

   Or:

   From Home, touch **Services** > **ACARS** > **Weather Settings**.
2) In the 'Overlay' Window, touch the **PIREPs** Button.
3) To view PIREP text, push the **Joystick** to activate the map pointer and move the pointer with the **Joystick** or **Touchpad** until the selected report is highlighted, then touch the **Info** Button.
4) Scroll as needed through the report text, then touch the **Back** Button or the **Home** Button.

Metro Weather (METRO WX)

Viewing Metropolitan Weather:

1) From Home, touch **Waypoint Info > Airport**.
2) If necessary, touch the airport identifier button and enter the desired airport.
3) Touch the **Metro Weather** Tab.
4) Scroll if necessary to view the weather text. Otherwise, 'No Metro Weather data available' appears.

Terminal Weather Information for Pilots (TWIP)

Requesting a TWIP:

1) From Home, touch **Services > ACARS > TWIP**.

   Or:

   From Home, touch **Waypoint Info > Airport**.
2) If the **ACARS TWIP** Tab is not displayed, touch the **More** button.
3) Touch the **ACARS TWIP** Tab.
4) If necessary, touch the airport identifier button and enter the desired airport.
5) Touch the **Request** Button. The system processes the request. An ACARS message notification icon appears on the PFD when the requested TWIP becomes available.
6) If a TWIP is available, scroll to view the TWIP, if available. Otherwise, 'No TWIP data available' appears.

Text Notices to Airmen (NOTAM)

Viewing Text NOTAMs:

1) From Home, touch **Waypoint Info > Airport**.
2) If the desired airport name is shown is already shown in the screen title, skip to step 3.
   a) Touch the airport button.
   b) Enter the airport identifier using the **Keypad** or large and small right knobs.
   c) When finished, touch the **Enter** Button or push the right knob.
3) Touch the **More** Button.
4) Touch the **Text NOTAMs** Tab.
5) Scroll as needed to view the Text NOTAM, then touch the **Back** Button or the **Home** Button.

AIRBORNE COLOR WEATHER RADAR

BASIC ANTENNA TILT AND RANGE SETUP

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

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

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

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

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

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

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

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

Managing Tilt Angle and Range

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

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

The 12-inch antenna has a certified beam width of 8 degrees, which means the beam is 8,000 feet in height (and width) at 10 NM and 80,000 feet in height (and width) at 100 NM.

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

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

Phase of Flight	Tilt Angle	Range Setting	Notes
Taxi	Up 7.50° to 10.00°	20 NM	Activate weather mode when clear of ramp area.
Takeoff / Initial Climb	Up 7.50° to 10.00° Altitude Compensated Tilt On	60 NM	If precipitation is observed in the departure path, gain can be reduced to aid in identification of intense returns.
10,000 Ft. AGL	Up 5.00° Altitude Compensated Tilt On	60 - 80 NM	Range setting is dependent upon ground speed and time available for deviations.
Cruise	Tilt to Minimize Clutter Altitude Compensated Tilt On	60 - 120 NM	Range setting is dependent upon ground speed and time available for deviations. Tilt angle set to show minimal ground clutter.
Descent To 10,000 FT	Tilt to Minimize Clutter Altitude Compensated Tilt On	60 - 120 NM	Range setting is dependent upon ground speed and time available for deviation.

Typical Tilt Settings by Phase of Flight

Phase of Flight	Tilt Angle	Range Setting	Notes
Descent Below 10,000 FT	Up 7.50° to 10.00° Altitude Compensated Tilt On	40 - 60 NM	Range setting is dependent upon ground speed and time available for deviation. Tilt angle set to show ground clutter in outer 1/3 of radar display.
Approach	Up 7.50° to 10.00° Altitude Compensated Tilt On	20 NM	These settings allow for observation of the approach area and the missed approach holding area.

Typical Tilt Settings by Phase of Flight

Altitude Compensated Tilt (ACT)

The Altitude Compensated Tilt feature of the GWX 75 enables the system to automatically adjust the antenna beam tilt angle setting based on aircraft altitude changes. For example, if the ACT feature is enabled and the aircraft climbs, the system compensates by adjusting the tilt downward. As the aircraft descends with ACT enabled, the system adjusts the antenna tilt upward.

Weather Display And Interpretation

Weather Mode Color	Intensity (in dBz)
Black	< 23 dBZ
Green	23 dBZ or 24 dBZ
Green	25 dBZ or 26 dBZ
Green	27 dBZ or 28 dBZ
Green	29 dBZ or 30 dBZ
Green	31 dBZ or 32 dBZ
Yellow	33 dBZ or 34 dBZ
Yellow	35 dBZ or 36 dBZ
Yellow	37 dBZ or 38 dBZ
Yellow	39 dBZ or 40 dBZ
Red	41 dBZ or 42 dBZ
Red	43 dBZ or 44 dBZ
Red	45 dBZ or 46 dBZ
Red	47 dBZ or 48 dBZ
Magenta	49 dBZ to 50 dBZ

Weather Mode Color	Intensity (in dBz)
Magenta	51 dBZ to 53 dBZ
Magenta	> 54 dBZ
White	TURB- Turbulence Detection uses the color white to show areas of rain or hail that may also contain turbulence

Precipitation Intensity Levels

Weather Radar Operation

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

Showing Weather Radar Information on the 'Weather Radar' Pane:

1) From Home, touch **Weather > Weather Selection > WX RADAR > WX RADAR Settings.**
2) Touch the **Radar On** Button. Radar options are enabled when button annunciator is green, off when gray.
3) Touch the **Display Mode** Button.
4) Touch the **Weather** Button. If the aircraft is airborne, the radar begins transmitting, and the Radar Mode indicates 'Weather'.
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 **Joystick** 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."

Scanning a storm cell vertically:

1) From 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 **Joystick**. This enables the **Joystick** to set the Bearing Line position and displays a bearing and tilt **Joystick** legend.
4) Move the **Joystick** left or right to place the Bearing Line on the desired storm cell or other area to be vertically scanned.
5) Touch the **Scan Mode** Button.

6) Touch the **Vertical** Button. The 'Weather Radar' Pane shows a vertical scan.
7) Move the **Joystick** left or right as needed to move the bearing line a few degrees left or right. When finished, push the **Joystick** to disable bearing line adjustment.
8) Turn the **Joystick** 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 Pane in Horizontal Scan Mode:

1) Push the **Joystick** to activate the tilt adjustment function of the **Joystick**. The Weather Radar displays a bearing and tilt **Joystick** legend.
2) Move the **Joystick** to adjust the antenna tilt angle.
3) Push the **Joystick** again to disable the tilt adjustment function of the **Joystick** and remove the legend.

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

1) Push the **Joystick** to activate the tilt and bearing adjustment functions.
2) Move the **Joystick** to adjust the tilt angle.
3) Push the **Joystick** to disable the tilt adjustment function of the **Joystick**.

The selected tilt angle will apply when Horizontal Scan Mode is enabled again.

Enabling/Disabling Altitude Compensated Tilt (ACT):

1) If necessary, refer to the previous procedures to initially set the antenna tilt angle to the desired setting.
2) From 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'.

Manually adjusting gain:

1) From 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 Sector Scan:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

2) While in Horizontal Scan Mode, touch the **Sector Scan** Button.

3) Touch a button to select a 20°, 40°, 60°, 90°, or touch the **FULL** Button to resume a 120° degree scan.

4) Move the **Joystick** 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) If desired, readjust the Bearing Line as discussed previously to change the center of the Sector Scan.

6) Press the **Joystick** again to remove the bearing selection function of the Joystick.

Enabling/Disabling Turbulence Detection during a Horizontal Scan:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

2) To activate or deactivate the turbulence detection feature, touch the **Turbulence Detection** Button. Turbulence detection is enabled when button annunciator is green; turbulence detection is disabled when button annunciator is gray. The system indicates the current turbulence detection feature status in the upper right of the 'Weather Radar' Pane.

Enabling/disabling WATCH display feature:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

2) To activate or deactivate the WATCH feature, touch the **WX Watch** Button.

Enabling/disabling Ground Clutter Suppression:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

2) To enable or disable the ground clutter suppression feature, touch the **GND Clutter Suppression** Button. Ground clutter suppression is enabled when button annunciator is green; ground clutter suppression is disabled when annunciator is gray.

Enabling/disabling Weather Alert System Message:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

Or:

a) From Home, touch **Map** > **Map Selection** > **Map Settings**.

b) If necessary, touch the **Sensor** Tab.

c) Touch the Weather Radar **Settings** Button.

2) Touch the **WX Alert** Button in the Features Window. Weather Alert System Message enabled when button annunciator is green, disabled when gray.

Ground Mapping and Interpretation

Ground Map Mode Color	Intensity
Black	0 to 2 dB
Cyan	3 dB to < 13 dB
Yellow	13 dB to less than 21 dB
Magenta	21 dB to less than 29 dB
Blue	29 dB and greater

Ground Target Return Intensity Levels

Operation in Ground Map Mode:

1) From Home, touch **Weather** > **Weather Selection** > **WX RADAR** > **WX RADAR Settings**.

2) Touch the **Display Mode** Button.

3) Touch the **Map** Button to place the radar in Ground Map mode.

4) Press the **Joystick** to activate the antenna tilt selection function.

5) Use the **Joystick** to select the desired antenna tilt angle.

6) When ground returns are shown at the desired distance, press the **Joystick** to disable the tilt adjustment function of the **Joystick**.

ADDITIONAL RADAR DISPLAYS

Enabling/Disabling display of Weather Radar information on 'Navigation Map' Panes:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) If necessary, touch the Sensor Tab.

3) Touch the **Weather Radar** Button to enable or disable the display of weather radar information on the selected navigation map pane.

4) To access controls for weather radar information on the 'Navigation Map' Pane, touch the Weather Radar **Settings** Button.

Adjusting bearing and antenna tilt angle on the 'Navigation Map' Pane (MFD GTC):

1) With the 'Navigation Map' Pane highlighted, push the **Joystick** twice. The Bearing and Tilt Legend appears on the Navigation Map Pane and the Touchscreen Controller shows the Weather Radar Settings Screen.

2) Move the **Joystick** up o down to adjust the antenna tilt as needed. The selected tilt setting appears in the upper right of the pane.

3) Move the **Joystick** left or right to adjust the bearing as needed. The bearing line is not shown on the 'Navigation Map' Pane, however, moving the Joystick during a sector scan adjusts the center.

4) When finished, push the **Joystick** or touch the **Back** Button or the **Home** Button.

Enabling/disabling the weather radar map overlay on the HSI Map:

1) With the HSI Map enabled, press the **PFD Map Settings** Softkey.

2) Press the **WX Overlay** Softkey as needed to cycle among the options (Off, SiriusXM) until 'WX Radar' appears on the softkey.

Selecting weather radar Standby or On Mode on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.

2) To select between 'Standby' or 'On' Modes, press the **Mode** Softkey.

Selecting weather radar Weather or Ground (Map) Mode on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.

2) To select between 'Weather' and 'Map' Modes, press the **Display** Softkey to cycle among the options until 'Map' appears on the softkey.

Adjusting the antenna tilt angle on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.

2) Press either the **Tilt Up** or **Tilt Down** Softkey to adjust the antenna tilt angle in the respective direction. The current antenna tilt angle setting appears on the HSI Map.

Adjusting weather radar gain on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.

2) Press the **Gain +** or **Gain -** Softkeys to adjust the gain setting. Each softkey press adjusts the gain in 0.5 increments.

Enabling/disabling Ground Clutter Suppression on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.
2) Press the **GND Clutter Suppression** Softkey to enable/disable Ground Clutter Suppression.

Enabling/disabling Turbulence Detection on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.
2) Press the **Features** Softkey.
3) Press the **Turbulence Detection** Softkey to enable/disable **Turbulence Detection** feature.

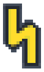
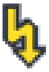
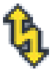
Enabling/disabling Altitude Compensated Tilt on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.
2) Press the **Features** Softkey.
3) Press the **Altitude COMP Tilt** Softkey to enable/disable the **Altitude Compensated Tilt** feature.

Enabling/disabling Weather Attenuated Color Highlight on the HSI Map:

1) With the weather radar in the 'On' Mode on the HSI Map, press the **WX Radar Controls** Softkey.
2) Press the **Features** Softkey.
3) Press the **WX WATCH** Softkey to enable/disable the **Weather Watch** feature.

STORMSCOPE LIGHTNING

Lightning Cell Symbol	Intensity	Approximate Strikes Per Minute
	Light	Up to 8
	Moderate	9 to 25
	Heavy	26 or more

Lightning Cell Symbols and Intensity Information (WX-1000E)

USING THE STORMSCOPE PANE

Displaying the 'Stormscope®' Pane:

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

Selecting a Stormscope Operating Mode on the 'Stormscope®' Pane:

1) From 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.

Clearing Stormscope Information:

1) From Home, touch **Weather** > **Weather Selection** > **Stormscope** > **Stormscope Settings**.

   Or:

   a) From Home, touch **Map** > **Map Selection** > **Map Settings**.
   b) If necessary, touch the **Sensor** Tab.
   c) Scroll and touch the Stormscope Lightning **Settings** Button.
2) Touch the **Clear Stormscope Lightning** Button.

STORMSCOPE INFORMATION ON NAVIGATION MAPS

Enabling/disabling Stormscope information on the Inset Map or HSI Map:

1) With the Inset Map or HSI Map displayed, press the **PFD Map Settings** Softkey.
2) Press the **Stormscope** Softkey.

Enabling/disabling Stormscope information on 'Navigation Map' Panes:

1) From **Home**, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the **Stormscope Lightning** Button.

Selecting a maximum Stormscope map range on the 'Navigation Map' Pane:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Scroll as needed and touch the Stormscope Lightning **Settings** Button.
4) Touch the **Stormscope** Button.
5) Touch the Stormscope range button (current range setting displayed in cyan).
6) Scroll as needed and touch a desired map range setting from the list.

VERTICAL SITUATION DISPLAY TERRAIN

Enabling/disabling VSD Inset Window:

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

Enabling/disabling Relative Terrain information in the VSD and 'Navigation Map' Pane:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the **Terrain** Button.
4) Touch the **Relative** Button to enable the display of Relative Terrain information on the 'Navigation Map' Pane and VSD, or touch the **Off** Button to remove this information.

Enabling/disabling Obstacle information in the VSD and 'Navigation Map' Pane:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Land** Tab.
3) Touch the **Point Obstacle** Button to enable the display of Obstacle information on the 'Navigation Map' Pane and VSD, or touch the **Off** Button to remove this information.

Changing the Vertical Situation Display Mode:

1) From Home, touch **Map** > **Map Selection** > **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 automatically selects either Flight Plan Mode or Track Mode. Flight Plan Mode is selected when the aircraft is within the RNP value of the active flight plan leg. Otherwise, Track Mode is selected.
   - **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 the **Back** Button or the **Home** Button.

Enabling/disabling the Track Mode Boundary:

1) From Home, touch **Map** > **Map Selection** > **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.

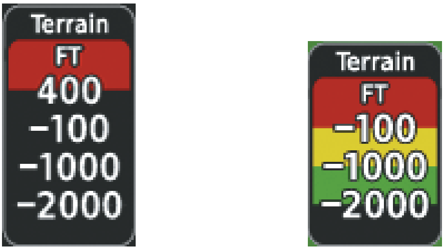
6) Touch the Track Mode Boundary range button.

7) 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.).

8) When finished, touch the **Back** Button or the **Home** Button.

TAWS-A

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



TAWS On-Ground Legend

TAWS In-Air Legend

TAWS Relative Terrain Legends

DISPLAYING RELATIVE TERRAIN INFORMATION

Showing the TAWS Pane:

From Home, touch the **TAWS** Button.

Enabling/disabling aviation data on the TAWS Pane:

1) From Home, touch **TAWS** > **TAWS Settings**.

2) Touch the **Show Aviation Data** Button to display/remove aviation data (including airports, VORs, NDBs, Intersections) on the 'TAWS' Pane.

Enabling/disabling relative terrain information (PFD Maps):

1) On the PFD, press the **PFD Map Settings** Softkey.

2) Press the **Terrain** Softkey.

3) Press the **Terrain** Softkey until '**Relative'** is displayed, continue pressing the **Terrain** Button to remove relative terrain from the Inset/HSI Maps.

Controlling Relative Terrain Information (Navigation Map Panes):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) If necessary, touch the **Sensor** Tab.

3) Touch the **Terrain** Button.

4) Touch the **Relative** Button to enable Relative Terrain, or **Off** to remove terrain information.

Controlling Point Obstacle Information on Navigation Maps:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) If necessary, touch the **Land** Tab.

3) Touch the **Point Obstacle** Button to enable/disable the display of relative obstacle information.

4) To change the maximum map range to display obstacle information, touch the Obstacle Data Range Button, then scroll and select a maximum map range from the list.

5) If necessary, touch the **Map Sync** Button to enable map synchronization. This is used to synchronize map settings (including obstacle settings) with other navigation maps

6) Touch the **Onside** Button to synchronize the selected Navigation Map settings to onside Navigation Maps, then touch either the **L PFD** or **MFD Left** Buttons to select which navigation map settings should be initially be applied to onside Navigation Maps.

Or:

Touch the **All** Button to synchronize all navigation maps, then touch a button to select which Navigation Map settings should initially be applied to all Navigation Maps (**MFD Left**, **MFD Right**, **L PFD**).

Forward Looking Terrain Avoidance (FLTA)

Inhibiting/enabling TAWS-A FLTA and PDA alerting:

1) From Home, touch **TAWS** > **TAWS Settings**.

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

Or:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) If necessary, touch the **Sensor** Tab.

3) Touch the Terrain **Settings** Button.

4) Touch the **TAWS Inhibit** Button. TAWS-A alerting is inhibited when the button annunciator is green, enabled when gray.

Inhibiting TAWS-A alerting while an alert is occurring:

Touch the **Inhibit TAWS** Button on the Terrain Alert pop-up window on either Touchscreen Controller.

Enabling/disabling Steep Approach Mode:

1) From Home, touch **TAWS** > **TAWS Settings**.

   Or:

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

2) Touch the **Steep Approach** Button to enable/disable Steep Approach Mode.

Flight Into Terrain Alert

Overriding Flaps-based FIT alerting:

1) From Home, touch **TAWS** > **TAWS Settings**.

   Or:

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

2) Touch the **Flap Override** button. FIT alerts based on flap position are overridden (disabled) when button annunciator is green, available when gray.

Inhibiting GPWS Alerts (EDR, ECR, FIT, and NCR)

Inhibiting/enabling GPWS alerting:

1) From Home, touch **TAWS** > **TAWS Settings**.

   Or:

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

2) Touch the **GPWS Inhibit** button. Button annunciator is green when GPWS alerts are inhibited, gray when alerting is enabled.

Inhibiting GSD Alerts

Inhibiting an active GSD Pop-Up alert:

1) Touch the **Inhibit GS/GP** Button.
2) Touch the **OK** Button to confirm and inhibit Glideslope and Glidepath alerts, or touch **Cancel**.

Inhibiting an active GSD alert (TAWS Settings Screen):

1) From Home, touch **TAWS** > **TAWS Settings**.

   Or:

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

2) Touch the **GS/GP Inhibit** Button. GSD alerting is inhibited when button annunciator is green, enabled when gray.

TCAS I TRAFFIC

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

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.*

NOTE: *Pilots should be aware of traffic system limitations. Traffic systems require transponders of other aircraft to respond to system interrogations. If the transponders do not respond to interrogations due to phenomena such as antenna shading or marginal transponder performance, traffic may be displayed intermittently, or not at all. Aircraft without altitude reporting capability are shown without altitude separation data or climb descent indication. Pilots should remain vigilant for traffic at all times.*

Symbol	Description
●	Traffic Advisory without directional information.
◐	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
◆	Proximity Advisory without directional information.
◇	Other Non-Threat traffic without directional information.

Traffic Symbols with TCAS I

TRAFFIC ALERTS

Selecting an operating mode:

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

   Or:

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

2) In the **TCAS Mode** Window, touch one of the following buttons:
   - **On:** System interrogates other aircraft transponders and displays traffic.
   - **Standby:** Traffic system does not interrogate other aircraft transponders or display traffic.

'Traffic MAP' Pane

Displaying the 'Traffic Map' Pane:

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

Or:

On the PFD, press the **Traffic Map** Softkey.

Changing the altitude range:

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

   Or:

   From Home, touch **Map** > **Map Selection** > **Map Settings** > Traffic **Settings** Button.

2) Touch the **Altitude Range** Button:
3) Touch one of the following buttons from the list:
   - **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.

Additional Traffic Displays

Enabling/disabling display of traffic information ('Navigation Map' Pane):

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the **Traffic** Button.

Customizing the display of traffic on the navigation maps:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the Traffic **Settings** Button.
4) Touch the **Map Settings** Button.
5) Touch the **Labels** Button to enable/disable the display of labels on traffic (such as relative altitude).
6) To change the map range above which the system removes traffic symbols from the display, touch the **Symbols** Button, then scroll to and touch to select a map range above which the system will remove the traffic symbols.
7) To change the map range at which the system removes traffic labels from the display (such as, touch the Labels range button, then scroll to and touch to select a map range above which the system removes traffic labels from the display.
8) When finished, touch the **Back** Button or the **Home** Button.

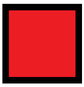
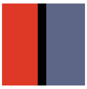
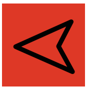
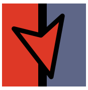
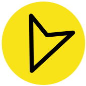
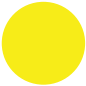
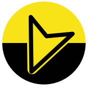
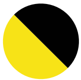
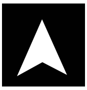
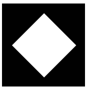
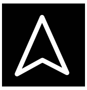
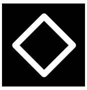
Showing the HSI Traffic Map:

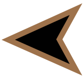
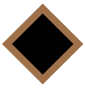
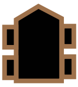
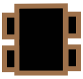
1) Press the **PFD Map Settings** Softkey.
2) Press the **Map Layout** Softkey.
3) Press the **HSI Traffic** Softkey.
4) Press the **Back** Softkey.

TCAS II TRAFFIC

***WARNING:** Traffic information shown on system displays is provided as an aid in visually acquiring traffic. Traffic avoidance maneuvers are based upon TCAS II Resolution Advisories , ATC guidance, or positive visual acquisition of conflicting traffic.*

***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.*

Symbol	Description
	Resolution Advisory (RA) without directional information.
	Resolution Advisory Off Scale beyond the selected map display range.
	Resolution Advisory (RA) with ADS-B directional information.
	Resolution Advisory Off Scale.
	Traffic Advisory with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory with ADS-B directional information is beyond the selected display range. Displayed at outer range ring at proper bearing. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with ADS-B directional information. Arrow points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.

Symbol	Description
	Traffic located on the ground with ADS-B directional information. Arrow points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Pointed end indicates direction of travel. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

Traffic Symbols with TCAS II and ADS-B

OPERATION

Accessing TCAS II Operating Modes on the Traffic Settings Screen:

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

   Or:

   From Home, touch **Map** > **Map Selection** > **Map Settings**.

2) If necessary, touch the **Sensor** Tab.

3) Touch the Traffic **Settings** Button.

Accessing TCAS II Operating Modes on the Transponder Screen:

Touch the **XPDR1** or **XPDR2** Button in the CNS Bar (button name dependent on current active transponder.

Testing the Traffic System:

1) From Home, touch **Traffic** to display the 'Traffic Map' Pane.

2) Turn the **Joystick** as necessary to set the 'Traffic Map' Pane range so the outer ring indicates '6 NM'. This will allow the system to show all traffic symbols in the traffic test pattern.

3) From Home, touch **Aircraft Systems** > **System Tests**.

4) Touch the **TCAS** Button. Button indicates 'In Progress' while test is occurring, 'Pass' or 'Fail' when complete. If system test is successful, system displays a test pattern of traffic symbols and provides the voice alert, **'TCAS II System Test Passed'**, and the traffic system returns to the previously selected mode. If the test fails, the system issues the voice alert, **'TCAS II System Test Failed'** and enters Standby Mode.

Changing the altitude range:

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

   Or:

   From Home, touch **Map > Map Selection > Map Settings** > Traffic **Settings** Button.
2) Touch the **Altitude Range** Button:
3) Touch one of the following Altitude Range 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.

Changing the display of Intruding Traffic Altitude:

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

   Or:

   From Home, touch **Map > Map Selection > Map Settings** > Traffic **Settings**.
2) Touch the **Relative** Button to display the altitude of intruding aircraft relative to own aircraft altitude, or touch the **Absolute** Button to display the absolute altitude of intruding aircraft.

Additional Traffic Displays

Enabling/disabling display of traffic information on the 'Navigation Map' Pane:

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

Displaying/removing the Traffic Inset Map on the PFD:

Press the **Traffic Map** Softkey to show or hide the PFD Traffic Inset Map.

Enabling/disabling display of traffic information on the PFD Inset Navigation Map:

1) Press the **PFD Map Settings** Softkey.
2) Press the **Traffic** Softkey to enable/disable the overlay of traffic information on the map.

Showing the HSI Traffic Map:

1) Press the **PFD Map Settings** Softkey.
2) Press the **Map Layout** Softkey.

3) Press the **HSI Traffic** Softkey.
4) Press the **Back** Softkey.

Customizing the display of traffic on the Navigation Map Panes:

1) From Home, touch **Map** > **Map Selection** > **Map Settings**.
2) If necessary, touch the **Sensor** Tab.
3) Touch the Traffic **Settings** Button.
4) Touch the **Map Settings** Button.
5) To change the map range above which the system removes traffic symbols from the display, touch the **Symbols Button,** then scroll to and touch to select a map range above which the system removes traffic symbols from the display pane.
6) Touch the **Labels** Annunciator Button to enable/disable the display of labels on traffic (such as altitude).
7) To change the map range at which the system removes traffic labels from the display, touch the Labels range button, then scroll to and touch to select a map range above which the system removes traffic labels from the display pane.
8) When finished, touch the **Back** Button or the **Home** Button.

ADS-B TRAFFIC

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

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.*

OPERATION

Enabling/disabling the display of ADS-B traffic:

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

   Or:

   a) From Home, touch **Map** > **Map Selection** > **Map Settings**.
   b) Touch the Traffic **Settings** Button on the **Sensor** Tab.
2) Touch the ADS-B **Traffic Display** Button.

Selecting a Motion Vector display:

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

   Or:

   a) From Home, touch **Map** > **Map Selection** > **Map Settings**.
   b) Touch the Traffic **Settings** Button.
2) Touch the ADS-B **Motion Vector** Button.
3) Touch a button to select the desired Motion Vector display mode: **Off**, **Absolute**, or **Relative**.
4) To change the duration of time used to forecast motion vectors, touch the **VECT Duration** Button.
5) Touch a button for the desired duration: **30SEC**, **1MIN**, **2MIN**, or **5MIN**.

Displaying Additional Traffic Information

Showing additional traffic information:

1) From Home, touch **Traffic** > **Traffic Settings**.
2) Touch the ADS-B **Target Selection** Button.
3) Turn the right knob. A cyan border appears on the first selected traffic symbol. Additional information appears in a window in the lower-left corner of the 'Traffic Map' Pane.
4) To select a different aircraft symbol, turn the right knob.
5) When finished, touch the **Target Selection** Button again to disable the button.

Selecting the Traffic Map Display Range:

1) From Home, touch the **Traffic** > **Traffic Settings** Button.
2) Turn the **Joystick** clockwise to increase map range, or counter-clockwise to decrease map range.

Viewing ADS-B Traffic Status:

1) From Home, touch **Utilities** > **Setup** > **ADS-B Status**.
2) View the status of the traffic applications, then touch the **Back** Button or the **Home** Button when finished.

AUTOMATIC FLIGHT CONTROL SYSTEM

OVERVIEW

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

BASIC AUTOPILOT OPERATION

– **Autopilot Engagement** — The autopilot may be engaged by pushing the **AP** Key on the AFCS Controller. Annunciations regarding the engagement are indicated on the PFDs. Engaging the autopilot also engages the yaw damper.

– **Autopilot Engagement with Flight Director Off** — Upon engagement, the autopilot will be set to hold the current attitude of the airplane, if the flight director was not previously on. In this case, 'PIT' and 'ROL' will be annunciated.

– **Autopilot Engagement with Flight Director On** — If the flight director is on, the autopilot will smoothly pitch and roll the airplane to capture the FD command bars. The prior flight director modes remain unchanged.

– **Autopilot Disengagement** — The most common way to disconnect the autopilot is to press and release the **AP YD DISC/TRIM INT** Switch, which is located on the control wheel. When disengaged an 'autopilot' voice alert will be heard and annunciated on the PFDs. Other ways to disconnect the autopilot include:

» Pressing the **AP** Key on the AFCS Controller

» Pressing the **GA** Switch (located on each throttle)

» Operating either or both halves of the **Pitch Trim** Switch (located on each control wheel)

» Pulling the AFCS CTRL circuit breaker.

In the event of unexpected autopilot behavior, pressing and holding the **AP YD DISC/TRIM INT** Switch will disconnect the autopilot and remove all power to the servos.

FLIGHT DIRECTOR OPERATION

ACTIVATING THE FLIGHT DIRECTOR

Control Pressed	Modes Selected			
	Lateral		Vertical	
FD Key (pilot-side)[1]	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
FD Key (copilot-side)[1]	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
GA Switch	Roll Hold (default) Roll Hold (default)[2]	TO GA[2]	Takeoff (on ground) Go Around (in air)	TO GA
ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
VNAV Key	N/A	N/A	[3]	V
NAV Key	Navigation[4]	FMS VOR LOC	Pitch Hold (default)	PIT
B/C Key	Backcourse[4]	B/C	Pitch Hold (default)	PIT
APPR Key	Approach[4]	FMS VAPP LOC	Pitch Hold (default)[5]	PIT
HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT

[1] *Pressing the* ***FD*** *Key on the non-coupled flight director will only remove the command bars from the corresponding display. The* ***FD*** *Key on the coupled side is disabled when the autopilot is engaged, but pressing the non-coupled side* ***FD*** *Key will still display or remove the command bars.*

[2] *If airborne and the FMS flight plan has an active approach procedure, the FMS lateral mode will be selected.*

[3] *It should be noted that pressing the* ***VNAV*** *Key does not activate the FD, rather it activates the VNAV function of the AFCS which can subsequently automatically arm PATH, FLC, and ALTV as required by the FMS VNAV altitude constraints.*

[4] *The selected navigation receiver must have a valid VOR or LOC signal or active FMS course before* ***NAV*** *or* ***APPR*** *Key press activates flight director.*

[5] *GS or GP is armed if available.*

Flight Director Activation

AFCS MODES

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation	
Pitch Hold	Holds aircraft pitch attitude; may be used to climb/descend to the Selected Altitude	(default)	PIT	
Selected Altitude Capture	Captures the Selected Altitude	[1]	ALTS	
Altitude Hold	Holds current Altitude Reference	**ALT** Key	ALT	XX,XXX FT
Vertical Speed	Holds aircraft vertical speed; may be used to climb/descend to the Selected Altitude	**VS** Key	VS	X,XXX FPM
Flight Level Change	Holds aircraft airspeed while aircraft is climbing/descending to the Selected Altitude	**FLC** Key	FLC	M .XXX XXX KT

[1] *ALTS is armed automatically when the Selected Altitude is to be captured instead of the VNAV Target Altitude.*

Flight Director Vertical Modes

LATERAL MODES

Lateral Mode	Description	Control	Annunciation
Roll Hold	Holds the current aircraft roll attitude or rolls the wings level, depending on the commanded bank angle	(default)	ROL
Low Bank	Limits the maximum commanded roll angle	**BANK** Key	[1]
Heading Select[2]	Captures and tracks the Selected Heading	**HDG** Key	HDG
Navigation Mode			
FMS[2]	Captures and tracks the selected navigation source (FMS, VOR, LOC)	**NAV** Key	FMS
VOR Enroute/ Capture/Track[2]			VOR
LOC Capture/Track (No Glideslope)			LOC

The AFCS limits turn rate to 3 degrees per second (standard rate turn).

[1] *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.*

[2] *The Heading, Navigation FMS and Navigation VOR mode maximum roll command limit will be limited to the Low Bank mode value (15°) if it is engaged.*

Flight Director Lateral Modes

COMBINATION MODES

Mode	Description	Control	Annunciation
Vertical Navigation Modes			
VNAV Path Descent	Captures and tracks descent legs of an active vertical profile	**VNAV** Key	PATH
VNAV Target Altitude Capture	Captures the Vertical Navigation (VNAV) Target Altitude	[1]	ALTV
VOR Approach Mode			
VOR Capture/Track	Captures and tracks VOR navigation source	**APPR** Key	VAPP
FMS Approach Mode			
FMS	Captures and tracks FMS navigation source	**APPR** Key	FMS
Glidepath	Captures and tracks the FMS glidepath on approach		GP
LOC Approach Mode			
LOC Capture/Track (GS Mode automatically armed)	Captures and tracks LOC navigation source	**APPR** Key	LOC
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Backcourse Arm/Capture/Track	Captures and tracks the LOC source for backcourse approaches	**B/C** Key	BC
Additional Modes			
Takeoff	Commands a constant pitch angle on the ground in preparation for takeoff	**GA** Switch	TO
Go Around	Commands a constant pitch angle and wings level	**GA** Switch	GA

[1] *ALTV is armed automatically when the VNAV Target Altitude is to be captured instead of the Selected Altitude.*

Flight Director Combination Modes

Approach Modes

Selecting VOR Approach Mode:

1) Ensure a valid VOR frequency is tuned.
2) Ensure that VOR is the selected navigation source.
3) Press the **APPR** Key. Ensure the correct approach course is selected.

Selecting FMS Approach Mode without a glidepath:

1) Ensure a GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).

2) Ensure that FMS is the selected navigation source.

3) Press the **NAV** Key. Ensure the correct approach course is selected.

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

Selecting FMS Approach Mode with a glidepath:

1) Ensure an GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).

2) Ensure that FMS is the selected navigation source.

3) Press the **APPR** Key. Ensure the correct approach course is selected.

WARNING: *Do not rely on the autopilot to level the aircraft at the MDA/DH when flying an approach with vertical guidance. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.*

NOTE: *Some RNAV (GPS) approaches provide a vertical descent angle as an aid in flying a stabilized approach. These approaches are NOT considered Approaches with Vertical Guidance (APV). Approaches that are annunciated on the HSI as LNAV or LNAV+V are considered Nonprecision Approaches (NPA).These approaches are flown to an MDA, until visual contact is made with the runway environment, even though vertical glidepath (GP) information may be provided. If it is desired for the AFCS to capture the MDA, it is recommended another vertical mode be selected to arm ALTS.*

NOTE: *When flying an LNAV approach (with vertical descent angle) with the autopilot coupled in GP, the aircraft will not level off at the MDA even if the MDA is set in the altitude preselect. A different vertical mode (VS, FLC, PIT) must be selected prior to MDA (as altitude preselect) to arm ALTS.*

Selecting LOC Only Approach Mode:

1) Ensure a valid localizer frequency is tuned.

2) Ensure that LOC is the selected navigation source (use the **Active NAV** Softkey to cycle through navigation sources if necessary).

3) Press the **NAV** Key. Ensure the correct approach course is set.

Selecting Glideslope Mode:

1) Ensure a valid localizer frequency is tuned.
2) Ensure that LOC is the selected navigation source (use the **Active NAV** Softkey to cycle through navigation sources if necessary).
3) Press the **APPR** Key. Ensure the correct approach course is set.

Or:

1) Ensure that FMS is the selected navigation source (use the **Active NAV** Softkey to cycle through navigation sources if necessary).
2) Ensure a ILS approach is loaded into the active flight plan.
3) Ensure the corresponding LOC frequency is tuned.
4) Press the **APPR** Key. Ensure the correct approach course is set.

Selecting LOC Backcourse Mode (BC):

1) Ensure the correct localizer frequency is tuned.
2) Ensure that LOC is the selected navigation source (use the **Active NAV** Softkey to cycle through navigation sources if necessary).
3) Set the Selected Course to the localizer front course.
4) Press the **B/C** Key.

ADDITIONAL FEATURES

SAFETAXI

***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.*

***NOTE:** When obstacles are displayed on the 'Navigation Map' Page in the vicinity of an airport being viewed with SafeTaxi, the obstacle symbols may be obscured by SafeTaxi feature labels.*

***NOTE:** Hot Spot areas and land hold short lines may be obscured by runways which overlap them.*

Enabling/disabling SafeTaxi:

1) From Home, touch **Map** > **Map Selection** > **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 Home, touch **Map** > **Map Selection** > **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 are displayed.
5) Touch the desired range. In the following figure, 1.5 NM has been selected. With this setting, SafeTaxi will be displayed on the 'Navigation Map' Page for range settings up to and including 1.5 NM.

SURFACEWATCH

***WARNING:** Do not use SurfaceWatch™ information as the primary method of flight guidance during airborne or ground operations. SurfaceWatch does not have NOTAM or ATIS information regarding the current active runway, condition, or information about the position of hold lines.*

***NOTE:** When the flight plan is modified, data manually entered on the 'FPL - SurfaceWatch' Page will be cleared.*

Enabling/disabling SurfaceWatch:

1) From Home, touch **Utilities > Setup** > **Avionics Settings.**
2) If not already selected, touch the **Alerts** Tab and scroll to view the **SurfaceWatch Inhibit** Button.
3) Touch the **SurfaceWatch Inhibit** Button to enable or disable SurfaceWatch. A green annunciator indicates SurfaceWatch is inhibited, or disabled. The inhibit setting will be canceled after a power cycle.

***NOTE:** If SurfaceWatch is disabled, the origin runway will not be displayed with distinguishing cyan coloring.*

SURFACEWATCH SETUP

Entering origin/destination airport when no flight plan has been entered:

1) From Home, touch **Flight Plan > Add Origin** or **Add Destination** as appropriate.
2) Use the keypad to enter the Airport Identifier and touch **Enter**.

Selecting origin runway:

1) From Home, touch **Flight Plan > Origin**.
2) On the 'Select Runway' Screen, scroll down as required and select the appropriate runway.

Selecting destination runway:

1) From Home, touch **Flight Plan > Destination > Select Arrival Runway**.
2) On the 'Select Runway' Screen, scroll down as required and select the appropriate runway.

Selecting required takeoff distance:

1) From Home, touch **PERF > Takeoff Data.**
2) Touch the **Origin** Tab (if not already selected).
3) Touch the **Runway** Button and select the takeoff runway (If not already selected).
4) Touch the **Runway** Tab. The 'Takeoff Run Available' Distance is automatically populated for runways supported with PERF data.
5) Touch the **Takeoff Run Available** Button and adjust the required takeoff distance as required.

Selecting required landing distance:

1) From Home, touch the **PERF > Landing Data.**
2) Touch the **DEST** Tab (if not already selected).
3) Touch the **Runway** Button and select the landing runway (if not already selected).
4) Touch the **Runway** Tab. 'The Landing DIS Available' is automatically populated for runways supported with PERF data.
5) Touch **Landing DIS Available** Button and adjust the required landing distance as required.

ELECTRONIC CHARTS

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

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

NOTE: *Electronic aeronautical charts displayed on this system have been shown to meet the guidance in AC 120 76D as a Type 'B' Electronic Flight Bag (EFB) for ChartView. The accuracy of the charts is subject to the chart data provider. Own-ship position on airport surface charts cannot be guaranteed to meet the accuracy specified in AC 120-76D. Possible additional requirements may make a secondary source of aeronautical charts, such as traditional paper charts or an additional electronic display, necessary on the aircraft and available to the pilot. If the secondary source of aeronautical charts is a Portable Electronic Device (PED), its use must be consistent with the guidance in AC 120-76D.*

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

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

Selecting the preferred charts source:

1) From Home, touch **Charts** > **Chart Selection** > **Charts Options.**
2) Ensure the desired chart source is available (indicated by a green checkmark in the 'Dual Charts Status' Window). When the database age is beyond the disable date, an amber exclamation mark is displayed.
3) Touch the **Preferred Source** Button.
4) Touch either **ChartView** or **FliteCharts** to set the preferred chart source. The current selection is then displayed on the **Preferred Source** Button.

FLITECHARTS

Selecting charts using the 'Charts' Screen:

1) From Home, touch **Charts** > **Chart Selection**.
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.
    a) Touch the **Departure** Tab to display a list of possible departures for the selected airport.
    b) Touch the **Arrival** Tab to display a list of possible arrivals for the selected airport.
    c) Touch the **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 **Fit Width** to display the full width of the chart.
7) Touch the **Back** Button to return to the 'Charts' Screen.

Zooming-in, zooming-out, rotating, and panning the displayed chart:

1) From Home, touch **Charts** > **Chart Selection**.
2) Select the desired chart for display in the selected pane.
3) Push the **Joystick**. The 'Charts Pan/Zoom Control' Screen is displayed on the Touchscreen Controller.
4) Turn the **Joystick**, or use the pinch-and-zoom feature on the Touchpad to adjust the chart zoom.
5) Move the **Joystick** left, right, up, or down, or touch and move a finger along the Touchpad to pan the displayed chart.
6) Touch the **Rotate** Left Button or the **Rotate** Right Button above the Touchpad to rotate the page respectively.

Selecting airport diagrams from the 'Nearest Airports' Screen:

1) From Home, 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 Home, touch **Charts > Chart Selection** > **Charts Options**.
2) Touch the **Light Mode** Button.
3) Touch the **Day**, **Night**, or **Auto** Button. When **Auto** is selected, the display will change to the appropriate day or night setting, dependent on ambient lighting.
4) With 'Auto' selected, 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.

CHARTVIEW (OPTIONAL)

Selecting charts using the 'Charts' Screen:

1) From Home, touch **Charts > Chart Selection**.
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.
    a) Touch the **Departure** Tab to display a list of possible departures for the selected airport.
    b) Touch the **Arrival** Tab to display a list of possible arrivals for the selected airport.
    c) Touch the **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 the **Back** Button to return to the 'Charts' Screen.

Zooming-in, zooming-out, rotating, and panning the displayed chart:

1) From Home, touch **Charts > Chart Selection**.

2) Select the desired chart for display in the selected pane.

3) Push the **Joystick**. The 'Charts Pan/Zoom Control' Screen is displayed on the Touchscreen Controller.

4) Turn the **Joystick**, or use the pinch-and-zoom feature on the Touchpad to adjust the chart zoom.

5) Move the **Joystick** left, right, up, or down, or touch and move a finger along the Touchpad to pan the displayed chart.

6) Touch the **Rotate** Left Button or the **Rotate** Right Button above the Touchpad to rotate the page respectively.

Selecting airport diagrams from the 'Nearest Airports' Screen:

1) From Home, touch **Nearest** > **Airport**.

2) Touch the desired airport button. 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 Home, touch **Charts > Chart Selection** > **Charts Options**.

2) Touch the **Light Mode** Button.

3) Touch the **Day**, **Night**, or **Auto** Button. When **Auto** is selected, the display will change to the appropriate day or night setting, dependent on ambient lighting.

4) With 'Auto' selected, 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.

IFR/VFR CHARTS

Selecting the chart to display:

1) From Home, touch **Map > Map Selection**.

2) Touch the desired Chart Button (**VFR**, **IFR Low**, or **IFR High**).

Modifying the VFR, IFR Low, and IFR High chart settings:

1) From Home, touch **Map > Map Selection**.
2) Touch the desired Chart Button. The selected chart is displayed on the active display pane, and the button on the Touchscreen Controller becomes the Chart Settings Button (**VFR Settings** Button, **IFR Low Settings** Button, or **IFR High Settings** Button).
3) Touch the Chart Settings Button to display the applicable settings screen ('VFR Charts Settings' Page or 'IFR Charts Settings' Page.
4) Touch the desired Light Mode Button (**Auto** Button, **Day** Button, or **Night** Button). If the **Auto** Button is selected, the Threshold Level for the light mode may be adjusted by moving the slider left or right, or by touching the **+** Button, or the **-** Button.

SATELLITE TELEPHONE AND DATALINK SERVICES (OPTIONAL)

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

***NOTE:** Separate accounts must be established to access the Iridium Satellite Network for voice and Garmin Connext for data transmission of maintenance reports.*

REGISTERING THE SYSTEM WITH GARMIN CONNEXT

Registering the system for datalink services:

1) From Home, touch **Utilities > Setup > Avionics Status**.
2) If necessary, touch the **Airframe** Tab. Note the System ID. This number will be needed when contacting Garmin Connext to establish the account.
3) Touch the **LRU Info** Tab. Scroll to view 'GSR1.' Note the serial number of each will also be needed when contacting Garmin Connext.
4) Contact Garmin Connext to establish an account and receive an access code.
5) From Home, touch **Utilities > Setup > Connext Registration**.
6) Press the **Register** Button (see following figure).
7) Enter the access code.
8) Touch the **Enter** Button.

CONTACTS

Creating a new contact:

1) From Home, touch **Services > Contacts**.
2) The 'Contacts' Screen is displayed.
3) Touch the **Create New** Button.

4) Touch the **Name** Button. The 'Contact Name' Screen is displayed.

5) Enter the name of the new contact.

6) Touch the **Enter** Button.

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 the **Telephone Number** Button. The telephone number entry screen is displayed.

9) Enter the telephone number of the new contact as the example shows in the previous figure.

10) Touch the **Enter** Button.

11) Touch the **Email Address** Button (scroll down as required). The 'Email Address' Entry Screen is displayed.

12) Enter the email address of the new contact as the example shows in the previous figure.

13) Touch the **Enter** Button.

14) Touch the **ACARS Alias** Button (scroll down as required). The 'Alias Entry' Screen is displayed.

TELEPHONE COMMUNICATION

NOTE: *Iridium transceiver setup may differ based on aircraft configuration.*

Viewing the Telephone Status:

1) From Home, touch **Services** > **Telephone**.

2) The 'Telephone' Screen is displayed.

Enabling/disabling the Iridium telephone system:

1) From Home, 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.

Answering a call:

1) Touch the flashing **TEL** Button. The 'Notifications' Screen is displayed.

2) Touch the **Answer** Button. The call is now connected as indicated. Touching the **Ignore** Button extinguishes the new call annunciation and the call remains disconnected.

3) When the call is finished, touch the **End Call** Button to disconnect the call.

NOTE: *When calling the Iridium Telephone, if the initiator of the call hangs up, the annunciation does not disappear for approximately 1 minute.*

Making a call:

1) From Home, touch **Services** > **Telephone**.
2) Touch the **Cockpit** Phone Button. The 'Cockpit Phone' Screen is displayed.
3) Touch the **Dial** Button. The 'Phone Number' Screen is displayed.
4) Using the number keys, enter the phone number. Touch the **Find** Button 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

International Calling Codes

5) Touch the **Enter** Button. 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.

Ending a call:

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

During a Call:

1) From Home, touch **Services** > **Telephone**.
2) Touch the **Cockpit** Phone Button. The 'Cockpit Phone' Screen is displayed.
3) Touch **Open Keypad** if you need to enter numbers during a call (i.e., for entering a PIN).

   Or:

   Touch **Silence Radios**.

Enabling/disabling telephone audio and adjust volume:

1) From Home, 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)

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 the **Reply** Button to create a reply to the message.
4) Touch the **Delete** Button to delete the message from the list.
5) Touching the **Save Contact** Button saves the contact information in the system contact list.

Replying to a text message:

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

Or:

1) From Home, 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.
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 the **Delete** Button to delete the message from the list.
10) Touching the **Save Contact** Button saves the contact information in the system contact list.

Sending a text message:

1) From Home, 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 **Email**.

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.
8) Touch the **Enter** Button. The message text is displayed in the 'Message' Window.
9) Touch the **Send** Button.

Viewing Inbox messages:

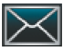
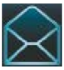
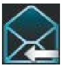
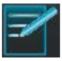
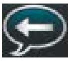
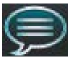
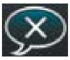
1) From Home, touch **Services** > **SMS Text**.
2) Touch the **Inbox** Tab. A list of received messages is displayed. The **Inbox** Tab is selected by default when accessing the 'SMS Text Messaging' Screen.

Viewing Draft messages:

1) From Home, touch **Services** > **SMS Text**.
2) Touch the **Drafts** 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.

Viewing Outbox messages:

1) From Home, 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.

Message Symbol	Description
	Received text message that has not been opened
	Received text message that has been opened
	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 Home, touch **Services** > **SMS Text**.
2) Touch the **Options** Button. 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 Home, touch **Services** > **SMS Text**.
2) Touch the **Options** Button. 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 Home, touch **Services** > **SMS Text**.
2) Touch the **Options** Button. The selection buttons are displayed.
3) Touch the **Mark All Read** Button.
4) Touch the **Back** Button to return to the Inbox. All messages in the Inbox now indicate they have been opened.

Deleting all messages:

1) From Home, touch **Services** > **SMS Text**.
2) Touch the **Options** Button. The selection buttons are displayed.
3) Touch the **Delete All Messages** Button. A confirmation screen is displayed.
4) Touch the **OK** Button.

ACARS (OPTIONAL)

Verifying connection with the ACARS Host Provider:

Once able to maintain a green check in the SATCOM status box, verify the avionics can send and receive data with the ACARS Host provider.

1) From Home, touch **Services > ACARS > Weather Settings.**
2) Touch the **Define Weather Request** Button. On the 'ACARS Weather Coverage' Page, press the **Add Waypoint** Button. Since not all airports will have weather data available, select a few major airports such as KORD, KJFK, KLAX, EGLL, etc.
3) After selecting airports, navigate back to the 'ACARS Weather Settings' Page. On the right side of the screen, select some weather products by toggling the Request / Overlay buttons. Recommended products are TAFs, METARs and METRO Wx.
4) When ready to send the request, press the **Send Request** Button.

   At the top of the 'ACARS Weather Settings' Page, there is a Data Request text box. After pressing the **Send Request** Button there will be text that states 'Request Queued [time].' The state will change to 'Request Sent [time]' if the downlink is able to be sent.

5) From Home, touch **Waypoint Info** > **Airport**. Navigate to the airports that were requested in the weather request and view the **METAR/TAF** and **Metro Weather** Tabs. There will be data, as reported by the ACARS Host Provider, filled in these tabs.

6) As a secondary test, from Home touch **Services > ACARS > Messages**.
   a) Press the **Draft New** Button.
   b) Press the **To** Button and press the **Email Address** Button from the list. Type in a destination email address and touch the **Enter** Button.
   c) Next press the **Message** Button, type 'TEST' and press **Enter**.
   d) Press the **Send** Button. An email should be received by the destination email address. The sender will be identified by the sending aircraft's tail number and ACARS Host Provider's domain.

Enabling/disabling ACARS:

***NOTE:** If the Digital Radio (GDR 66) is off, the VHF link status shows as "VHF - Searching Analog."*

1) From Home, touch **Services > ACARS > ACARS Settings.**
2) Touch the **ACARS Enabled** Button. A green annunciator indicates the ACARS is enabled. When disabling ACARS, a confirmation screen is displayed.
3) Touch the **OK** Button to disable ACARS. A gray annunciator indicates the ACARS is disabled.

Accessing ACARS host information:

1) From Home, touch **Utilities > Setup >Avionics Status**.
2) From the 'Avionics Status' Screen, touch **Data Link** > **ACARS**.

   The 'ACARS Diagnostics' Screen is displayed. For reference, frequencies may be accessed by scrolling down and pressing the **Analog Frequency Reference Table** Button.

Requesting/viewing D-ATIS for a specific airport:

1) From Home, touch **Services > ACARS > D-ATIS**.
2) The 'ACARS D-ATIS' Screen is displayed with the last airport selected displayed. To change airports, touch the **Airport Selection** Button to display the alphanumeric keys.
   a) Enter the desired airport using the alphanumeric keypad.
   b) Touch the **Enter** Button.
3) Touch the **Request** Button.
4) Touch the **Departure** or **Arrival** Button, as appropriate.
5) When the selected ATIS request is received by the D-ATIS service, 'Request Sent' is displayed. When the ATIS message is received from the D-ATIS service, it is displayed in the window below the **Request** Button. A message is also displayed on the 'Notifications' Screen and can be viewed by touching the **ACARS Message** Button.

Requesting, viewing, accepting and/or rejecting a departure clearance:

1) From Home, touch **Services > ACARS** > **Departure Clearance**.
2) Touch the **Request** Button. The 'Request Departure Clearance' Screen is displayed.
3) Touch each of the information buttons, and, if necessary, enter the appropriate information using the alphanumeric keys. Some entries may be pre-filled by the System.
4) Touch the **Send** Button to send the request. When the requested is successfully received "Request Sent" is displayed.
5) When the departure clearance is received by the ACARS, a confirmation screen is displayed. Touch the **OK** Button. An FSM message notification is also displayed on the 'Notifications' Screen. Touch the **Notification** Button to display the status.
6) When the DCL or PDC is received by the ACARS, it is displayed as a 'Pending' clearance. If necessary, touch the **Pending** Tab to view the clearance.
7) To accept the clearance, touch the **Accept** Button. A confirmation window is displayed.
8) Touch the **OK** Button. Any previously accepted clearances are deleted and the newly accepted clearance is displayed from the **Accepted** Tab.
9) Touch the **Reject** Button to reject the clearance. An FSM Notification Message is displayed. Touch the **Notification** Button to display the status message. Establish voice communication with ATC.

Requesting viewing, accepting and/or rejecting an Oceanic Clearance:

1) From Home, touch **Services > ACARS** > **Oceanic** .
2) The 'ACARS Oceanic Clearance' Screen is displayed. To request an Oceanic Clearance , touch the **Accepted** Tab and then touch **Request Clearance.**
3) Touch each of the information buttons, and, if necessary, enter the appropriate information using the alphanumeric keys.

***NOTE:** Although some of the fields are pre-filled by the system, each field must still be touched and the information verified and entered before the OCL request can be sent to ATC.*

***NOTE:** The "Flight ID" Field is pre-filled automatically from the Transponder Flight ID.*

4) Touch the **Send** Button to send the request. When the requested is successfully received 'FSM - Oceanic Clearance Request Received' is displayed.
5) When the OCL clearance is received, a message notification is displayed on the 'Notifications' Screen. Touch the **ACARS** Button to display the status.
6) When the OCL is received by the ACARS, it is displayed as a 'Pending' clearance. If necessary, touch the **Pending** Tab to view the clearance.

7) To accept the clearance, touch the **Accept Clearance** Button. A confirmation window is displayed.

8) Touch the **OK** Button. Any previously accepted clearances are deleted and the newly accepted clearance is displayed from the **Accepted** Tab.

9) Touch the **Reject Clearance** Button to reject the clearance. An FSM Notification Message is displayed. Touch the **Notification** Button to display the status message. Establish voice communication with ATC.

Requesting a list of available flight plans:

1) From Home, touch **Services > ACARS** > **Flight Plan Request**.

2) Touch the **Refresh List** Button. The message 'Refreshing Flight Plan List...' will be displayed while the list is being uploaded. When the list is successfully uploaded the available flight plans are displayed. This list will update automatically as more flight plans become available.

3) Touch the **Request** Button associated with the desired flight plan. When the upload is complete, the **Import** Button is displayed. A 'Flight Plan Received' message is also displayed on the 'Notifications' Screen.

4) Touch the **Import** Button to import the flight plan as the current Standby Flight Plan. An 'Importing...' message will display while the FMS is importing the flight plan. Refer to the discussion on Standby Flight Plans in the Flight Management Section.

When flight plans containing departure/arrival procedures and transitions are received without specifying runway information, a runway selection screen is displayed to complete the importing of the flight plan.

Requesting and viewing a NAT Message:

1) From Home, touch **Services > ACARS** > **Oceanic** .

2) The 'ACARS Oceanic Clearance' Screen is displayed. To request an Oceanic Clearance , touch the **NAT Messages** Tab and then touch **Request Message.**

3) Touch either the **Eastbound** or **Westbound** Button. When the requested is successfully received "Request Sent" is displayed.

4) When the NAT Message is received by the ACARS, a message notification is displayed on the 'Notifications' Screen. Touch the **ACARS** Button to view the message status.

5) Touch the **NAT Message Received** Button and then touch the **NAT Messages** Tab. The text of the NAT Message will be displayed in the 'NAT Messages' Window.

Viewing an ACARS message when received:

1) Touch the flashing **ACARS** Button. The **ACARS Inbox** Tab is automatically selected and the newly received ACARS message is shown.

2) Touch the message to display its contents.

3) If desired, touch the **Reply** Button to create a reply to the message.

4) Touch the **Delete** Button to delete the message from the list.

Replying to an ACARS message:

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

Or:

1) From Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the message in the Inbox list. If necessary, scroll to the desired message. The ACARS message is displayed.
3) Touch the **REPLY** Button. The 'ACARS Text Message Draft' Screen is displayed.
4) Touch the 'Message' Window to display the alphanumeric buttons.
5) Enter the reply text.
6) Touch the **Enter** Button. The reply message is displayed.
7) Touch the **Send** Button.

Sending an ACARS message:

1) From Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the **Draft New** Button. The 'ACARS Text Message Draft' Screen is displayed. The **Draft New** Button is also available from within the **Drafts** and **Outbox** Tabs.
3) Touch the **To** Window. A selection screen is displayed. If necessary, scroll through the list of available address types for sending the message.
4) Touch the button corresponding to the desired address type. An entry screen suitable to the address type selected is displayed.
5) Enter the pertinent information using the alphanumeric keys.
6) Touch the **Enter** Button. The address is now displayed.
7) Touch the **Message** Window. The alphanumeric buttons are displayed.
8) Enter the message text.
9) Touch the **Enter** Button. The message text is displayed in the **Message** Window.
10) Touch the **Send** Button.

Managing ACARS Messages

Message Symbol	Description
✉	Received ACARS message that has not been opened
✉	Received ACARS message that has been opened
✉	A reply has been sent for this ACARS message

Message Symbol	Description
✎	Saved ACARS message, draft not sent
←	System is sending ACARS message
☰	ACARS message has been sent
✕	System failed to send ACARS message

ACARS Message Symbols

Viewing messages sorted by message date/time:

1) From Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the **Options** Button. 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 Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the **Options** Button. 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 Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the **Options** Button.
3) Touch the **Mark All Read** Button.
4) Touch the **Back** Button to return to the Inbox. All messages in the Inbox now indicate they have been opened.

Deleting all messages:

1) From Home, touch **Services** > **ACARS** > **Messages**.
2) Touch the **Options** Button.
3) Touch the **Delete All Messages** Button. A confirmation screen is displayed.

Enabling/disabling OOOI Reports:

1) From Home, touch **Services** > **ACARS** > **Report Settings**.
2) Touch the desired report button to enable or disable the report. A green annunciator indicates an enabled selection. A gray annunciator indicates a disabled selection.

Enabling/disabling ACARS Position Reports:

1) From Home, touch **Services** > **ACARS** > **Report Settings**.
2) In the 'Position Reports' Window, touch the **Enabled** Button to disable Position Reports. Touch the **Enabled** Button again to enable Position Reports. A green annunciator indicates an enabled selection. A gray annunciator indicates a disabled selection.

Setting ACARS Position Reporting Intervals:

1) From Home, touch **Services** > **ACARS** > **Report Settings**.
2) Touch the **Interval** Button in the 'Position Reports' Window. The numeric keypad is then displayed.
3) Enter the desired time interval (1-99) using the numeric keys.
4) Touch the **Enter** Button. The time interval is displayed in the **Interval** Button.

CONNEXT (OPTIONAL)

Viewing the 'Connext Setup' Screen:

1) From Home, touch **Utilities > Setup > Wireless Setup.**
2) Touch **Connext.**

Changing the Bluetooth Name:

1) From Home, touch **Utilities > Setup > Wireless Setup > Connext.**
2) From the 'Connext Setup' Screen, touch the **Bluetooth** Tab.
3) Touch the **Bluetooth Device Name** Window to display the alphanumeric buttons.
4) Enter the desired name using the alphanumeric buttons.
5) Press the **Enter** Button upon completion.

***NOTE:** When selecting crew position for the first time or after clearing user data, volume control defaults to having no crew position selected (i.e., no green annunciator). After the initial selection, the last selected crew position (indicated by a green annunciator) will become the default position.*

Selecting crew position for Garmin Pilot control of Connext Bluetooth volume:

1) From Home, touch **Utilities > Setup > Wireless Setup > Connext.**
2) From the 'Connext Setup' Screen, touch the **Bluetooth** Tab.
3) In the center of the GTC Touchscreen, touch the **Volume Control** Button.
4) Touch **Pilot**, or **Copilot** (indicated by a green annunciator) to enable SiriusXM remote volume control on a mobile device running Garmin Pilot.
5) Once a selection has been made, press the **Back** Button to return to the previous screen.

Enabling/Disabling Flight Plan Importing from Garmin Pilot:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **Connext.**
2) While viewing the 'Connext Setup' Screen, touch the **Import Functions** Tab.
3) Touch the **Enable** Button to enable (green annunciator) Flight Plan Import from Garmin Pilot.

Enabling/Disabling WiFi Database Importing from Garmin Pilot:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **Connext.**
2) While viewing the 'Connext Setup' Screen, touch the **Import Functions** Tab.
3) Touch the **Enable** Button to enable (green annunciator) WiFi Database Import from Garmin Pilot.

Enabling/disabling automatic reconnection of a specific paired device:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **Connext.**
2) While viewing the 'Connext Setup' Screen, touch the **Paired Devices** Tab.
3) Touch the **Enable** Button to enable (green annunciator) auto reconnect to the desired paired device.

Removing a specific paired device from the list of paired devices:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **Connext.**
2) While viewing the 'Connext Setup' Screen, touch **Paired Devices** Tab.
3) Touch the Bluetooth device name to be removed.
4) A confirmation screen is displayed asking to remove the paired Bluetooth device.
5) Touch **OK** to remove the device from the list of paired devices.

WIFI CONNECTIONS (OPTIONAL)

Connecting to a WiFi network:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **WiFi Setup**.
2) A list of available WiFi networks is displayed. If necessary, scroll the displayed list of networks to find the desired network. If a specific network is expected to be present in the list, but is not displayed, try rescanning networks by performing the following steps:
    a) Touch the **WiFi Options** Button.
    b) Touch the **Rescan** Button.
3) Touch the network to be connected. In the following figure, the 'DemoNetwork1' network is selected. A confirmation screen is displayed.
4) Touch the **OK** Button.

    If there is not an airport already associated with this network, the system will ask if an airport should be associated with this network. Answer **Yes** to associate the closest airport to the current position to the network, or **No** to not associate an airport.

5) The system now asks if it is desired to make the connected network a favorite network.
6) Touch the **OK** Button to place the network in the Favorites List, or touch the **Cancel** Button to connect to select the network without making it a favorite network. Networks shown in the Available Networks List which have been designated as a favorite network are indicated by a star. Connected networks are indicated by a green antenna symbol.

Disconnecting a WiFi network:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup > WiFi Setup**.
2) Touch the **WiFi Options** Button.
3) Touch the **Disconnect** Button.

Making changes to a favorite network:

1) From Home, touch **Utilities** > **Setup** > **Wireless Setup > WiFi Setup**.
2) Touch the **Favorites** Tab to display the favorite networks list.
3) Touch the network to which changes will be made. The ‘Network Options’ Panel is displayed.
4) Touch the **Auto Connect** Button, to enable (green annunciator) an automatic connection to this network whenever the aircraft is on the ground and in range of the network.
5) Touch the **Edit** Button to edit network details as seen in the following figure.
6) Touch the desired parameter and make edits as required.
7) When finished making desired changes, touch the **Save** Button.

SIRIUSXM SATELLITE RADIO (OPTIONAL)

***NOTE:** Refer to the Hazard Avoidance Section for information and activation of SiriusXM Weather Products.*

ACTIVATING SIRIUSXM SATELLITE SERVICES

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

SiriusXM Satellite Radio uses the coded radio ID to send an activation signal that, when received by the SiriusXM Datalink Receiver, allows it to play entertainment programming.

These radio IDs are located:

– On the label on the back of the Datalink Receiver.

– On the ‘SiriusXM Info’ Screen on the Touchscreen Controller (see following figure).

Contact the installer if the radio ID cannot be located.

Establishing a SiriusXM Satellite Radio account:

1) From Home, touch **Utilities > Setup** > **SiriusXM Info**.
2) Note the Audio Radio ID and/or Data Radio ID as seen in the following figure.
3) Contact SiriusXM Satellite Radio. Follow the instructions provided by SiriusXM Satellite Radio services.

__NOTE:__ The __LOCK__ Button on the 'SiriusXM Info' Screen is used to save GDL 69A SXM activation data when the SiriusXM services are initially set up. It is not used during normal SiriusXM Radio operation, but there should be no adverse effects if inadvertently selected during flight.

Activating SiriusXM satellite services:

1) After contacting SiriusXM in the above procedure, from Home, touch **Utilities > Setup** > **SiriusXM Info**.
2) Verify the Data Radio and/or Audio Radio show a signal strength, indicating the system is communicating with the satellite.
3) Touch the **Start Activation** Button in the 'Activation' Field.
4) Touch the **LOCK Activation** Button in the 'Activation' Field as seen in the following figure. The system is now activated and ready for use.

USING SIRIUSXM RADIO

Selecting a channel from the channel list:

1) From Home, touch **Services > Music** to access the 'Music' Screen as in the previous figure.
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 Home, 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.

Selecting a category:

1) From Home, touch **Services > Music** > **Category**.
2) The list of categories is displayed as shown in the following figure.
3) Scroll to view the available categories.
4) 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.

Saving a channel to favorites list:

1) From Home, 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 favorite channel is 'Now Playing.'

Selecting a favorite channel for listening:

1) From Home, touch **Services** > **Music** > **Category**.
2) The list of categories is displayed.
3) If necessary, scroll to view the **Favorites** Button.
4) Touch the **Favorites** Button to view the 'Favorites' Channel List.
5) Touch the desired channel in the list. The channel is now displayed in the 'Now Playing' Field.

Adjusting SiriusXM pilot volume:

1) From Home, touch **Services** > **Music** > **Volume**.
2) The **Volume** Slider is displayed.
3) Touch and drag the slider to the right or left to adjust the volume. Dragging to the right increases volume. Dragging to the left to decrease the volume.

   Or:

   Turn the **Volume** Knob on the Touchscreen Controller.

Muting or unmuting the volume:

1) From Home, 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 'Music Volume' Field.

Enabling/disabling soft mute settings:

1) From Home, 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 **Back** Button to return to the 'Music' Screen.

ELECTRONIC CHECKLISTS

***NOTE:** If utilizing multiple touchscreen controllers while completing a checklist(s), the touchscreen controllers will not be synchronized and will scroll independently.*

Accessing and navigating checklists:

1) From Home, touch the **Checklist** Button. The checklist structure is displayed.
2) Touch the desired checklist from the list. If necessary, scroll through the list to see all the available checklists for the selected group. The first checklist item is selected as indicated by the white text surrounded by a cyan box.
3) Press the small right knob on the Touchscreen Controller to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking.

   Turn either of the right knobs on the Touchscreen Controller to scroll through the checklist and select the desired checklist item.

   Selecting a checked item and pressing the small right knob on the Touchscreen Controller will return the item to the unchecked state.
4) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window and 'Go to Next Checklist?' is highlighted. If 'Go to Next Checklist?' is selected prior to checking all the checklist items, '*Checklist Not Finished*' will be displayed in amber text.
5) While the 'Go to Next Checklist?' text is highlighted, press the small right knob on the Touchscreen Controller to display the next checklist in the group or choose another by touching the desired checklist on the Touchscreen Controller.

Resetting a specific checklist:

1) From Home, touch **Checklist**.
2) Touch the desired checklist to reset. The **Before Start** checklist is selected.
3) Touch the **Checklist Options** Button.
4) Touch the **Reset Checklist** Button.

Resetting all checklists:

1) From Home, touch the **Checklist** Button.
2) Touch the **Checklist Options** Button.
3) Touch the **Reset All Checklists** Button.

ELECTRONIC DOCUMENTS

Selecting a document:

1) From Home, touch **Utilities** > **Documents**. The 'Document Viewer' Screen is now displayed.
2) Touch the **Selected Document** Button.
3) Touch the **Installed** or **User** Tab to select the desired document source.
4) Touch the desired document button. The selected document name is displayed in the **Selected Document** Button. The document is displayed in the selected pane.

Changing Document Viewer options:

1) From Home, touch **Utilities** > **Documents** > **Options**. The 'Document Viewer Options' Screen is displayed.
2) Touch the **Document Info** Button to view information pertaining to the document, such as files size and creation date.
3) After touching the **Back** Button, touch the **Fit Page** Button to view the complete page in the selected pane.
4) Touch the **Fit Width** Button to enlarge the displayed page to fill the width of the selected pane.
5) Touching the **Rotate Page** buttons will rotate the displayed page 90 degrees to the right or left (depending on button touched) within the selected pane. Each subsequent touch will rotate the page another 90 degrees.
6) Touch the **Brightness** Slider to adjust the brightness of the displayed page.

   Or:

   Touch the + Button to increase brightness, or the - Button to decrease brightness. Each touch increases or decreases the brightness by approximately five percent.

Browsing the document:

1) After selecting the desired document, touch the **Next Page** and **Prev Page** buttons to increment and decrement one page with each touch.
2) The page select button (see following figure) shows the number of pages contained in the document and the page currently being displayed. Touch the page select button to jump to a specific page number. The 'Enter Page Number' Screen is displayed.
3) Touch the **Find** Button to display the 'Document Viewer Find' Screen.
4) If necessary, touch the **Table of Contents** Tab to display the document Table of Contents.
5) Touch **[+]** to expand a topic. Touch **[–]** to return to the collapsed view of the topic.
6) Touch the desired topic to jump to that portion of the document.

Zooming in and out on a document page:

1) With the document displayed, press the **Joystick**. The 'Document Pointer Options' Screen is now displayed on the Touchscreen Controller. Also, a flashing pointer is shown on the document display.
2) Turn the **Joystick**, or use the pinch-and-zoom feature on the Touchpad to zoom in or zoom out on the document page display.
3) Move the **Joystick**, or move a finger across the Touchpad to move the pointer within the document. When the pointer reaches the edge of the display, the display will scroll to show more the document page.

Navigating links within the document:

1) With the document displayed, press the **Joystick**. The 'Document Pointer Options' Screen is now displayed on the Touchscreen Controller. Also, a flashing pointer is shown on the document display.
2) Move the **Joystick**, or move a finger across the Touchpad to move the pointer to the desired document link.
3) With the link highlighted, touch the **Follow Link** Button. The selected link destination is now displayed in the selected pane.
4) Touch the **Return To Link** Button to return to the link origin.
5) Touch the **Back** Button or press the **Joystick** to remove the pointer from the display.

Creating bookmarks in the document:

1) While viewing the page to bookmark, touch the **Find** Button on the appropriate Touchscreen Controller.
2) Touch the **Bookmark** Tab to display the 'Bookmark' Window.
3) Touch the **Bookmark Current Page** Button. The 'Enter Bookmark Name' Screen is displayed.
4) Touch the **Enter** Button. A confirmation screen is displayed.
5) Touch the **OK** Button. The newly created bookmark is displayed.

Deleting document bookmarks:

1) With the desired document displayed, touch the **Find** Button to display the 'Document Viewer Find' Screen.
2) Touch the **Bookmark** Tab to display the 'Bookmark' Window.
3) Touch the **X** Button next to the bookmark to be deleted.
4) Touch the **OK** Button on the confirmation screen.
5) Again, touch the **OK** Button.

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EICAS
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STABILIZED APPROACH (OPTIONAL)

Inhibiting all stabilized approach alerts:

1) From Home, touch **Utilities > Setup > Avionics Settings.**
2) Touch the **Alerts** Tab.
3) Touch the **Stabilized APPR Inhibit** Button to enable or disable Stabilized Approach Alerts.

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.*

Viewing Database Information:

1) From Home, touch **Utilities > Setup** > **Avionics Status**.
2) Touch the **Database** Tab.
3) Touch the button corresponding to the display **(MFD, L PFD, R PFD, L GTC,** or **R GTC)** for which the database information will be viewed.
4) Scroll to display the appropriate database information.

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 'Notifications' Screen of the Touchscreen Controller with an associated flashing **MSG** Button. 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 Home, 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 or large and small right knobs
5) Touch the **Enter** Button. The message name is displayed on the **Message** Button.
6) Touch the **Frequency** Button.

7) Touch the **Event**, **One Time**, or **Periodic** Button. The selection is displayed on the **Frequency** Button.

8) Touch the **Time** Button.

9) Enter the time value using the keypad. If the **Event** Button was selected in step 7, time is entered in a clock format (HH:MM LCL) as local time. If the **One Time** or **Periodic** Buttons were selected in step 7, the time is entered in a HH:MM:SS format.

10) Touch the **Enter** Button. The time is displayed on the **Time** Button.

11) If the **Event** Button was selected in step 7, touch the **Date** Button. The **Date** Button is subdued and disabled if the **One Time** or **Periodic** Buttons were selected in step 7.

12) Touch the desired year, then the month, followed by the day.

13) Touch **Create** Button to activate.

Entering a scheduled message:

1) From Home, 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 or large and small upper knobs

5) Touch the **Enter** Button. The message name is displayed on the **Message** Button.

6) Touch the **Frequency** Button.

7) Touch the **Event**, **One Time**, or **Periodic** Button. The selection is displayed on the **Frequency** Button.

8) Touch the **Time** Button.

9) Enter the time value using the keypad. If the **Event** Button was selected in step 7, time is entered in a clock format (HH:MM LCL) as local time. If the **One Time** or **Periodic** Buttons were selected in step 7, the time is entered in a HH:MM:SS format.

10) Touch the **Enter** Button. The time is displayed on the **Time** Button.

11) If the **Event** Button was selected in step 7, touch the **Date** Button. The **Date** Button is subdued and disabled if the **One Time** or **Periodic** Buttons were selected in step 7.

12) Touch the desired year, then the month, followed by the day.

Editing a scheduled message:

1) From Home, touch **Utilities** > **Scheduled Messages**.

2) Touch the button with 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.

Resetting the time for an existing scheduled message:

1) From Home, touch **Utilities** > **Scheduled Messages**.
2) Touch the button with the name of the message to reset its time. The scheduled message time is immediately reset and begins the count-down.

Deleting a scheduled message:

1) From Home, 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 system automatically stores various settings and selections within crew profiles. These include a wide range of parameters for both the pilot and copilot including (but not limited to) map settings, avionics settings, radar settings and PFD settings.

After system power-on, the 'Initialization' Screen on the Touchscreen Controller shows the currently active crew profile, which was active during the previous power cycle. If needed, the flight crew may activate a different crew profile on the 'Initialization' Screen or the 'Crew Profile' Screen.

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.

Adding a new crew profile:

1) From Home, touch **Utilities > Crew Profile**.
2) Scroll as needed and touch the **Add Profile** Button.
3) Input the name to assign to the crew profile using the keypad or the large and small right knobs. Crew Profiles may be up to 16 characters long, and cannot share the exact name of another crew profile.
4) Touch the **Enter** Button or push the right knob.

Activating a crew profile:

1) From Home, touch **Utilities > Crew Profile**.
2) Scroll as needed, 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 Home, touch **Utilities > Crew Profile**.

2) Scroll as needed, 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 right knobs. Crew Profiles may be up to 16 characters long, and cannot share the exact name of another crew profile.

5) Touch the **Enter** Button or push the right knob. The 'Crew Profile' Screen displays the name of the copied profile in the list.

Renaming an existing crew profile:

1) From Home, touch **Utilities > Crew Profile**.

2) Scroll as needed, 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 right knobs. Crew Profiles may be up to 16 characters long, and cannot share the exact name of another crew profile.

5) Touch the **Enter** Button or push the right knob. 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 Home, touch **Utilities > Crew Profile**:

2) Scroll as needed, 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 on the MFD.

2) From Home, touch **Utilities > Crew Profile**.

3) Touch the **Import** Button.

4) Scroll as needed, 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 on the MFD.
2) From Home, touch **Utilities > Crew Profile**.
3) Scroll as needed, and touch the button for the crew profile to be exported from the list.
4) Touch the **Export** Button.

ABNORMAL OPERATION

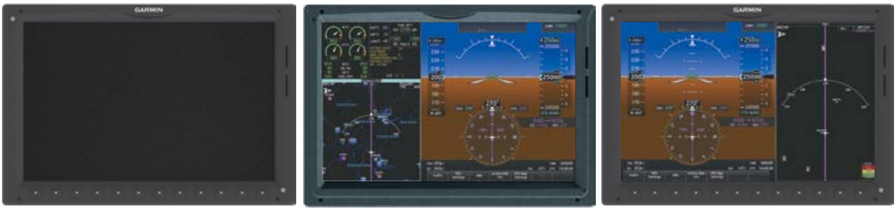
REVERSIONARY DISPLAY OPERATION

***NOTE:** The system alerts the pilot when the LRUs are communicating using backup paths. Refer to the Appendices for further information regarding system-specific alerts.*

Reversionary mode for each display is activated manually by turning a dedicated Display Format knob installed in the Display Format and Dimming Panel in the center pedestal. When a display unit is put in reversionary mode, it will show the PFD, an EICAS display, and a Display Pane.

If the MFD is operating in Reversionary Mode, the Touchscreen Controller on the failed display side controls the Reversionary Mode Display Pane. If L PFD or R PFD is in Reversionary Mode, the on-side Touchscreen Controller controls the Reversionary Mode Display Pane.

If both L PFD and R PFD fail or are off-line, L GTC will control the Reversionary Mode Display Pane on the MFD. R GTC functions will continue to be available, with the exception of Display Pane controls.



PFD1 Failure

MFD in Reversionary Mode with Pane controlled by GTC #1

PFD2 Normal (currently in Split Mode)

Display Pane Control (PFD1 Failure Reversionary Example)

TOUCHSCREEN CONTROLLER FAILURE

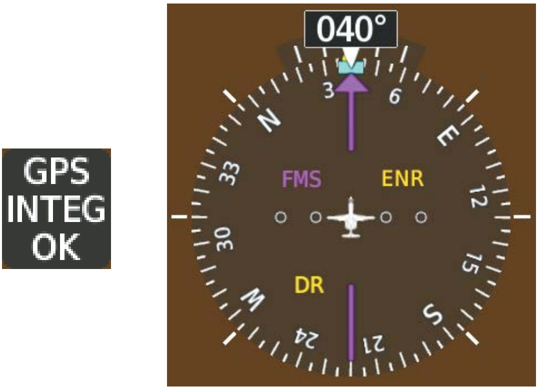
If either Touchscreen Controller fails or is off-line, the operating Touchscreen Controller controller controls the Display Panes for all displays. In addition, the single Touchscreen Controller provides audio and CNS control for both the pilot and copilot.

ABNORMAL GPS CONDITIONS

The annunciations listed in the table can appear on the HSI when abnormal GPS conditions occur.

Annunciation	Location	Description
GPS LOI	Left of the HSI	Loss of Integrity Monitoring–GPS integrity is insufficient for the current phase of flight
GPS INTEG OK	Left of HSI	FMS integrity has been restored to within normal limits (annunciation displayed for five seconds)
DR	Lower left of aircraft symbol	Dead Reckoning–System is using projected position rather than FMS position to compute navigation data and sequence active flight plan waypoints

Abnormal GPS Conditions Annunciated on HSI



Abnormal GPS Condition Annunciations

In Dead Reckoning Mode the following items on the PFD are then shown in amber:

- CDI
- Current Track Indicator
- Wind Data
- Distances to bearing sources displayed in the NAV/DME Information Bar
- GPS bearing pointers

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

GARMIN SVT TROUBLESHOOTING

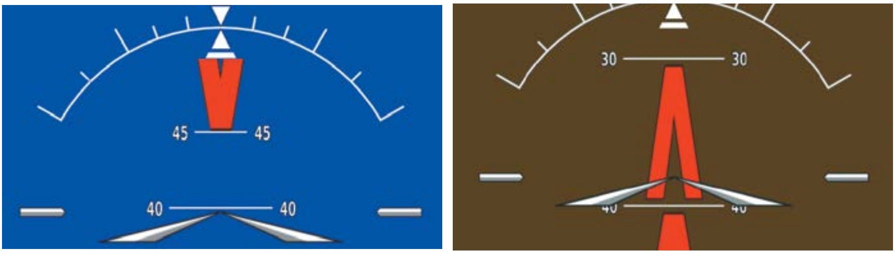
Garmin SVT™ is intended to be used with traditional attitude, heading, obstacle, terrain, and traffic inputs. SVT is disabled when valid attitude or heading data is not available for the display. In case of invalid SVT data, the PFD display reverts to the standard blue-over-brown attitude display.

SVT becomes disabled without the following data resources:

- Attitude data
- Heading data
- GPS position data
- 4.9 arc-second terrain data
- Obstacle data
- TAWS function is not available, in test mode, or failed

UNUSUAL ATTITUDES

When the aircraft enters an unusual pitch attitude, red chevrons pointing toward the horizon warn of extreme pitch. The chevrons are displayed on the Attitude Indicator, starting at 50° above and 30° below the horizon line. The display shows either a brown colored band at the bottom or blue colored band at the top of the screen to represent earth or sky. This is intended to prevent losing sight of the horizon during extreme pitch attitudes.



Unusual Attitude Display

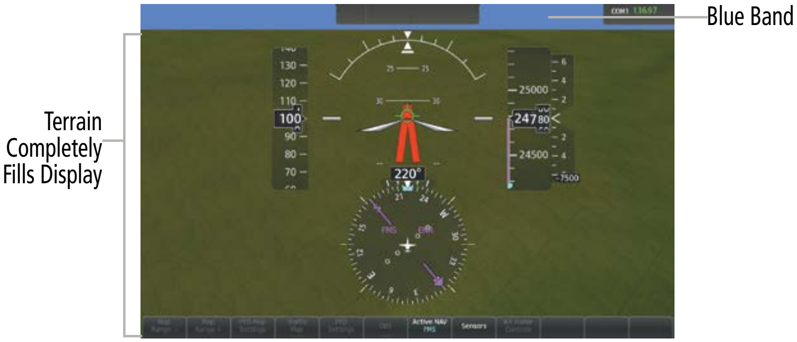
The blue colored band is also displayed when terrain gradient is great enough to completely fill the display.

If pitch exceeds +30°/-20° or bank exceeds 65°, some information displayed on the PFD is removed. The Altimeter, Airspeed, Attitude, Vertical Speed, and Horizontal Situation indicators remain on the display and the Bearing Information, Alerts, and Annunciation windows can be displayed during such situations. The following information is removed from the PFD (and corresponding Touchscreen Controller buttons are disabled) when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Flight director Command Bars
- Inset Map
- ISA Temperature Deviation
- DME Information
- Wind data
- Selected Heading indication
- Selected Course indication
- System Time
- Windows displayed on the PFD with the exception of CAS
- Minimum Altitude Alert setting
- Vertical Deviation, Glideslope, and Glidepath Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNAV Target Altitude

SVT UNUSUAL ATTITUDES

During extreme pitch attitudes, the display shows either a brown or blue colored band at the top or bottom of the screen to represent earth or sky. The blue colored band is also displayed when terrain gradient is great enough to completely fill the display. This is intended to prevent losing sight of the horizon during extreme pitch attitudes.

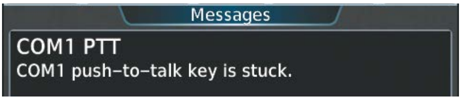


Blue Sky Bar with Full Display Terrain

ABNORMAL COM OPERATION

STUCK MICROPHONE

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

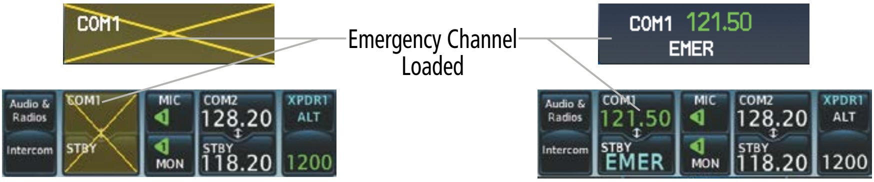


COM1 PTT
COM1 push-to-talk key is stuck.

Stuck Microphone Alert

COM TUNING FAILURE

In case of a COM system tuning failure, the radio will remain tuned to the active frequency. The emergency frequency (121.500 MHz) can be tuned by selecting either the COM 1 TUNE or COM 2 TUNE switch on the instrument panel. Depending on the failure mode, an amber X may appear on the frequency display.


COM1
Emergency Channel Loaded
COM1 121.50
EMER
Audio & Radios
Intercom
COM1
STBY
MIC
MON
COM2
128.20
STBY
118.20
XPDR1
ALT
1200
Audio & Radios
Intercom
COM1
121.50
STBY
EMER
MIC
MON
COM2
128.20
STBY
118.20
XPDR1
ALT
1200

COM Tuning Failure

AUDIO CONTROLLER FAIL-SAFE OPERATION

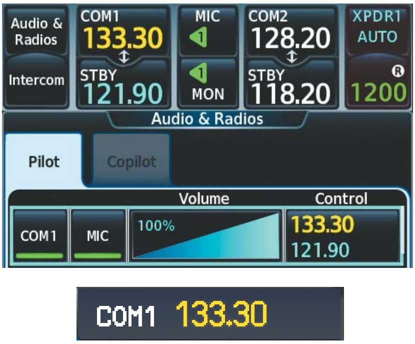
If there is a failure of the Audio Controller, a fail-safe circuit connects the pilot's headset and microphone directly to the COM1 transceiver. Audio will not be available on the speaker, but the intercom continues to work.

TOUCHSCREEN CONTROLLER FAILURE

In case of a Touchscreen Controller failure, the operational Touchscreen Controller will control the pilot and co-pilot audio and radios.

AMBER COM FREQUENCY DIGITS

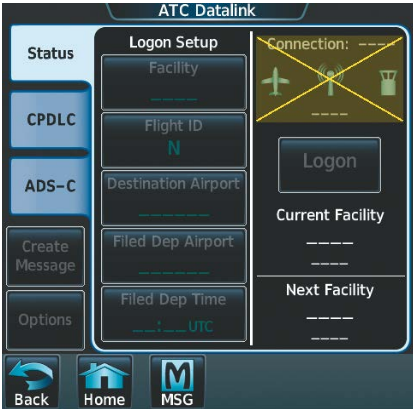
A discrepancy between the active COM frequency on the Touchscreen Controller, and the actual tuned frequency reported by the controlling Integrated Avionics Unit (IAU), causes the active COM frequency digits on the Touchscreen Controller and PFD to turn amber.


Audio & Radios
Intercom
COM1
133.30
STBY
121.90
MIC
MON
COM2
128.20
STBY
118.20
XPDR1
AUTO
R
1200
Audio & Radios
Pilot
Copilot
Volume
Control
COM1
MIC
100%
133.30
121.90
COM1 133.30

Active COM Frequency Discrepancy

CPDLC UNAVAILABLE

An amber X over the link status field of the ‘CPDLC’ Screen, or an amber X over the Connection field of the ‘ATC Datalink’ Screen, indicates the air-ground connection and/or the CPDLC system is not available for use.



CPDLC Unavailable

FMS DEGRADATION

The FMS will operate in either the GPS or the DR position fixing mode, depending on the available sensors. If enabled and available for use, GPS1/GPS2 will have priority, and SBAS will be used if available If one GPS sensor fails, the system will automatically transition to the other GPS sensor.

If GPS is lost and the system is unable to recover a signal, or if both GPS sensors fail, the "GPS LOI" (Loss of Integrity) annunciation is displayed in amber on the PFD. Also, a "LOSS OF GPS NAVIGATION Poor Satellite Coverage.", or "GPS NAV LOST Loss of GPS navigation. GPS fail." alert message will appear on the Touchscreen Controller.

DEAD RECKONING NAVIGATION

The system will revert to Dead Reckoning (DR) mode if the system is no longer fully using any GPS sensor for position fixing, even if airspeed and heading data are unavailable. In DR Mode, the system will use its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft’s current estimated position. It is important to note that estimated navigation data supplied by the system in DR mode will become increasingly unreliable and must not be used as a sole means of navigation.

DR mode is inherently less accurate than the standard GPS/SBAS mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction compound the relative inaccuracy of DR mode. Because of this degraded accuracy, other navigation equipment must be relied upon for position awareness until GPS position data is restored.

DR mode will be indicated on the system by the appearance of the letters "DR" displayed in amber on the HSI, and on top of the aircraft symbol on navigation maps. The CDI deviation bar will be displayed in amber, and the GPS LOI annunciation will also be displayed on the PFD. The autopilot can be coupled in DR mode, as long as the lateral deviation guidance is available.

As a result of operating in DR mode, all data that is dependent upon GPS is displayed as amber text to denote degraded navigation source information. If the VSD Inset is enabled, 'VSD Not Available' will be displayed. Airspace alerts continue to function, but with degraded accuracy. Also, while the system is in DR mode, SVT and terrain alerting functions are disabled.

OVERPOWERING AUTOPILOT SERVOS

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

Overpowering the autopilot during flight will cause the APT to run, resulting in an out-of-trim condition or cause the trim to hit the stop if the action is prolonged. In this case, larger than anticipated control forces are required after the autopilot is disengaged.

EMERGENCY DESCENT MODE (EDM)

EDM is an autopilot mode that, when initiated, will fly the aircraft to a safe altitude in response to cabin depressurization at altitude. The system is available during autopilot operations above 30,000' MSL. While activation requires no crew action, the EDM does require flight crew action for speed brake and thrust control. EDM will activate if the flight crew misses the red 'CABIN ALT' CAS Message adding a complementary function for the EDM Maneuver.

Flight Level Change (FLC) Mode will automatically be selected to track the new target airspeed to the new target altitude. EDM will remain active and all other FD modes will be inhibited until the pilot disconnects the autopilot. Re-activating the AP will allow other modes to be selected. When EDM is active, Selected Altitude, heading, and airspeed target can be adjusted but the AFCS modes cannot be changed until the autopilot is disconnected. The following AFCS modes are activated automatically:

- Flight Level Change Mode with the speed reference set below VMO/MMO and Selected Altitude set to 15,000 feet
- Heading Select Mode with the selected heading set to 90° left of the current heading

ACTIVATION

Emergency Descent Mode (EDM) consists of a descent to 15,000 ft followed by leveling off. EDM is automatically activated when the:

– Aircraft is at or above 30,000' MSL,

AND

– Cabin pressure altitude is 14,500' or above,

AND

– Autopilot is engaged.

When EDM is activated, the autopilot will conduct a normal descent maneuver within normal acceleration limits (+/- 0.3g). The autopilot shall maintain speed target below VMO/MMO with pitch angle limited to a maximum of -22 degrees to avert an overspeed condition. As the aircraft altitude changes, the airspeed target shall continuously track the airspeed profile. The autopilot will execute a turn of 90° left of the current aircraft heading and will automatically set the preselected altitude to 15,000 feet. Upon activation, a red 'EDM' annunciation will be displayed to the left of the AFCS Status Box, above the attitude display on both PFDs. In addition to the annunciations provided on the PFDs, the AFCS Mode Controller also displays the selected flight director mode by illuminating a green annunciator light above each push-button on the GMC 7200.

At EDM activation, flight crew must immediately retard the throttles manually and deploy the speed brakes.

NOTE: *If flight crew does not manually manipulate the throttles and speed brake, the airplane will not meet the emergency descent profile and will instead descend at a slower rate. A reduction in thrust is required to allow rapid descent.*

When EDM is activated:

1) Manually retard the throttles.
2) Deploy the speed brakes.

At the end of the EDM Maneuver, the flight director and autopilot will initiate a level off at 15,000 feet. The flight director will transition to Selected Altitude Capture (ALTS) Mode and Heading (HDG) Mode will be maintained. Flight crew action is required to increase thrust and retract the speed brakes.

When EDM level off is complete at 15,000' MSL:

1) Manually increase the throttles to maintain level flight.
2) Retract the speed brakes.

EDM OVERRIDE

Once active, the pilot can always choose to abort the emergency descent at any time by pressing the **AP YD DISC/TRIM INT** Switch. FD mode changes are precluded while EDM is active.

Disabling EDM after activation:

Press the **AP YD DISC/TRIM INT** Switch.

NOTE: *Refer to the current version of the pertinent flight manual for specific instructions regarding emergency procedures.*

DATALINK TROUBLESHOOTING

For troubleshooting purposes, check the LRU Information Box on the ‘Avionics Status’ Page for Iridium Receiver (GSR 56), the WiFi Datalink (GDL 59), or the XM Datalink Receiver (GDL 69) status, serial number, and software version number. If a failure has been detected in the GDL 69 the status is marked with a red X.

Viewing the ‘Avionics Status’ Screen:

1) From Home, touch **Utilities > Setup** > **Avionics Status**.
2) Touch the **LRU Info** Tab.
3) Scroll to display the appropriate LRU information.
4) Touch an LRU to view further information.

QUICK TROUBLESHOOTING

- Ensure the installed hardware has an active subscription or account (e.g., Iridium subscription, XM subscription)
- Perform a quick check of the circuit breakers to ensure that power is applied to the applicable hardware
- If a failure still exists, the following messages may provide insight as to the possible problem:

Message	Message Location	Description
CHECK ANTENNA	‘XM Information’ Screen (Touchscreen Controller)	Datalink Receiver antenna error; service required
UPDATING	‘XM Information’ Screen (Touchscreen Controller)	Datalink Receiver updating encryption code
NO SIGNAL	‘XM Information’ Screen (Touchscreen Controller) Weather Datalink Display (selected display pane)	Loss of signal; signal strength too low for receiver

Message	Message Location	Description
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 (selected display pane)	No communication from Datalink Receiver within last 5 minutes
ACTIVATION REQUIRED	'XM Information' Screen (Touchscreen Controller) Weather Datalink Display (selected display pane)	SiriusXM subscription is not activated

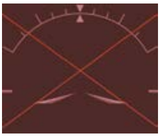
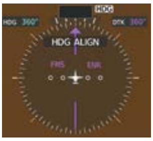
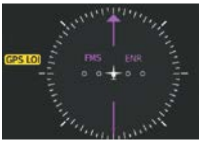
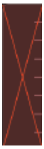
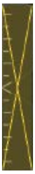
SiriusXM Datalink Receiver Messages

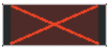
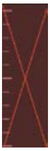
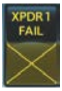
ANNUNCIATIONS AND ALERTS

SYSTEM ANNUNCIATIONS

When an LRU or an LRU function fails, a large "X" is typically displayed on windows associated with the failed data. Depending on the LRU, the "X" may be amber or red. Upon system power-on, certain instruments remain invalid as equipment begins to initialize. All windows should be operational within one minute of power-on. If any window remains flagged, the system should be serviced by a Garmin-authorized repair facility.

***NOTE:** For a detailed description of all annunciations and alerts, refer to Appendix A. Refer to the current version of the pertinent flight manual for additional information regarding pilot responses to these annunciations.*

System Annunciation	Comment
	Display system is not receiving attitude information from the AHRS.
	AHRS System is aligning.
	GPS information is either not present or is invalid for navigation use.
	Display system is not receiving airspeed input from the air data computer.
	Display system is not receiving vertical speed input from the air data computer.

System Annunciation	Comment
	Display system is not receiving valid heading input from the AHRS or magnetometer.
	Display system is not receiving altitude input from the air data computer.
	Display system is not receiving valid transponder information.
Other Various Red or Amber X Indications	A red or amber 'X' through any other display field (such as GTC and engine instrumentation fields) indicates the field is not receiving valid data.

System Annunciations

CREW PROFILE IMPORT/EXPORT MESSAGES

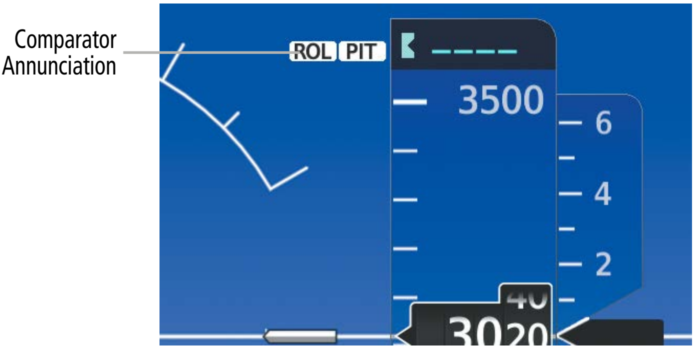
In some circumstances, some messages may appear in conjunction with others:

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

Crew Profile Import/Export Messages

COMPARATOR ANNUNCIATIONS

The Comparator monitors critical values generated by redundant sensors. If differences in the sensors exceed a specified amount, a comparator annunciation is displayed in black text on an amber background. If one or both of the sensed values are unavailable, the comparator annunciation is black text on a white background. PFD annunciations flash again as if they were new when a display mode change occurs on the PFD. The following is a list of the possible annunciations:



Sensor Comparator Annunciations on the PFD

The following is a list of the possible annunciations:

Annunciation	Condition
ALT	Difference in altitude sensors is ≥ 200 ft.
IAS	If either airspeed sensor detects ≥ 35 knots, and the difference in sensors is > 10 knots.
	If either airspeed sensor detects ≥ 80 knots, and the difference in sensors is > 7 knots.
HDG	Difference in heading sensors is > 6 degrees.
PIT	Difference in pitch sensors is > 5 degrees.
ROL	Difference in roll sensors is > 6 degrees.
VDI	Difference in temperature compensated altitudes is > 50 ft.
ALT	No data from one or both altitude sensors.
IAS	No data from one or both airspeed sensors.

Annunciation	Condition
HDG	No data from one or both heading sensors.
PIT	No data from one or both pitch sensors.
ROL	No data from one or both roll sensors.
VDI	No temperature compensated altitude data available from one or both sources.

Sensor Comparator Annunciations

REVERSIONARY SENSOR ANNUNCIATIONS

Reversionary sensor selection for attitude/heading, air data, and GPS is annunciated on the PFDs. These annunciations reflect reversionary sensors selected on one or both PFDs. Selecting the **Sensors** Softkey gives access to **ADC 1**, **ADC 2**, **ATT/HDG 1**, and **ATT/HDG 2 Softkeys**. These softkeys allow manual switching of the ADC and AHRS sensors. In the case of certain types of sensor failures (e.g. GPS), the system may make some sensor selections automatically.

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.

Reversionary Sensor Annunciations

AIRSPACES

Message	Comments
'INSIDE ARSPC' – Inside airspace.	The aircraft is inside the airspace.
'ARSPC AHEAD' – Airspace ahead – less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft current ground track penetrates the airspace within 10 minutes.
'ARSPC NEAR' – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
'ARSPC NEAR' – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.

Airspace Alert Messages

FLIGHT PLANNING

VSD MESSAGES

Under certain conditions, some messages may appear in conjunction with others:

Message	Description
'Loading…'	VSD is loading data due to a range change, full/half switch, or first being selected for display.
'Flight Plan Not Available'	Flight Plan mode is selected and there is not a flight plan loaded with at least one leg.
'Flight Plan mode unavailable because aircraft off course and active leg over 200 NM'	All of the following are true: – Flight Plan mode is selected – The active leg is greater than 200 nm – The aircraft is outside the swath
'Aircraft Beyond Active Leg'	Flight Plan mode is selected and the aircraft's position, as projected on the flight plan, is past the end of the active leg.
'VSD Not Available'	At least one of the following is true: – Valid terrain database not available – Current barometric altitude not available – Current track is not available – Current heading is not available – GPS position not available
'VSD Data is old, disable and enable VSD'	The system has encountered a delay and VSD data has failed to update for 2 seconds or more. This message may be momentarily displayed and then removed as the delay is overcome. In the event the message persists, it is recommended to disable and enable VSD.

VSD System Messages

MANAGING FLIGHT PLANS

Importing and Exporting Flight Plans

In some circumstances, flight plan import or export messages may appear in a pop-up window 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.

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

Flight Plan Import/Export Messages

TAKEOFF AND LANDING

TAKEOFF DATA TAB

Message	Condition
CHK FLAPS	The current aircraft flap setting is not the same as the Takeoff Flaps selection on the **Takeoff Config** Tab, or the flap position data is invalid.
CHK ANTI-ICE	The current ice protection is not the same as the ice protection selection on the **Takeoff Config** Tab, or a loss of both GEAs while anti-ice is selected on.
CHK WEIGHT	The current aircraft weight is greater than the Takeoff Weight on the **Origin** Tab.
CHK BARO	The current sensed pressure altitude is not within 200 ft. of the pressure altitude calculated by the system.
CHK FPL RWY	The flight plan departure runway is not the same as the Runway selection on the **Origin** Tab.
CHK FPL APT	The flight plan departure airport is not the same as the airfield on the **Origin** Tab.
CHK TEMP	The current RAT temperature is not within 5 degrees Celsius of the 'Temperature' value on the **Weather** Tab, or the RAT data is invalid.

TOLD consistency monitor messages - Takeoff

LANDING DATA TAB

Message	Condition
CHK WEIGHT	The estimated landing weight used for TOLD is different from a newly calculated estimated landing weight by 2000 lbs.
CHK STEEP	Steep Approach has been selected by the flight crew; TOLD must be calculated manually.

TOLD consistency monitor messages – Landing Data Tab

DATA LINK WEATHER MESSAGES

Weather Request Status Message	Description
Auto requests inhibited Send manual request to reset.	The system has disabled automatic weather data requests due to excessive errors. Automatic weather data requests have stopped. Send a manual weather data request to resume automatic updates.
Auto update retry: ## Seconds	The system will attempt another automatic weather data request after an error occurred during the previous request. Timer counts down until the next automatic request occurs.
Connext Comm Error [2]	A communications error has occurred with the GIA or GDL 59. The system should be serviced.
Connext Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GIA is off-line.
Connext Comm Error [5]	The Iridium or Garmin Connext services are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
Connext Comm Error [6]	A communications error has occurred. If this error persists, the system should be serviced.
Connext Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the Connext Data Request.
Connext Comm Error [8]	A server error has occurred or invalid data received.
Connext Login Invalid	There is a problem with the Garmin Connext registration. Please contact Garmin Aviation Support through the phone number listed on its website, flygarmin.com.
Connext Server Temporarily Inop	The Garmin Connext weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
Connext Server Inop	The Garmin Connext weather data server will be out of service for at least 30 minutes.

Weather Request Status Message	Description
Invalid Coverage Area	The Connext Data Request does not sufficiently define a coverage area on which to retrieve weather data. Verify the selections in the Connext Weather Coverage Window, then issue another Connext Data Request.
No Connext Subscription	The system is not currently subscribed to the Garmin Connext Weather service, or the access code is incorrect. Verify the access code. Please contact Garmin Aviation Support through the phone number listed on its website, flygarmin.com.
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.

Abnormal Weather Data Request Status Messages

AIRBORNE WEATHER RADAR MESSAGES

Radar Mode	Radar Mode Annunciation Box	Center Banner Annunciation
Standby	Standby	STANDBY
Weather	WX	None
Ground Mapping	Map	None
Radar Failed [1]	FAIL	RADAR FAIL

Radar Modes on the 'Weather Radar' Pane

Weather Radar Pane 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' Pane

REACTIVE WINDSHEAR ALERTS

Alert Type	PFD Annunciation	Voice Alert
Caution	WINDSHEAR	“Caution, Windshear”
Warning	WINDSHEAR	“ Windshear, Windshear, Windshear”
Test	WNDSHR TEST	None

Reactive Windshear Alert Annunciations

TERRAIN ALERTS

Alert Type	PFD/TAWS Pane Annunciation	Touchscreen Controller Pop-Up Alert	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN - PULL-UP	“Terrain, Terrain; Pull Up, Pull Up”
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD - PULL-UP	Terrain Ahead, Pull Up; Terrain Ahead, Pull Up”
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP	“Obstacle, Obstacle; Pull Up, Pull Up”
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD - PULL-UP	“Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up”
Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	“<whoop> <whoop> Pull Up”
Excessive Closure Rate Warning (ECR)	PULL UP	PULL-UP	“<whoop> <whoop> Pull Up”
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	“Caution, Terrain; Caution, Terrain”
Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN - AHEAD	“Terrain Ahead; Terrain Ahead”
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	“Caution, Obstacle; Caution, Obstacle”
Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD	“Obstacle Ahead; Obstacle Ahead”
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW - FLAPS	“Too Low, Flaps”

Alert Type	PFD/TAWS Pane Annunciation	Touchscreen Controller Pop-Up Alert	Voice Alert
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Excessive Closure Rate Caution (ECR)	TERRAIN	TERRAIN	"Terrain, Terrain"
Negative Climb Rate Caution (NCR)	TERRAIN	DONT SINK	"Don't Sink"
Flight Into Terrain High Speed Caution (FIT)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"
Flight Into Terrain Gear Caution (FIT)	TERRAIN	TOO LOW - GEAR	"Too Low, Gear"
Flight Into Terrain Flaps Caution (FIT)	TERRAIN	TOO LOW - FLAPS	"Too Low, Flaps"
Flight Into Terrain Takeoff Caution (FIT)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"
Glide Slope Deviation Caution (GSD) (depends on approach type)	GLIDESLOPE or GLIDEPATH	GLIDESLOPE or GLIDEPATH	"Glideslope" or "Glidepath"
Altitude Voice Callout (VCO)	None	None	"Five Hundred"

TAWS-A Alerts Summary

Alert Type	'TAWS' Pane Annunciation	'TAWS' Pane Center Banner Annunciation	Voice Alert
GPWS System Fail	GPWS FAIL	None	"GPWS System Failure"
GPWS Alerting Inhibited	GPWS INH	None	None
'Too Low - Flaps' FIT alerting inhibited	FLAP OVR	None	None
Steep Approach Mode Enabled	STEEP APR	None	None
Steep Approach Mode Enabled and 'Too Low - Flaps' FIT alerting inhibited	FLP/STEEP	None	None

Alert Type	'TAWS' Pane Annunciation	'TAWS' Pane Center Banner Annunciation	Voice Alert
GSD Alerting Inhibited	GS INH or GP INH	None	None
System Test in progress	TAWS TEST	TAWS TEST	None
TAWS PDA/FLTA Alerting Inhibited	TAWS INH	None	None
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 System Test pass	None	None	"TAWS System Test OK"

TAWS-A System Status Annunciations

Alert Cause	TAWS Pane Annunciation(s)	TAWS Alert Types Not Available
TAWS System Test Fail; Terrain or Obstacle database unavailable or invalid on all PFDs and MFD; software mismatch among PFDs/MFD; TAWS audio fault	TAWS FAIL and TAWS FAIL	FLTA, PDA
MFD Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases	TERRAIN DATABASE FAILURE	
No FMS position	TAWS N/A and NO FMS POSITION	FLTA, PDA, GSD[2], VCO[1]
Excessively degraded GPS signal, or out of database coverage area	TAWS N/A	FLTA, PDA

Alert Cause	TAWS Pane Annunciation(s)	TAWS Alert Types Not Available
Sufficient GPS signal reception restored	None	
Radar Altimeter invalid, Vertical Speed Invalid, GPS and Baro Altitude invalid, Software mismatch among PFDs/MFD, TAWS configuration mismatch among PFDs/MFD, TAWS audio fault	GPWS FAIL	EDR, ECR, NCR, FIT, GSD

[1] *VCO alerts are not issued if both TAWS and GPWS systems have failed or are not available.*

[2] *GSD alert will be available if a valid ILS is being used for navigation, even in no valid GPS signal is being received.*

TAWS-A Abnormal Status Alerts

TRAFFIC ANNUNCIATIONS

TCAS I ANNUNCIATIONS

Operating Mode	Traffic Map Mode Annunciation	Traffic Overlay Status Icon
Operating	OPERATING	◆↑
TCAS I Standby	STANDBY (also shown in white in center of 'Traffic Map' Pane)	☒
TCAS I Failed[1]	UNIT FAILED	☒

TCAS I Modes

'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.

TCAS I Failure Annunciations

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range .[1] Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory. [2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
TRFC FAIL	The traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data). [2]
NO TRFC DATA	Data is not being received from the traffic unit.

[1] *Shown as symbol on 'Traffic Map' Pane.*

[2] *Shown in center of 'Traffic Map' Pane.*

TCAS I Traffic Status Annunciations

TCAS II ANNUNCIATIONS

Operating Mode	PFD Annunciation	Traffic Map Mode Annunciation	Traffic Display Status Icon (Other Maps)
TCAS II Self-test Initiated (TEST)	None	**TEST** ('TEST MODE' also shown in white on top center of pane)	☒
Traffic Advisory and Resolution Advisory (TA/RA)	None	**TA/RA**	◆↑
Traffic Advisory Only (TA ONLY)	**TA ONLY**	**TA ONLY**	◆↑
TCAS II Standby (Shown if Altitude Reporting, On, or Standby Mode Selected), or after landing or on-ground when apllying power.	None		☒

Operating Mode	PFD Annunciation	Traffic Map Mode Annunciation	Traffic Display Status Icon (Other Maps)
TCAS II Standby	None	**STANDBY** (also shown in white in center of Pane on ground, amber in the air)	☒
TCAS II Failed*	None	**TCAS: FAIL**	☒

TCAS II Modes

Traffic Map Center Banner Annunciation	Description
NO DATA	Data is not being received from the TCAS II unit.
DATA FAILED	Data is being received from the TCAS II unit, but the unit is self-reporting a failure.
FAILED	TCAS II unit self-reporting a failure or no data received after applying system power.

TCAS II Failure Annunciations on the 'Traffic Map' Pane

Traffic Status Banner Annunciation	Description
RA OFF SCALE	A Resolution Advisory is outside the selected display range.[1] Annunciation is removed when traffic comes within the selected display range.
TA OFF SCALE	A Traffic Advisory is outside the selected display range.[1] Annunciation is removed when traffic comes within the selected display range.
RA X.X +/- XX ↕	System cannot determine bearing of Resolution Advisory.[2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending), if altitude trend is available.

Traffic Status Banner Annunciation	Description
TA X.X +/- XX ↕	System cannot determine bearing of Traffic Advisory. [2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending), if altitude trend is available.
TCAS FAIL	TCAS II unit has failed (unit is self-reporting a failure or sending incorrectly formatted data).
TRFC UNAVAIL	Data is not being received from the TCAS II unit.

[1] *Shown as symbol on 'Traffic Map' Pane.*

[2] *Shown in center of 'Traffic Map' Pane.*

TCAS II Traffic Status Annunciations on Navigation Maps

ADS-B TRAFFIC ANNUNCIATIONS

ADS-B Mode	Traffic Mode Annunciation ('Traffic Map' Pane)	'Traffic Map' Pane Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B System Test Initiated	ADS-B: TEST	TEST MODE	☒
ADS-B Operating in Airborne Mode	ADS-B: AIRB	None	◆
ADS-B Operating in Surface Mode	ADS-B: SURF	None	◆
ABS-B Traffic Off	ADS-B: OFF	ADS-B TRFC OFF	☒
ADS-B Traffic Not Available	ADS-B: N/A	ADS-B TRFC N/A	☒
ADS-B Failed[1]	ADS-B: FAIL	ADS-B TRFC FAIL	☒

[1] *See later table for additional failure annunciations.*

ADS-B Modes

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

ADS-B Modes

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

Traffic Failure Annunciations

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range. [1] Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX ↕	System cannot determine bearing of Traffic Advisory. [2] Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
TRFC FAIL	The traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data). [2]
NO TRFC DATA	Data is not being received from the traffic unit.

[1] *Shown as symbol on 'Traffic Map' Pane.*

[2] *Shown in center of 'Traffic Map' Pane.*

Traffic Status Annunciations

AFCS STATUS ALERTS

Alert Condition	Annunciation	Description
Rudder Mistrim Right/Left	RUD→	Yaw servo providing sustained force in the indicated direction. Aircraft rudder re-trim after substantial pitch and power changes required.
	←RUD	
	RUD→	High (or excessive) sustained forces in the indicated direction.
	←RUD	
Aileron Mistrim Right/Left	AIL→	Roll servo providing sustained force in the indicated direction
	←AIL	
	AIL→	High (or excessive) sustained forces in the indicated direction.
	←AIL	
Elevator Mistrim Down/Up	↓ELE	Pitch servo providing sustained force in the indicated direction
	↑ELE	
	↓ELE	High (or excessive) sustained forces in the indicated direction.
	↑ELE	
Preflight Test	PFT	Performing preflight system test; aural alert sounds at completion - Do not press the **AP DISC** Switch during servo initialization and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their initialization tests). - Power must be cycled to the servos to remedy the situation.
	PFT	Preflight system test failed; aural alert sounds at failure

AFCS Status Alerts

SURFACEWATCH ALERTS

The SurfaceWatch alert annunciations are displayed in the central portion of the PFD. The alert annunciations are accompanied by a corresponding voice alert. Other associated information is presented in the SurfaceWatch Information Box.

SurfaceWatch Alert Annunciation	Associated Voice Alert	Description
TWY TAKEOFF	"Taxiway"	Issued when the aircraft is taking off from a non-runway (e.g., a taxiway)
RWY TOO SHORT	"Runway Too Short"	Issued when the aircraft is taking off/landing from a runway with a length less than needed as calculated by the PERF function.
CHECK RUNWAY	"Check Runway"	Issued when the aircraft is taking off/landing from a runway different than that entered in PERF.
TWY LANDING	"Taxiway"	Issued when the aircraft is taking off on a non-runway (e.g., a taxiway).

SurfaceWatch Alert Annunciations

STABILIZED APPROACH ALERTS

APPROACH SPEED ALERT

***NOTE:** If VREF is not defined, the system will use the green circle reference to trigger the speed alert.*

This alert indicates airspeed is less/greater than the VREF Approach Speed (+20 kts / -3 kts). This is to allow for adding a "gust factor" to the approach speed of up to 20 knots, and to allow for a reduction in aircraft speed of 3 knots when trying to fly VREF. This alert is applicable to IFR and VFR approaches and the aural annunciation is "Speed."

Flaps Not in Landing Configuration Alert

This alert indicates the flaps are not in a landing configuration. This alert is applicable to IFR and VFR approaches and the aural annunciation is "Flaps." For VFR approaches, the annunciation is a Warning; for IFR approaches, the annunciation is a Caution.

Gear Not in Landing Configuration Alert

This alert indicates the gear is not in a landing configuration. This alert is only applicable to the caution zone. The gear alert for the warning zone is handled by TAWS.

Lateral Deviation Alert

This alert is applicable to IFR approaches and is set when the magnitude of the lateral course deviation is greater than 1 dot. The aural annunciation is "Course."

Vertical Deviation Alert

This alert is applicable to IFR approaches and is set when the magnitude of the vertical deviation is greater than 1 dot. The aural annunciation is "Glidepath" or "Glideslope" as applicable to the type of approach being flown.

Descent Speed Alert

The VFR Warning is triggered when the vertical velocity is greater than 1,000 fpm. The IFR alert is triggered at +500 FPM above the typical approach sink rate based on flight path angle and true airspeed.

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 flight plan is deleted while an RNAV approach that requires SBAS is active.
ACARS CONFIG – ACARS config error. Config service req'd.	Indicates incorrect ACARS configuration of the IATA Airline Code associated with an ACARS AOC. Communication is halted. [2]
ACARS DISCONNECT – Loss of ACARS connectivity.	Loss of ACARS connectivity on all configured ACARS communication options. [2]
ACARS FAIL – ACARS data transmission inoperative.	Indicates loss of the MFD function, possibly detected at power-on prior to the MFD being ready to function. Communication is halted [2]
ACARS INVALID ATS UPLINK – FRMT error, use voice procedures.	Indicates that an ATS message has been sent to the aircraft that has invalid contents.
ACARS MSG MEM LIMIT – Oldest MSG will be deleted when MSG received.	Indicates that ACARS message memory limit has been reached and from this point on, the oldest message will be deleted with each new message stored.
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	GDC1 is reporting the altitude error correction is unavailable.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC1 is reporting the airspeed error correction is unavailable.
ADC1 SERVICE – ADC1 needs service. Return unit for repair.	A failure has been detected in the #1 GDC. The system should be serviced.
ADC2 ALT EC – ADC2 altitude error correction is unavailable.	GDC2 is reporting the altitude error correction is unavailable.
ADC2 AS EC – ADC2 airspeed error correction is unavailable.	GDC2 is reporting the airspeed error correction is unavailable.
ADC2 SERVICE – ADC2 needs service. Return unit for repair.	A failure has been detected in the #2 GDC. 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 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 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check the current version of the pertinent flight manual for limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving airspeed.	The #1 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
AHRS2 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 using backup GPS source.	The #2 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The #2 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The #2 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The #2 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS2 SRVC – AHRS1 Magnetic-field model needs update.	The #2 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS2 TAS – AHRS2 not receiving airspeed.	The #2 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APR ADVISORY – GPS VNAV not available. Using Baro VNAV.	SBAS not available. The system is calculating the VNAV profile using BARO VNAV.
APR ADVISORY – SBAS VNAV not available. Using BARO VNAV.	SBAS VNAV not available. The system is calculating the VNAV profile using BARO VNAV.
APR DWNGRADE – Apr downgraded.	Vertical guidance generated by SBAS is unavailable. Use Baro LNAV/VNAV or LNAV minimums.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
APR INACTV – Approach is not active.	The system notifies the pilot the loaded approach is not active. Activate approach when required.
ARM VNAV CLIMB – Reset altitude preselect to arm climb.	Adjust altitude preselect value to enable VNAV climb.
ARM VNAV DESCENT – Reset altitude preselect to arm descent.	Adjust altitude preselect value to enable VNAV descent.
ARSPC AHEAD – Airspace ahead - less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near - less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ATC MESSAGE	ATC message received.
ATT/HDG1 FAIL – ATT/HDG 1 has an internal failure.	Internal sensor failure. The system should be serviced.
ATT/HDG1 HDG – ATT/HDG 1 slaved heading is available.	ATT/HDG1 is currently in Free Mode but a more accurate slaved heading is available.
ATT/HDG2 FAIL – ATT/HDG 2 has an internal failure.	Internal sensor failure. The system should be serviced.
ATT/HDG2 HDG – ATT/HDG 1 slaved heading is available.	ATT/HDG2 is currently in Free Mode but a more accurate slaved heading is available.
[1]**AUDIO MANIFEST** – Audio software mismatch, communication halted.	The GIA has incorrect software installed. The system should be serviced.
BARO QFE – Confirm reference ELEV matches DEST before landing	Baro QFE Reference Elevation May No Longer Be Valid.
CHECK ARRIVAL SPEED – [Arrival Speed] M AT [LOC ID] exceeds Mmo	The arrival speed loaded exceeds Mmo.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
CHECK ARRIVAL SPEED – [Arrival Speed] KT AT [LOC ID] exceeds Vmo	The arrival speed loaded exceeds Vmo.
CHECK CRS – Database course for LOC 1 / <LOC ID> <LOC ID Course>	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
CHECK CRS – Database course for LOC2 / <LOC ID> <LOC ID Course>	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
CHECK DEPARTURE SPEED – [Departure Speed] KT AT [LOC ID] exceeds Vmo	The departure speed loaded exceeds Vmo.
CHECK NAV – Approach ID mismatch / <LOC>	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
[1]**CNFG MODULE** – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
COM #[1, 2] INOP - CAL – Factory COM Calibration Lost or Corrupted.	COM 1 and/or COM 2 calibration version error. Check COM calibration.
COM #[1, 2] INOP - CRNT – Check COM current.	COM 1 and/or COM 2 current is low. Check COM current.
COM #[1, 2] INOP - INTRL – Com internal fault.	COM 1 and/or COM 2 has an internal fault.
COM #[1, 2] INOP - SYNTH – COM synthesizer lock fault.	The COM 1 and/or COM 2 has a synthesizer lock fault.
[1]**COM #[1, 2] INOP - VOLT** – Check COM voltage.	COM 1 and/or COM 2 has low voltage.
COM #[1, 2] REDUCED TX POWER – Reduced COM transmit power.	COM 1 and/or COM 2 has a reduced transmission power.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
[1]**COM1 MANIFEST** – COM1 software mismatch, communication halted.	The COM 1 has incorrect software installed. The system should be serviced.
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.
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.
COPILOT PRIM PTT KEYSTK – Copilot primary push-to-talk key is stuck.	The GMA 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.
COPILOT SEC PTT KEYSTK – Copilot secondary push-to-talk key is stuck.	The GMA 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.
CPDLC SEND FAIL – CPDLC position report failed to send.	Indicates that an automatic CPDLC position report failed to send.
CPDLC – CPDLC facility logon failed.	Logon failed. Check pertinent entries for accuracy. Additionally, voice communications may be used to verify with ATC that CPDLC is currently being offered by the facility.
CPDLC – CPDLC session terminated.	The CPDLC session was unexpectedly terminated by the avionics or ATC. If CPDLC usage is to be continued, ATC must re-establish a new session. It may be necessary to logoff/logon again before ATC can establish a new session.
DATA LOST – Pilot stored data was lost. Recheck settings.	The system was unable to save pilot data. Verify settings.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
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.
DATABASES EXPIRED – Restart avionics to activate standby databases.	The databases in the system have expired. Restart the system to move the standby databases to active status.
[1]**DATABASES MISMATCHED** – Restart displays to correct mismatch.	The GDUs have different database versions or regions. Restart the system to move the standby databases to active status.
[1]**DB MISMATCH** – Obstacle database mismatch.	The GDUs have different obstacle database versions or regions installed. Check the 'Database 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.
[1]**DB MISMATCH** – Terrain database mismatch.	The GDUs have different terrain database versions or regions installed. Check the 'Database 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.
[1]**DB MISMATCH** – Navigation database mismatch. Xtalk is off.	The GDUs have different navigation database versions or regions installed. Crossfill is off. Check the 'Database 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 UPDATE IN PROGRESS – See Database Page for more information.	Databases are updating. See the "Database Status' Screen on the Touchscreen Controller.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
[1]**DIG GMA1 MANIFEST** – DIG GMA 1 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
[1]**DIG GMA2 MANIFEST** – DIG GMA 2 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
DISABLE GP TO ARM CLIMB – Press NAV button to enable VNAV track change.	Disable AFCS Navigation mode to enable VNAV.
DISABLE GS TO ARM CLIMB – Press NAV button to enable VNAV track change.	Disable AFCS Navigation mode to enable VNAV.
DOC VIEWER MISMATCH – See Document Viewer Screen for detailed info.	The installed documents found on the bottom card of each GDU do not match. Ensure each card has the appropriate documents.
FAILED PATH – A data path has failed.	A data path connecting two or more LRU has failed. If the problem persists, the system should be serviced.
FLIGHT ID CHANGE – CPDLC logged off due to Flight ID change.	CPDLC has been logged of because of a change to Flight ID.
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.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-on, 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.
FS510 CARD ERROR – FS510 not detected in MFD Bottom Slot.	The wireless transceiver (FS 510) multimedia card for the wireless transceiver (FS 510) was removed from the bottom card slot of the MFD. The multimedia card needs to be reinserted.
FS510 MANIFEST – FS 510 software mismatch.	Incorrect software version. The system should be serviced.
[1]**GCU1 CONFIG** – GCU1 config error. Config service req'd.	GCU1 configuration settings do not match those of backup configuration memory. The system should be serviced.
[1]**GCU1 FAIL** – GCU1 is inoperative.	The GCU1 has failed. The system should be serviced when practical.
GCU1 KEYSTK – GCU1 [key name] key is stuck.	Multiple keys stuck on the GCU1 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
[1]**GCU1 MANIFEST** – GCU1 software mismatch, communication halted.	The GCU1 has incorrect software installed. The system should be serviced.
[1]**GCU2 CONFIG** – GCU2 config error. Config service req'd.	GCU2 configuration settings do not match those of backup configuration memory. The system should be serviced.
[1]**GCU2 FAIL** – GCU2 is inoperative.	The GCU2 has failed. The system should be serviced when practical.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
GCU2 KEYSTK – GCU2 [key name] key is stuck.	Multiple keys stuck on the GCU bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
[1]**GCU2 MANIFEST** – GCU2 software mismatch, communication halted.	The GCU2 has incorrect software installed. The system should be serviced.
[1]**GDC1 MANIFEST** – GDC1 software mismatch, communication halted.	The GDC1 has incorrect software installed. The system should be serviced.
[1]**GDC2 MANIFEST** – GDC2 software mismatch, communication halted.	The GDC2 has incorrect software installed. The system should be serviced.
GDL59 CONFIG – GDL 59 config error. Config service req'd.	GDL 59 configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL59 FAIL – GDL 59 has failed.	A failure has been detected in the GDL 59. The receiver is unavailable. The system should be serviced.
GDL59 MANIFEST – GDL59 software mismatch, communication halted.	The GDL 59 has incorrect software installed. The system should be serviced.
GDL59 RTR FAIL – The GDL 59 router has failed.	A failure has been detected in the GDL 59 router. The system should be serviced.
GDL59 SERVICE – GDL 59 needs service. Return unit for repair.	A failure has been detected in the GDL 59. The system should be serviced.
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69A SXM configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69A SXM. The receiver is unavailable. The system should be serviced.
GDL69 MANIFEST – GDL69 software mismatch, communication halted.	The GDL 69A SXM has incorrect software installed. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
GDR CONFIG – GDR config error. Config service req'd.	GDR configuration settings do not match those of backup configuration memory. The system should be serviced.
GDR FAIL – GDR is inoperative.	A failure has been detected in the GDR. The system should be serviced. [3]
GDR MANIFEST – GDR software mismatch, communication halted.	The GDR has incorrect software installed. The system should be serviced.[3]
GDR PTT – GDR push-to-talk key is stuck.	The GDR 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.
GDR SERVICE – GDR needs service. Return unit for repair.	The GDR should be serviced when practical.
GDR TEMP – GDR over temp. Reducing transmitter power.	The system has detected an over temperature condition in the GDR. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
GDR TX FAIL – GDR transmitter is inoperative.	If GDR service is not set then check antenna for faults and unit for extreme temperatures
[1]**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.
[1]**GEA1 MANIFEST** – GEA1 software mismatch, communication halted.	The GEA1 7100 has incorrect software installed. The system should be serviced.
[1]**GEA2 CONFIG** – GEA2 config error. Config service req'd.	The GEA2 configuration settings do not match those of backup configuration memory. The system should be serviced.
[1]**GEA2 MANIFEST** – GEA2 software mismatch, communication halted.	The GEA2 7100 has incorrect software installed. The system should be serviced.
GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
[1]**GIA #[1, 2] INOP - CRNT** – Check GIA current.	The GIA 1 and/or GIA 2 current is low. The current should be checked.
[1]**GIA #[1, 2] INOP - SERL** – Internal GIA Serial Communication Fault.	GIA 1 and/or GIA 2 serial communication fault. Check GIA serial communication.
GIA #[1, 2] TEMP – Check GIA temperature.	GIA 1 and/or GIA 2 is reporting an over-temperature condition.
[1]**GIA #[1, 2] INOP - VOLT** – Check GIA voltage.	GIA 1 and/or GIA 2 low voltage. Check voltage.
[1]**GIA1 MANIFEST** – GIA1 software mismatch, communication halted.	The GIA1 has incorrect software installed. The system should be serviced.
[1]**GIA2 MANIFEST** – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
[1]**GMA XTALK** – GMA crosstalk error has occurred.	The GMA Audio Controllers are not communicating with each other. The system should be serviced.
[1]**GMA1 AUX MANIFEST** – Software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
[1]**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.
[1]**GMA1 FAIL** – GMA1 is inoperative.	The audio controller has detected a failure. The audio controller is unavailable. The system should be serviced.
GMA1 INSPECTION REQUIRED – Redundant power supply is not present.	GMA1 backup power source is not connected. The system should be serviced.
[1]**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.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
[1]**GMA2 AUX MANIFEST** – Software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
[1]**GMA2 CONFIG** – GMA2 config error. Config service req'd.	The audio controller configuration settings do not match backup configuration memory. The system should be serviced.
[1]**GMA2 FAIL** – GMA2 is inoperative.	The audio controller has detected a failure. The audio controller is unavailable. The system should be serviced.
GMA2 INSPECTION REQUIRED – Redundant power supply is not present.	GMA2 backup power source is not connected. The system should be serviced.
[1]**GMA2 SERVICE** – GMA2 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.
[1]**GMC CONFIG** – GMC Config error. Config service req'd.	Error in the configuration of the GMC.
[1]**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.
[1]**GMC MANIFEST** – GMC software mismatch. Communication halted.	The GMC has incorrect software installed. The system should be serviced.
GPS #[1, 2] INSPECT RQRD - BATT – GPS battery needs replacement.	The GPS battery needs to be replaced.
GPS #[1, 2] INSPECT - CAL – Factory GPS calibration lost or corrupted.	GPS 1 and/or GPS 2 factory calibration lost or corrupted. Check GPS calibration. Check GPS calibration.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. Enable GPS sensors.	Enable GPS sensors to continue to use GPS.
GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellite coverage.
GPS1 CHECK POSITION – Position difference. Check position sensors.	Check GPS1. From the 'GPS Status' Screen on the Touchscreen Controller, disable then enable GPS1 to clear the alert. If the alert persists, the system should be serviced.
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.
GPS2 CHECK POSITION – Position difference. Check position sensors.	Check GPS2. From the 'GPS Status' Screen on the Touchscreen Controller, disable then enable GPS2 to clear the alert. If the alert persists, the system should be serviced.
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. Service req'd.	GRA1 has improper calibration. The system should be serviced.
GRA1 CONFIG – GRA1 config error. Config service req'd.	The GRA and GDU have incompatible configurations.
GRA1 MANIFEST – GRA1 software mismatch, communication halted.	The GRA has incorrect software installed. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
GRA1 SERVICE – GRA1 needs service. Return unit for repair	The GRA self-test has detected a problem in the unit. The system should be serviced.
GRA1 TEMP – GRA1 over temperature.	The system has detected an over temperature condition in GRA1.
[1]**GSD1 CONFIG** – GSD1 config error. Config service req'd.	GSD1 and the CDU have different copies of the GSD1 configuration.
GSD1 COOLING – GSD1 over temperature.	GSD1 is reporting an over-temperature condition.
GSD1 COOLING – GSD1 temperature too low.	GSD1 is reporting a low temperature condition.
[1]**GSD1 MANIFEST** – GSD1 software mismatch. Communication halted.	GSD1 has incorrect software installed. The system should be serviced.
[1]**GSD1 SERVICE** – GSD1 needs service. Return unit for repair.	GSD1 is reporting an internal error condition. The GSD may still be usable.
[1]**GSD2 CONFIG** – GSD2 config error. Config service req'd.	GSD2 and the CDU have different copies of the GSD2 configuration.
GSD2 COOLING – GSD2 over temperature.	GSD2 is reporting an over-temperature condition.
GSD2 COOLING – GSD2 temperature too low.	GSD2 is reporting a low temperature condition.
[1]**GSD2 MANIFEST** – GSD2 software mismatch. Communication halted.	GSD2 has incorrect software installed. The system should be serviced.
[1]**GSD2 SERVICE** – GSD2 needs service. Return unit for repair.	GSD2 is reporting an internal error condition. The GSD may still be usable.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
GSR1 FAIL – GSR1 has failed.	A failure has been detected in GSR1. When GSR1 is operated below -20°C, the GSR56 may be non-operational for up to 30 minutes while the heater warms the system. During this non-operational period, the system will post a GSR1 FAIL message. When GSR1 reaches a sufficient temperature, the failure message is removed from the display. If the failure message persists, the system should be serviced.
GSR2 FAIL – GSR2 has failed.	A failure has been detected in GSR2. When GSR2 is operated below -20°C, the GSR56 may be non-operational for up to 30 minutes while the heater warms the system. During this non-operational period, the system will post a GSR2 FAIL message. When GSR2 reaches a sufficient temperature, the failure message is removed from the display. If the failure message persists, 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.
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.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

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System Message	Comments
HOLD EXPIRED – Holding EFC time expired.	Expect Further Clearance (EFC) time has expired for the User Defined Hold.
[1]**HW PLATFORM MISMATCH** – Hardware platform mismatch for GDU or GTC. Service required.	GDU or GTC models do not match. The system should be serviced.
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
INVALID ADM – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.
L GTC CARD1 ERR – L GTC card 1 is invalid.	The internal SD card in the GTC contains invalid data. The system should be serviced.
L GTC CARD1 REM – L GTC card 1 was removed. Reinsert card.	The internal SD card in the GTC was removed. The system should be serviced.
L GTC CONFIG – L GTC config error. Config service req'd.	GTC configuration settings do not match those of backup configuration memory. The system should be serviced.
L GTC COOLING – L GTC has poor cooling. Reducing power usage.	The GTC has insufficient cooling. If the problem persists, the system should be serviced.
L GTC DB ERR – L GTC database missing.	The GTC detected a failure in one or more databases. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
L GTC DB ERR – MFD Obstacle database missing.	The specified GTC detected a failure in the Obstacle database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
L GTC DB ERR – MFD Terrain database missing.	The specified GTC detected a failure in the Terrain database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
L GTC FAN FAIL – L GTC internal fan failure. Unit needs service.	The internal fan in the GTC has failed. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
L GTC KEYSTK – L GTC [key name] key is stuck.	A knob or joystick is stuck on the GTC bezel. Attempt to free the stuck control by pushing or turning it several times. The system should be serviced if the problem persists.
[1]**L GTC MANIFEST** – L GTC software mismatch, communication halted.	The GTC has incorrect software installed. The system should be serviced.
L GTC SERVICE – L GTC needs service. Return unit for repair.	The GTC should be serviced.
L GTC TOLD TABLE ERR – Airframe mismatch.	Airframe identifier mismatch. The system should be serviced.
L GTC TOLD TABLE ERR – CRC Failure.	TOLD files inaccessible. The system should be serviced.
L GTC TOLD TABLE ERR – Unable to read table.	TOLD files missing. The system should be serviced.
L GTC TOLD TABLE ERR – Unable to read table header.	The Table-of-Contents file is missing from the PERF files, is corrupted, or otherwise cannot be read. The system should be serviced.
L GTC TOLD TABLE ERR – Software compatibility error.	Software incompatibility error. The system should be serviced.
L GTC TOLD TABLE ERR – Table mismatch.	PERF file mismatch. The system should be serviced.
L PFD CARD1 ERR – L PFD card 1 is invalid.	The SD card in the top card slot of the specified GDU is invalid.
L PFD CARD1 REM – L PFD card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
[1]**L PFD CARD2 ERR** – L PFD card 2 is invalid.	The SD card in the top card slot of the specified GDU is invalid.
L PFD CARD2 REM – L PFD card 2 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
L PFD CARD3 ERR – L PFD card 3 is invalid.	The SD card in the top card slot of the specified GDU is invalid.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
L PFD CARD3 REM – L PFD card 3 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
[1]**L PFD CONFIG** – L PFD config error. Config service req'd.	The specified GDU's configuration settings do not match backup configuration memory. The system should be serviced.
L PFD COOLING – L PFD has poor cooling. Reducing power usage.	The specified GDU is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
L PFD DB ERR – L PFD database missing.	The specified GDU detected a failure in one or more databases. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
L PFD DB ERR – L PFD Obstacle database missing.	The specified GDU detected a failure in the Obstacle database. Reload database with new data card. If problem persists, delete database and reload with a new card.
L PFD DB ERR – L PFD Terrain database missing.	The specified GDU detected a failure in the Terrain database. Reload database with new data card. If problem persists, delete database and reload with a new card.
[1]**L PFD INOP - ECC ERROR** – Internal memory unstable - needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.
[1]**L PFD INOP: HTR CRNT** – Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
[1]**L PFD INOP - LED STR FAULT** – Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
[1]**L PFD INOP TEMP** – Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.
L PFD INSPECT RQRD - BTM SD – Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
L PFD INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.
L PFD INSPECT RQRD - TOP SD – Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
[1]**L PFD MANIFEST** – L PFD software mismatch, communication halted.	The specified GDU has incorrect software installed. The system should be serviced.
[1]**L PFD SERVICE** – L PFD needs service. Return unit for repair.	The specified GDU's self-test has detected a problem. The system should be serviced.
[1]**L PFD SOFTWARE** – L PFD mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
L PFD TERRAIN DSP – L PFD Terrain awareness display unavailable.	One of the terrain, or obstacle databases required for TAWS in the specified GDU is missing or invalid.
[1]**L PFD VOLTAGE** – L PFD has low voltage. Reducing power usage	The specified GDU's voltage is low. The system should be serviced.
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
LOSS OF GPS NAVIGATION – Insufficient Satellite Coverage.	Loss of GPS navigation due to insufficient/poor satellite coverage.
LOW BANK ACTIVE – Disengage for approach.	Low Bank mode active, disengage Low Bank Mode to continue the approach.
LOW BANK ACTIVE – Disengage for RNP less than 1.0.	Low Bank mode active, disengage Low Bank Mode to continue the approach.
LRU REPLACEMENT – LRU replacement detected.	The system has detected an LRU replacement. Perform LRU replacement software or full configuration loading procedure.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
MFD CARD1 ERR – MFD card 1 is invalid.	The SD card in the top card slot of the GDU is invalid.
[1]**MFD CARD1 REM** – MFD card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the GDU. The SD card needs to be reinserted.
MFD CARD2 ERR – MFD card 2 is invalid.	The SD card in the top card slot of the GDU is invalid.
[1]**MFD CARD2 REM** – MFD card 2 was removed. Reinsert card.	The SD card was removed from the top card slot of the GDU. The SD card needs to be reinserted.
[1]**MFD CARD3 ERR** – MFD card 3 is invalid.	The SD card in the top card slot of the GDU is invalid.
MFD CARD3 REM – MFD card 3 was removed. Reinsert card.	The SD card was removed from the top card slot of the GDU. The SD card needs to be reinserted.
[1]**MFD CONFIG** – MFD config error. Config service req'd.	The specified GDU's configuration settings do not match backup configuration memory. The system should be serviced.
MFD COOLING – MFD has poor cooling. Reducing power usage.	The specified GDU is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD DB ERR – MFD database missing.	The specified GDU detected a failure in one or more databases. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
MFD DB ERR – MFD Obstacle database missing.	The specified GDU detected a failure in the Obstacle database. Reload database with new data card. If problem persists, delete database and reload with a new card.
MFD DB ERR – MFD Terrain database missing.	The specified GDU detected a failure in the Terrain database. Reload database with new data card. If problem persists, delete database and reload with a new card.
[1]**MFD INOP - ECC ERROR** – Internal memory unstable needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.

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[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
[1]**MFD INOP: HTR CRNT** – Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
[1]**MFD INOP - LED STR FAULT** – Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
[1]**MFD INOP - TEMP** – Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.
MFD INSPECT RQRD - BTM SD – Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.
MFD INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.
MFD INSPECT RQRD - TOP SD – Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
[1]**MFD MANIFEST** – MFD software mismatch, communication halted.	The specified GDU has incorrect software installed. The system should be serviced.
[1]**MFD SERVICE** – MFD needs service. Return unit for repair.	The specified GDU's self-test has detected a problem. The system should be serviced.
[1]**MFD SOFTWARE** – MFD mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
MFD TERRAIN DSP – MFD Terrain awareness display unavailable.	One of the terrain, or obstacle databases required for TAWS in the specified GDU is missing or invalid.
[1]**MFD VOLTAGE** – MFD has low voltage. Reducing power usage	The specified GDU's voltage is low. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
NAV #[1, 2] INOP - CAL – Factory NAV Calibration Lost or Corrupted.	NAV 1 and/or NAV 2 calibration lost or corrupted. Check COM calibration.
NAV #[1, 2] INOP - CONFIG – Check NAV software and config.	There is a problem with the NAV 1 and/or NAV 2 software configuration. Check the configuration. If the problem persists, the system should be serviced.
NAV #[1, 2] INOP - INTRL – NAV internal fault.	NAV 1 and/or NAV 2 has an internal fault.
NAV #[1, 2] INOP - SERL – Internal NAV serial communication fault.	NAV 1 and/or NAV 2 serial communication fault. Check NAV serial communication.
NAV #[1, 2] INOP - SYNTH – NAV synthesiser lock fault.	NAV 1 and/or NAV 2 has a synthesizer lock fault.
[1]**NAV DB UPDATED** – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.
[1]**NAV1 MANIFEST** – NAV1 software mismatch, communication halted.	The NAV 1 and/or NAV 2 has incorrect software installed. The system should be serviced.
NAV2 MANIFEST – NAV2 software mismatch, communication halted.	The NAV 2 has incorrect software installed. The system should be serviced.
NON-MAGNETIC UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-on.
NON WGS84 WPT – Do not use GPS for navigation to [xxxx]	The position of the selected waypoint [xxxxx] 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 positions mismatch. Check position sensors.	There is a mismatch in the position sensed by the PFDs. Check position sensor settings. If message persists the system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
PILOT PRIM PTT KEYSTK – Pilot primary push-to-talk key is stuck.	The GMA 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.
PILOT SEC PTT KEYSTK – Pilot secondary push-to-talk key is stuck.	The GMA 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.
RAIM UNAVAIL – RAIM is 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.
R GTC CARD1 ERR – R GTC card 1 is invalid.	The internal SD card in the GTC contains invalid data. The system should be serviced.
R GTC CARD1 REM – R GTC card 1 was removed. Reinsert card.	The internal SD card in the GTC was removed. The system should be serviced.
R GTC CONFIG – R GTC config error. Config service req'd.	GTC configuration settings do not match those of backup configuration memory. The system should be serviced.
R GTC COOLING – R GTC has poor cooling. Reducing power usage.	The GTC has insufficient cooling. If the problem persists, the system should be serviced.
R GTC DB ERR – R GTC database missing.	The GTC detected a failure in one or more databases. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
R GTC DB ERR – MFD Obstacle database missing.	The specified GTC detected a failure in the Obstacle database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
R GTC DB ERR – MFD Terrain database missing.	The specified GTC detected a failure in the Terrain database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
R GTC FAN FAIL – R GTC internal fan failure. Unit needs service.	The internal fan in the GTC has failed. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
R GTC KEYSTK – R GTC [key name] key is stuck.	A knob or joystick is stuck on the GTC bezel. Attempt to free the stuck control by pushing or turning it several times. The system should be serviced if the problem persists.
[1]**R GTC MANIFEST** – R GTC software mismatch, communication halted.	The GTC has incorrect software installed. The system should be serviced.
R GTC SERVICE – R GTC needs service. Return unit for repair.	The GTC should be serviced.
R GTC TOLD TABLE ERR – Airframe mismatch.	Airframe identifier mismatch. The system should be serviced.
R GTC TOLD TABLE ERR – CRC Failure.	TOLD files inaccessible. The system should be serviced.
R GTC TOLD TABLE ERR – Unable to read table.	TOLD files missing. The system should be serviced.
R GTC TOLD TABLE ERR – Unable to read table header.	The Table-of-Contents file is missing from the PERF files, is corrupted, or otherwise cannot be read. The system should be serviced.
R GTC TOLD TABLE ERR – Software compatibility error.	Software incompatibility error. The system should be serviced.
R GTC TOLD TABLE ERR – Table mismatch.	PERF file mismatch. The system should be serviced.
R PFD CARD1 ERR – R PFD card 1 is invalid.	The SD card in the top card slot of the specified GDU is invalid.
R PFD CARD1 REM – R PFD card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
[1]**R PFD CARD2 ERR** – R PFD card 2 is invalid.	The SD card in the top card slot of the specified GDU is invalid.
[1]**R PFD CARD2 REM** – R PFD card 2 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
R PFD CARD3 ERR – R PFD card 3 is invalid.	The SD card in the top card slot of the specified GDU is invalid.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
R PFD CARD3 REM – R PFD card 3 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified GDU. The SD card needs to be reinserted.
[1]**R PFD CONFIG** – R PFD config error. Config service req'd.	The specified GDU's configuration settings do not match backup configuration memory. The system should be serviced.
R PFD COOLING – R PFD has poor cooling. Reducing power usage.	The specified GDU is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
R PFD DB ERR – R PFD database missing.	The specified GDU detected a failure in one or more databases. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
R PFD ERR – MFD Obstacle database missing.	The specified GDU detected a failure in the Obstacle database. Reload database with new data card. If problem persists, delete database and reload with a new card.
R PFD ERR – MFD Terrain database missing.	The specified GDU detected a failure in the Terrain database. Reload database with new data card. If problem persists, delete database and reload with a new card.
[1]**R PFD INOP - ECC ERROR** – Internal memory unstable - needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.
[1]**PFD1 INOP: HTR CRNT** – Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
[1]**R PFD INOP - LED STR FAULT** – Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
[1]**R PFD INOP** – TEMP – Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.
R PFD INSPECT RQRD - BTM SD – Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
R PFD INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.
R PFD INSPECT RQRD - TOP SD – Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
[1]**R PFD MANIFEST** – R PFD software mismatch, communication halted.	The specified GDU has incorrect software installed. The system should be serviced.
[1]**R PFD SERVICE** – R PFD needs service. Return unit for repair.	The specified GDU's self-test has detected a problem. The system should be serviced.
[1]**R PFD SOFTWARE** – R PFD mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
R PFD TERRAIN DSP – R PFD Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the specified GDU is missing or invalid.
[1]**R PFD VOLTAGE** – R PFD has low voltage. Reducing power usage	The specified GDU's voltage is low. The system should be serviced.
REGISTER CONNEXT – Data services are inoperative, register w/Connext.	The system is not registered with 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.
SELCAL ID MISMATCH – Selected SELCAL ID does not match reported ID.	The manually selected SELCAL ID does not match the ID reported by the system.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
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.
SMS TEXT MSG MEM LIMIT – Oldest MSG will be deleted when MSG received.	The memory limit for SMS text messaging has been reached. The oldest text message will automatically be deleted when a new SMS text message is received.
STRMSCP FAIL – Stormscope has failed.	The system is no longer receiving data from the lightning detection system. The device should be serviced.
STABILIZED APPR DISABLED – Too far north/south	The Stabilized Approach functionality is DISABLED if the aircraft is positioned in latitude higher than 87°.
STABILIZED APPR FLAP OVRD – Stabilized Approach flaps overridden	The Flaps Alert is INHIBITED
STABILIZED APPR GS/GP INHIB – Stabilized APPR Vertical Deviation alerts inhibited.	Stabilized approach glidepath/glideslope alerts are inhibited.
STABILIZED APPR INHIBIT – Stabilized Approach inhibited	The Stabilized Approach functionality system is in the INHIBITED operation mode.
STABILIZED APPR WIND – No DEST METAR data. Nearest data in use.	No destination METAR data is available. Nearest data in use.
STABILIZED APPR WIND DSBLD – Stabilized Approach inhibited	Stabilized approach glidepath/glideslope alerts are inhibited.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
STABILIZED APPR WIND INHIB – Stabilized APPR wind alerts inhibited.	Stabilized approach wind alerts are inhibited.
STABILIZED APPROACH FAIL – Invalid audio configuration	The Stabilized Approach functionality stabilized approach audio configuration is invalid.
STABILIZED APPROACH FAIL – One or more inputs invalid	The GPS/WAAS position is invalid for more than 3 seconds or is insufficient due to RAIM position warning or loss of integrity; GPS/WAAS horizontal protection level exceeds the LNAV/VNAV horizontal alert limit (556.0 meters); or the heading, track, groundspeed, vertical velocity, or on-ground input data is invalid for more than 3 seconds.
SURFACEWATCH DISABLED – Too far north/ south.	The SurfaceWatch system has been disabled.
SURFACEWATCH FAIL – Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.
SURFACEWATCH FAIL – Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.
SURFACEWATCH FAIL – One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.
SURFACEWATCH INHIBITED – Surfacewatch inhibited.	The SurfaceWatch system has been inhibited.
STEEP TURN – Steep turn ahead.	The computed bank angle needed to execute the turn may exceed the current bank angle limit.
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 is not currently installed.
[1]**SYSTEM CONFIG** – SYSTEM config error. Config service req'd.	The system configuration has changed unexpectedly. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
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.
TIMER EXPIRD – Timer 1 has expired.	The system notifies the pilot Timer 1 has expired.
TIMER EXPIRD – Timer 2 has expired.	The system notifies the pilot Timer 2 has expired.
TOLD – TOLD computation miscompare.	There is a mismatch in TOLD computation between GTC1 and GTC2.
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 – QFE mode conflicts with VNAV altitude.	The aircraft is vertically approaching a flight level altitude constraint with QFE mode active.
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.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
UNABLE VNAV SPEED – Flight plan speed constraint will not be met.	While descending to a speed constraint at a flight plan waypoint that requires the airplane to slow down, the system has determined that deceleration is insufficient to meet the speed constraint prior to passing the waypoint.
VNAV CONFIG – VNAV config error Config service req'd.	VNAV configuration error. The system should be serviced.
VNAV SPEED/ALTITUDE – Speed/altitude limit will not be met.	While descending to a speed restriction defined at an altitude (e.g. the 250 kt speed limit below 10,000 ft) the system has determined the airplane's deceleration is insufficient to meet the speed restriction prior to crossing the altitude.
WINDSHEAR – Unavailable: invalid inputs.	The windshear detection capability is not available. The system should be serviced.
WPT ARRIVAL – Arriving at waypoint - [xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
WX ALERT – Possible severe weather ahead.	The GWX indicates severe weather within ±10 degrees of the aircraft heading at a range of 80 to 320 nm.
XPDR1 ADS-B NO TX – Transponder: ADS-B out has failed.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
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.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

System Message	Comments
XPDR2 ADS-B NO TX – Transponder: ADS-B out has failed.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
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 – A flight display crosstalk error has occurred.	The GDUs and/or GTCs are not communicating with each other. The system should be serviced.

[1] *'Avionics Fault' related System Message. Does not trigger the* **MSG** *Button on the Touchscreen Controller.*

[2] *All FANS 1/A + and FAA DATA COMM functions are inoperative.*

[3] *All FAA DATA COMM and Link 2000+ functions are inoperative. FANS 1/A + can only use SATCOM.*

AIRFRAME ALERTS

Airframe Message	Comments
AUTOPILOT STUCK CLUTCH – Stuck clutch detected in the pitch servo.	Autopilot stuck clutch. The system should be serviced.
AUTOPILOT STUCK CLUTCH – Stuck clutch detected in the roll servo.	Autopilot stuck clutch. The system should be serviced.
TAWS GEAR FAULT – Landing gear input fault. Check gear position.	Landing gear input fault. Check gear position.
TAWS FLAP FAULT – Flap input miscompare. Check flap position.	Flap input miscompare. Check flap position.
YAW DAMPER STUCK CLUTCH – Stuck clutch detected in the yaw servo.	Yaw damper stuck clutch. The system should be serviced.

VOICE ALERTS

Refer to the Hazard Avoidance section for all traffic and terrain related voice alerts.

Voice Alert	Priority	Alert	Description
"Autopilot"	Warning	Autopilot disconnect	Autopilot automatically disconnected. In some situations, the Flight Director may still be available.
"Course, Course"	Warning	Gear Not in Landing Configuration	This alert is applicable to IFR approaches and is set when the magnitude of the lateral course deviation is greater than 1 dot.
"Flaps, Flaps"	Warning	Flaps Not in Landing Configuration	Flaps are not in landing configuration.
"Glidepath, Glidepath"	Warning	Vertical Deviation	This alert is applicable to IFR approaches and is set when the magnitude of the vertical deviation is greater than 1 dot.
"Minimums Minimums"	Warning	Minimums	At MDA or DH.
"Sink Rate, Sink Rate"	Warning	Decent Speed	Decent speed too high.
"Speed, Speed"	Warning	Approach Speed	Airspeed is less/greater than the Vref speed minus/plus the configurable approach speed lower/upper threshold.
"Windshear, Windshear, Windshear"	Warning	Windshear	Windshear warning.
"Course"	Caution	Lateral Deviation	This alert is applicable to IFR approaches and is set when the magnitude of the lateral course deviation is greater than 1 dot.
"Flaps"	Caution	Flaps Not in Landing Configuration	Flaps are not in landing configuration.
"Gear"	Caution	Gear Not in Landing Configuration	Gear is not in landing configuration.
"Glidepath"	Caution	Vertical Deviation	This alert is applicable to IFR approaches and is set when the magnitude of the vertical deviation is greater than 1 dot.
"Speed"	Caution	Approach speed	Airspeed is less/greater than the Vref speed minus/plus the configurable approach speed lower/upper threshold.
"Caution, Windshear"	Caution	Windshear	Windshear caution.

AURAL ALERTS

Alert	Priority	Aural Alert	Description
ACARS Message	Alert	1000 Hz chime followed by a 850 Hz chime	Air Traffic Service datalink message.
Altitude	Alert	Single Tone	Aircraft deviates from or approaches the selected altitude.
CPDLC Message	Alert	1000 Hz chime followed by a 850 Hz chime	CPDLC message. Action required.
Overspeed	Warning	Repeating Tone	MMO or VMO exceeded.
Phone Call	Alert	Phone ringer	Incoming phone call.
SELCAL Message	Alert	1000 Hz chime followed by a 850 Hz chime	Incoming SELCAL message.
Vertical track	Alert	Double Tone	VNAV waypoint.

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APPENDIX

DATABASE MANAGEMENT

Database information is obtained from third party sources. Inaccuracies in the data may be discovered from time to time. Garmin communicates this information by issuing a Database Alert. These notifications are available on flygarmin.com.

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

A 32 GB Supplemental Data (SD) card (including FS 510 Wireless Transceiver card when used as a storage device) is required to perform database updates. Only cards provided by Garmin or the OEM should be used. In the event there is a file corruption problem with the SD card or Wireless Transceiver card, it may be necessary to reformat the card. This can cause an issue when formatting using Mac OS, where the newly formatted device will not be recognized by the avionics system. When using a Macintosh computer to format the SD card or Wireless Transceiver card, Garmin recommends using the SD Memory Card Formatter application made available by the SD Association as a download from sdcard.org. When running the application, use the Quick Format option.

NOTE: *Use of SD cards that are not Garmin or OEM provided may cause system malfunctions when left in the MFD after the databases are loaded.*

In addition to SD card loading, databases may be loaded through Garmin Pilot™ and FS 510 Wireless Transceiver. When loading databases through Garmin Pilot™ and the Wireless Transceiver, it must be enabled on the system and the Wireless Transceiver card inserted in the bottom SD slot of the GDU.

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

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

NOTE: *Loading a database in the system prior to its effective date will result in the expiration date on the Power-up Display and the effective date on the 'Database Status' Screen being displayed in amber.*

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.'*

LOADING UPDATED DATABASES

Databases may be loaded through Garmin Pilot™ and the Wireless Transceiver. When loading databases through Garmin Pilot and the Wireless Transceiver, it must be enabled on the system and the multimedia card inserted in the bottom SD slot of the MFD. The wireless transceiver multi-media card may be used as a SD card, but only if using the reader supplied with the card.

The cycles and dates for both standby and active databases are displayed on the "Database Status' Screen on the touchscreen controller. Any active databases with expiration dates in the past will be highlighted with amber text. When an expired active database has a standby database that is ready to become effective, a cyan double-sided arrow will be displayed between the database cycles. When this arrow is visible, it indicates the standby and active databases in that row will be switched on the next power cycle, activating the current standby database. Databases can also be manually selected (or deselected) by touching the database list item, then touching the **Swap** Button.

When utilizing The Wireless Transceiver, multiple regional databases (e.g. North America and Europe) may available to be loaded to the system depending on the database type. Some databases offer only one region. Only one database region may be active on the system at any time for each database. If desired, a database compatible with the aircraft's current region of operation may be loaded as the active database through the preferred mobile device, replacing the existing region specific database. The regions loaded become the 'Preferred Region' for each database.

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

UPDATING DATABASES WITH SD CARD OR WIRELESS TRANSCEIVER CARD

All databases are updated through a single SD card or Wireless Transceiver Card in the bottom slot of the MFD. When the card is inserted, the databases on the card will be copied to standby and synchronized across all powered, configured units. After update, the card is removed and the databases are stored on the system. When in standby, databases are not immediately available for use, but stored to be activated at a later time.

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 personal computer equipped with an appropriate card reader is used to unpack and program the new databases onto an existing card. When database files are loaded to the card, any previously loaded database files of the same type residing on the card will be overwritten. This includes loading a database of a different coverage area or data cycle than the currently residing on the card. Equipment required to perform the update is as follows:

- PC with Window Vista or later/Mac with OS X 10.9 or later
- SD card Reader: SanDisk SDDR-93, SanDisk SDDR-99, Verbatim #96504, or equivalent.
- Garmin SD card Reader for Wireless Transceiver cards.
- Updated databases obtained from the Garmin website.
- Garmin or OEM provided 32 GB SD card or Wireless Transceiver card.

Updating Databases using an SD or Wireless Transceiver card:

1) Download and install the databases on the SD card or Wireless Transceiver card.

2) Put the card in the bottom SD card slot of the MFD.

3) Turn the system ON.

4) Press the right most softkey on MFD display to acknowledge the start-up screen.

5) Touch **Database Status** on the 'Initialization' Screen of either Touchscreen Controller.

Or:

From Home, touch **Utilities > Setup > Database Status**

6) Monitor the Sync Status on the 'Database Status' Screen. Wait for all databases to complete syncing, indicated by 'Sync Complete' being displayed.

7) The database update status will appear in the status window at the top of the screen. The load is complete when 'Databases Ready' is displayed.

8) A cyan double-arrow will appear between the 'Standby' and 'Active' columns to show which standby databases will be transferred to 'Active' at the next power cycle. For any databases not selected to load with cyan double-arrows, or if Inhibit Automatic Swap is selected, touch the database title and then touch **Swap** > **OK.**

9) The system will display the message 'Activate databases with on ground restart.' Touch **Database Options** > **Restart Displays**.

10) Touch the **Restart** Button in the display window to continue with the restart of the system.

11) Press the right most softkey on MFD display to acknowledge the start-up screen.

12) Touch **Database Status** on the 'Initialization' Screen of either Touchscreen Controller.

Or:

From Home, touch **Utilities** > **Setup** > **Database Status.**

13) Verify the standby databases transferred and are now in the 'Active' Column.

  a) Touch **Database Status** on the 'Initialization' Screen of either Touchscreen Controller.

  Or:

  From Home, touch **Utilities** > **Setup** > **Database Status.**

  b) Scroll down and touch the database title.

  c) Touch **Swap** > **OK**. The cyan double-arrows will now appear beside the selected databases. Repeat steps b) and c) for any additional databases.

  d) Remove and reapply power to the system.

  e) Press the right most softkey on MFD display to acknowledge the start-up screen.

  f) Touch **Database Status** on the 'Initialization' Screen of either Touchscreen Controller.

  Or:

  From Home, touch **Utilities** > **Setup** > **Database Status.**

  g) Verify the standby databases transferred and are now in the 'Active' Column.

15) To view database status:

  a) Touch **Database Status** on the 'Initialization' Screen on the MFD Touchscreen Controller.

  Or:

  From Home, touch **Utilities** > **Setup** > **Database Status.**

  b) To view database status for an individual display, touch **Database Options** > **LRU Database Info.**

  Or:

  To view database status from 'Avionics Status' Screen, touch **Utilities** > **Setup** > **Avionics Status**. Touch the **Database** Tab.

  c) Touch a button from the list to view database information associated with that display.

  d) Scroll through the database information to view database status.

UPDATING DATABASES WITH GARMIN PILOT / WIRELESS TRANSCEIVER

In order to load databases through Garmin Pilot™ and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system with the Wireless Transceiver card inserted in the bottom SD slot of the MFD. A mobile device with Garmin Pilot™ must be paired with the Wireless Transceiver over Bluetooth. The system's preferred mobile device may be selected on the Touchscreen Controller 'Database Status' Screen from a menu list of devices that have been paired to the system. When the system is enabled it will automatically connect to the preferred device. If the preferred device has not been selected or is not available, the system will automatically connect to the first of any available, paired devices.

Once a Bluetooth connection to the paired mobile device is made, Garmin Pilot™ makes available databases that can be transferred via WIFI to the Wireless Transceiver. If any of these databases is more recent than the respective standby database on the system, (or if there is no standby database on the system) those databases will be automatically selected to load. The database updates may be initiated from the 'Database Status' Screen on either Touchscreen Controller.

NOTE: *The system will only provide a WIFI connection if new databases have been detected for download on Garmin Pilot™ via a valid Bluetooth connection. If their are no database updates required, the system will not provide a WIFI signal.*

NOTE: *If the mobile device has previously connected to the Wireless Transceiver, and is not connected to another Bluetooth device, the mobile device should connect automatically to the Wireless Transceiver. If the mobile device is connected to another Bluetooth device, then the Wireless Transceiver will not automatically connect.*

Updating Databases using the Wireless Transceiver:

1) With the system OFF, insert the Wireless Transceiver card in the bottom slot of the MFD if not already inserted.
2) Turn the system on.

NOTE: *The Wireless Transceiver card should not be removed while the system is powered on. If the card is removed while the system is powered on, reinsert the card after the 'FS510 Card Error' System Message appears on the 'Notifications' Screen of the Touchscreen Controller.*

3) Press the right-most softkey on MFD display to acknowledge the start-up screen.
4) From Home, touch **Utilities** > **Setup** > **Wireless Setup** > **Connext.**
5) Touch the **Import Functions** Tab and ensure the WiFi Database Import **Enable** Button is selected.

6) Touch the Bluetooth Tab to ensure bluetooth is enabled.

7) On the mobile device, connect via Bluetooth to the Wireless Transceiver.

8) Touch the **Database Status > Device Databases** on the 'Initialization' Screen on the MFD touchscreen controller.

Or:

From Home, touch **Utilities > Setup > Database Status > Device Databases.**

9) The 'Database Status' Screen will show the databases connected to the mobile device in place of the active databases on the system. Databases selected to load will be indicated by a cyan arrow.

10) If required, select the preferred device.

- **a)** Touch **Select Preferred Device** Button.
- **b)** Touch the button for the desired mobile device from the list.

11) If desired, change the Preferred Region for the database.

- **a)** Touch a database button from the list.
- **b)** Touch **Select Preferred Region** Button.
- **c)** Touch the button for the desired database region from the list. The database for the region selected will be loaded at the next power cycle.
- **d)** Touch **Load** > **OK**.
- **e)** Repeat steps **a)** through **d)** above for additional databases.

12) Touch the **Start Transfer** Button on the 'Database Status' Screen.

13) On the mobile device, connect to the indicated SSID Wi-Fi network shown on the **WiFi** Tab of the '**Connext Setup'** Screen.

14) On the mobile device, start Garmin Pilot and touch **Home** > **Connext** > **Database Concierge**.

15) Monitor the Sync Status on the 'Database Status' Screen. Wait for all databases to complete syncing, indicated by 'Sync Complete' being displayed.

16) The database update status will appear in the status window at the top of the screen. The load is complete when 'Databases Ready' is displayed.

17) A cyan double-arrow will appear between the Standby and Active columns to show which standby databases will be transferred to Active at the next power cycle. For any databases not selected to load with cyan double-arrows, touch the database title and then touch **Swap** > **OK.**

18) The system will display the message 'Activate databases with on ground restart.' Touch **Back > Database Options > Restart Displays**.

19) A 10 second restart countdown will appear. Touch the **Restart** Button in the display window to continue with he restart of the system.

20) Touch **Database Status** on the 'Initialization' Screen on the MFD touchscreen controller.

Or:

From Home, touch **Utilities > Setup > Database Status.**

21) Verify the standby databases transferred and are now in the 'Active' database column.

22) To manually activate any databases that did not transfer to the Active column:

   a) Touch **Database Status** on the 'Initialization' Screen of either touchscreen controller.

   Or:

   From Home, touch **Utilities > Setup > Database Status.**

   b) Scroll down and touch the database title.

   c) Touch **Swap** > **OK**. The cyan double-arrows will now appear beside the selected databases.

   d) Remove and reapply power to the system.

   e) Touch **Database Status** on the 'Initialization' Screen of either Touchscreen Controller.

   Or:

   From Home, touch **Utilities > Setup > Database Status.**

   f) Verify the standby databases transferred and are now in the Active database column.

23) To view database status:

   a) Touch **Database Status** on the 'Initialization' Screen on the MFD Touchscreen Controller.

   Or:

   From Home, touch **Utilities > Setup > Database Status.**

   b) To view database status for an individual display, touch **Database Options > LRU Database Info.**

   Or:

   To view database status from 'Avionics Status' Screen, touch **Utilities > Setup > Avionics Status**. Touch the **Database** Tab.

   c) Touch a button from the list to view database information associated with that display.

   d) Scroll through the database information to view database status.

DATABASE SYNCHRONIZATION FEATURE

When a PFD or MFD is failed, any database updates will not be automatically synchronized to the other displays. When this occurs, the database synchronization feature allows synchronizing to be completed on the remaining powered displays.

Synchronizing databases:

1) Follow the procedures for loading databases in this section. The databases will not sync to any of the displays when a display is not powered.
2) Touch the **Database Status** Button on the 'Initialization' Screen on the MFD Touchscreen Controller.

   Or:

   From Home, touch **Utilities > Setup > Database Status.**
3) Scroll down and touch **Database Options** > **Sync Databases**.
4) From the 'Sync From Display' Screen, touch the button for the display the databases will be synced from (this will be the display containing the SD Card or multimedia card).
5) The database sync process will begin. Follow the procedures for loading databases in this section to complete the database updates.

DATABASE DELETION FEATURE

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

Deleting the databases:

1) Touch the **Database Status** Button on the 'Initialization' Screen on the Touchscreen Controller.

   Or:

   From Home, touch **Utilities > Setup > Database Status.**
2) Scroll down and touch **Database Options > Delete Databases.**
3) A prompt will appear to confirm deletion of selected databases. Touch the **OK** Button.
4) Delete all or selected active databases:

   To delete all active databases, touch the **Select All** button in the 'Active' Column.

   Or:

   To delete selected active database(s), touch the desired database button(s) in the 'Active' Column.
5) Delete all or selected standby databases:

   To delete all standby databases, touch the **Select All** Button in the 'Standby' Column.

   Or:

To delete selected database(s), touch the desired database button(s) in the 'Standby' Column.

6) Remove and reapply power to the system.

7) Touch the **Database Status** Button on the 'Initialization' Screen of the Touchscreen Controller.

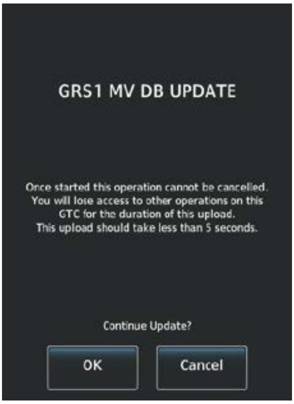
Or:

From Home, touch **Utilities** > **Setup** > **Database Status.**

8) Confirm that all databases or selected databases have been deleted from the system.

MAGNETIC FIELD VARIATION DATABASE UPDATE FOR OPTIONAL GRS 79

The Magnetic Field Variation Database is loaded as part of the navigation database, but is copied to, and resides within each AHRS (GRS1 and GRS2). At startup, the system compares the MV DB within the navigation database to that presently residing in each AHRS (GRS1 and GRS2). When a new navigation database is loaded, the system may determine the newly loaded MV DB within the navigation database is newer than that residing in each AHRS. In this case, the system will prompt for an update. This prompt is displayed on the Touchscreen Controller (GTC). Note, in this example, GRS1 is the first AHRS to indicate an update is available. In actuality, this is dependent on which AHRS is the first to report status to the system. GRS2 may be displayed before GRS1. The order is not important, only that both AHRS be updated.


GRS1 MV DB UPDATE

Once started this operation cannot be cancelled. You will lose access to other operations on this GTC for the duration of this upload. This upload should take less than 5 seconds.

Continue Update?

GRS1 Magnetic Field Variation Database Update Prompt (Touchscreen Controller)

Loading the Magnetic Field Variation Database update:

1) With the MV DB prompt displayed, as shown in Figure B-14, touch the **OK** Button. A progress monitor is displayed as shown in Figure B-15.

2) When the upload is complete, the prompt for the next GRS upload is displayed. A database mismatch messageindicates the second GRS has not yet been updated.

3) Touch the **OK** Button. A progress monitor for the next GRS is displayed. When the upload is complete, the system is ready for use.

SOFTKEY MAPS

PFD SOFTKEYS

Level 1	Level 2	Level 3	Level 4	Description
Map Range -				Decreases the PFD Map display range.
Map Range +				Increases the PFD Map display range.
PFD Map Settings				Displays the PFD Map display settings softkeys.
	Map Layout			Displays the PFD Map selection softkeys.
		Map Off		Removes the PFD Map from the display.
		Inset Map		Displays the Inset Map.
		HSI Map		Displays the HSI Map.
		Inset Traffic		Displays traffic within Inset Map.
		HSI Traffic		Displays traffic within the HSI Map.
	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.
	Weather Legend			Displays/removes the name of the selected data link weather provider and the weather product icon and age box (for enabled weather products).
	Traffic			Adds or removes the display of traffic on the PFD Map.
	Stormscope			Adds or removes the display of Stormscope on the PFD Map.

Level 1	Level 2	Level 3	Level 4	Description
	Terrain			Selects the display of terrain information on the PFD Map: - **Off**: Removes terrain information from the PFD Map. - **Absolute**: Displays absolute terrain information on the PFD Map. - **Relative**: Displays relative terrain information on the PFD Map.
	Data Link Settings			Displays the PFD Map data link settings softkeys.
		Data Link		Selects the data link weather source for the PFD Map: - **SiriusXM**: PFD Map data link weather source is SiriusXM. - **Connext**: PFD Map data link weather source is Connext. - **ACARS:** Selects ACARS Weather as the weather source on the PFD Map.
		Storm Cell Movement		This softkey is available when SiriusXM is selected as the data link weather source. Adds or removes the display of Storm Cell Movement information on the PFD Map.
		NEXRAD Animation		Animates NEXRAD weather and coverage information on the PFD Map when SiriusXM is selected for Data Link.
		NEXRAD		Displays NEXRAD weather and coverage information on the PFD Map when SiriusXM is selected for Data Link: - **CMP**: Displays the composite cloud reflectivity. - **BAS**: Displays the base cloud reflectivity.

Level 1	Level 2	Level 3	Level 4	Description
	WX Overlay			Selects the display of weather information on the PFD Map: - **Off**: Removes weather information from the PFD Map. - **WX Radar**: Displays airborne weather radar information on the HSI Map only. Not available if Inset Map displayed. - **ACARS:** Selects ACARS Weather as the weather source on the PFD Map.
	SiriusXM or Connext Lightning			Adds/removes the display of SiriusXM or Connext lightning information (based on data link weather source selection) on the PFD Map.
	METAR			Adds or removes the display of data link METAR data on the PFD Map.
Traffic Map				Replaces the PFD Map with a dedicated traffic display.
PFD Settings				Displays the PFD settings softkeys.
	Attitude Overlays			Displays the softkeys for enabling or disabling Synthetic Vision features.
		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.
		FPM Settings		Displays Flight Path Marker symbol on the ADI to indicate the current relative flight path.
			FPM Enable	Enables Flight Path Marker symbol.

Level 1	Level 2	Level 3	Level 4	Description
		SVT Traffic		Displays traffic information on Synthetic Vision Display.
		FPA Ref Settings		Displays the softkeys for changing the Flight Path Angle pitch.
			-1	Decreases the pitch reference angle by one degree.
			-0.1	Decreases the pitch reference angle by 0.1 degree.
			FPA X.X'	Displays the Flight Path Reference line on the pitch scale at the selected angle (0 to ±9.9 degrees).
			+0.1	Increases the pitch reference angle by 0.1 degree.
			+1	Increases the pitch reference angle by one degree.
	Bearing 1			Cycles the Bearing 1 Information Window through NAV1, NAV2, FMS/waypoint identifier and GPS-derived distance information, ADF/frequency, and Off.
	Bearing 2			Cycles the Bearing 2 Information Window through NAV1, NAV2, FMS/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	Wind information not displayed.

Level 1	Level 2	Level 3	Level 4	Description
		AOA		Changes settings for displaying Angle of Attack (AOA) Indicator. - **Auto**: Automatically displays AOA indicator. - **On**: Always displays AOA indicator. - **Off**: Never displays AOA indicator.
		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 FMS (only available with active leg).
Active NAV				Cycles through FMS, NAV1, and NAV2 navigation modes on the CDI.
Sensors				Displays the sensor selection softkeys.
	ATT/HDG Settings			Accesses the softkeys where the Attitude and Heading reference system can be manually selected.
		ATT/HDG1		Selects Attitude and Heading Reference system 1.
		ATT/HDG2		Selects Attitude and Heading Reference system 2.
WX Radar Controls				Displays the Weather Radar Control softkeys (only available if HSI Map is enabled).
	Mode			Selects weather radar power mode: - **Standby**: Radar is on, but not transmitting. - **On**: Radar is on and transmitting.

Level 1	Level 2	Level 3	Level 4	Description
	Display			Selects the weather radar operational mode: - **Weather**: Normal operating mode for weather detection. - **Ground**: Operating mode for ground returns.
	Tilt Down			Press the softkey once to adjust the antenna tilt angle down in 0.25° increments. Press and hold the softkey for continuous adjustment downward.
	Tilt Up			Press the softkey once to adjust the antenna tilt angle up in 0.25° increments. Press and hold the softkey for continuous adjustment upward.
	Gain -			Press the softkey once to decrease the gain by 0.5, or press and hold the softkey for continuous adjustment. A manual setting of "0.0" is equivalent to the calibrated gain setting.
	Gain +			Press the softkey once to increase the gain by 0.5, or press and hold the softkey for continuous adjustment. A manual setting of "0.0" is equivalent to the calibrated gain setting.
	Features			Displays Radar Features softkeys.
		Altitude COMP Tilt		Activates Altitude Compensated Tilt feature.
		Stabilizer		Activates antenna stabilization feature.
CAS Up				Scrolls up the list of CAS alerts.
CAS Dn				Scrolls down the list of CAS alerts.

PFD Softkeys

MFD SOFTKEYS

Level 1	Level 2	Level 3	Level 4	Description
CAS Up				Scrolls up the list of CAS alerts.
CAS Dn				Scrolls down the list of CAS alerts.

MFD Softkeys

PFD SPLIT MODE SOFTKEYS

Split Mode softkey hierarchy and descriptions:

Level 1	Level 2	Level 3	Level 4	Level 5	Description
Traffic					Switches the Map Pane to the Traffic Map display.
PFD Settings					Displays the PFD settings softkeys.
	Attitude Overlays				Displays the softkeys for enabling or disabling Synthetic Vision features.
		SVT Settings			Displays additional SVT overlay softkeys.
			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.
			SVT Traffic		Displays traffic information on Synthetic Vision Display.
		Synthetic Terrain			Enables synthetic terrain depiction.
		Horizon Heading			Displays compass heading along the Zero-Pitch line.
		FPM Settings			Displays Flight Path Marker symbol on the ADI to indicate the current relative flight path.
			FPM Enable		Enables Flight Path Marker symbol.
		FPA Ref Settings			Displays FPA Reference softkeys.
			-1		Decreases the pitch reference angle by one degree.
			-0.1		Decreases the pitch reference angle by 0.1 degree.

Level 1	Level 2	Level 3	Level 4	Level 5	Description
			FPA X.X		Displays the Flight Path Reference line on the SVT pitch scale at the selected angle (0 to ±9.9 degrees). - **Auto**: Automatically displays Flight Path Reference line. - **On**: Always displays Flight Path Reference line. - **Off**: Never displays Flight Path Reference line.
			+0.1		Increases the pitch reference angle by 0.1 degree.
			+1		Increases the pitch reference angle by one degree.
	Bearing 1				Cycles the Bearing 1 Information Window through NAV1, NAV2, FMS/waypoint identifier and GPS-derived distance information, ADF1/frequency, ADF2/frequency, and Off.
	Bearing 2				Cycles the Bearing 2 Information Window through NAV1, NAV2, FMS/waypoint identifier and GPS-derived distance information, ADF1/frequency, ADF2/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		Wind information not displayed.

Level 1	Level 2	Level 3	Level 4	Level 5	Description
		AOA			Changes settings for displaying Angle of Attack (AOA) Indicator. - **Auto**: Automatically displays AOA indicator. - **On**: Always displays AOA indicator. - **Off**: Never displays AOA indicator.
		Altitude Units			Displays softkeys to select altitude unit parameters.
			Meters		Displays softkeys to select altitude unit parameters.
			IN		Press to display the BARO setting as inches of mercury.
			HPA		Press to display the BARO setting as hectopascals.
		Sensors			Displays the sensor selection softkeys.
			ATT/HDG Settings		Accesses the softkeys where the Attitude and Heading Reference system can be manually selected.
				ATT/ HDG1	Selects Attitude and Heading Reference system 1.
				ATT/ HDG2	Selects Attitude and Heading Reference system 2.
OBS					Selects OBS mode on the CDI when navigating by FMS (only available with active leg).
Active NAV					Cycles through FMS, NAV1, and NAV2 navigation modes on the CDI.
PFD Map Settings					Displays the PFD Map display settings softkeys.
	HSI Map Layout				Displays the HSI Map layout settings softkeys.
		Map Off			Hides the HSI Map.

Level 1	Level 2	Level 3	Level 4	Level 5	Description
		HSI Map			Displays the HSI Map.
		HSI Traffic			Displays traffic within the HSI.
	Map Range -				Decreases the HSI Map display range (only available if HSI Map is enabled).
	Map Range +				Increases the HSI Map display range (only available if HSI Map is enabled).
	WX Radar Controls				Displays the Weather Radar Control softkeys (only available if HSI Map is enabled).
		Mode			Selects weather radar power mode: - **Standby**: Radar is on, but not transmitting. - **On:** Radar is on and transmitting.
		Display			Selects the weather radar operational mode: - **Weather**: Normal operating mode for weather detection. - **Ground**: Operating mode for ground returns.
		Tilt Down			Press the softkey once to adjust the antenna tilt angle down in 0.25° increments. Press and hold the softkey for continuous adjustment downward.
		Tilt Up			Press the softkey once to adjust the antenna tilt angle up in 0.25° increments. Press and hold the softkey for continuous adjustment upward.
		Gain -			Press the softkey once to decrease the gain by 0.5, or press and hold the softkey for continuous adjustment. A manual setting of "0.0" is equivalent to the calibrated gain setting.

Level 1	Level 2	Level 3	Level 4	Level 5	Description
		Gain +			Press the softkey once to increase the gain by 0.5, or press and hold the softkey for continuous adjustment. A manual setting of "0.0" is equivalent to the calibrated gain setting.
		Features			Displays Radar Features softkeys.
			Altitude COMP Tilt		Activates Altitude Compensated Tilt feature.
			Stabilizer		Activates antenna stabilization feature.
	Map Overlays				Displays the Map Overlay softkeys (only available if HSI Map is enabled).
		Terrain			Selects the display of terrain information on the HSI Map: - **Off**: Removes terrain information from the HSI Map. - **Absolute**: Displays absolute terrain information on the HSI Map. - **Relative**: Displays relative terrain information on the HSI Map.
		Data Link Settings			Displays the HSI Map data link settings softkeys.
			Data Link		Selects the data link weather source for the HSI Map: - **SiriusXM**: PFD Map data link weather source is SiriusXM. - **Connext**: PFD Map data link weather source is Connext. - **ACARS:** Selects ACARS Weather as the weather source on the HSI Map.

Level 1	Level 2	Level 3	Level 4	Level 5	Description
			NEXRAD		Displays NEXRAD weather and coverage information on the PFD Map when SiriusXM is selected for Data Link: - **CMP**: Displays the composite cloud reflectivity. - **BAS**: Displays the base cloud reflectivity.
			Storm Cell Movement		This softkey is available when SiriusXM is selected as the data link weather source. Adds or removes the display of Storm Cell Movement information on the HSI Map.
		WX Overlay			Selects the display of weather information on the HSI Map: - **Off**: Removes weather information from the HSI Map. - **WX Radar**: Displays airborne weather radar information on the HSI Map. - **ACARS:** Selects ACARS Weather as the weather source on the PFD Map.
		SiriusXM or Connext Lightning			Adds/removes the display of SiriusXM or Connext lightning information (based on data link weather source selection) on the HSI Map.
		More			Displays more Map Overlay softkeys.
			METAR		Adds or removes the display of Connext METAR data on the HSI Map.

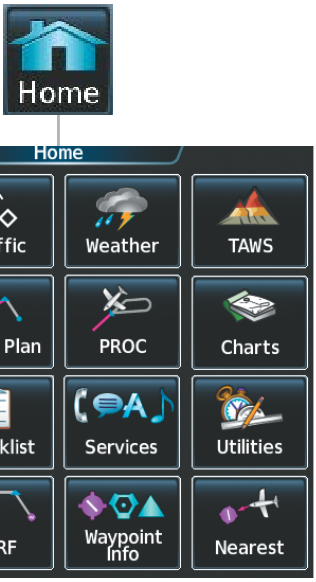
Level 1	Level 2	Level 3	Level 4	Level 5	Description
			Detail		Selects desired amount of map detail; cycles through declutter levels: - **All** (No Declutter): All map features visible. - **DCLTR 1**: Declutters land data. - **DCLTR 2**: Declutters land and SUA data. - **Least**: Removes everything except for the active flight plan.
			Weather Legend		Displays/removes the name of the selected data link weather provider and the weather product icon and age box (for enabled weather products).
			Traffic		Adds or removes the display of traffic on the HSI Map.

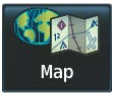
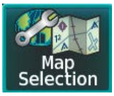
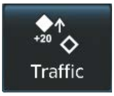
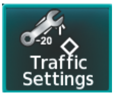
PFD Split Mode Softkeys

TOUCHSCREEN CONTROLLER SCREENS

***NOTE:** Screen appearance varies based on the installed options.*

HOME SCREEN

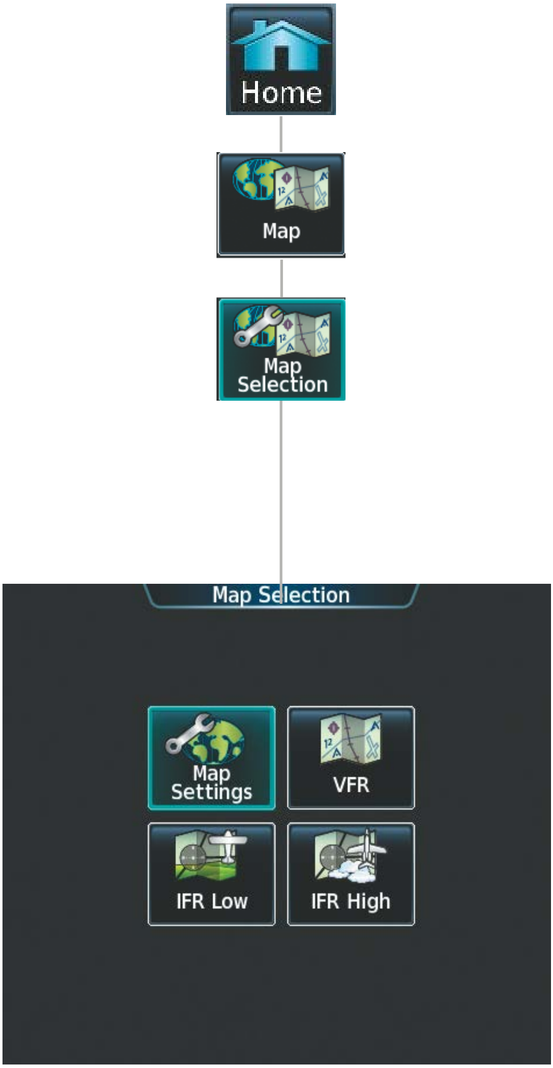

Home
Home
Map Selection
Traffic
Weather
TAWS
Direct To
Flight Plan
PROC
Charts
Aircraft Systems
Checklist
Services
Utilities
ATC Datalink
PERF
Waypoint Info
Nearest

 or  Map Selection	The **Map** Button shows a 'Navigation Map' Pane in the selected pane. When the Navigation Map is displayed, the button becomes the **Map Selection** Button. Touch the **Map Selection** Button again to access the 'Map Selection' Screen on the Touchscreen Controller.
 or  -20 Traffic Settings	Shows a 'Traffic Map' Pane in the selected pane. When the 'Traffic Map' Pane is displayed, the button becomes the **Traffic Settings** Button. Touch the **Traffic Settings** Button to access the 'Traffic Settings' Screen on the Touchscreen Controller.

Weather or Weather Selection	Shows a 'Weather... (SiriusXM, Connext, or Radar)' Pane in the selected pane. When the weather pane is displayed, the button becomes the **Weather Selection** Button. Touch the **Weather Selection** Button to access the 'Weather Selection' Screen on Touchscreen Controller.
TAWS or TAWS Settings	Shows the 'TAWS' Pane in the selected pane. When the 'TAWS' Pane is displayed, the button becomes the TAWS Settings Button. Touch the **TAWS Settings** Button to access the 'TAWS Settings' Screen on Touchscreen Controller.
Direct To	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 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 pane.
Aircraft Systems	Accesses 'Aircraft Systems' Screen on Touchscreen Controller. Systems data can be selected for display on the Touchscreen Controller, and displayed on a pane. Also provides means to set controls and monitor performance and system tests.
Checklist	Accesses the Checklists for display in the selected pane.

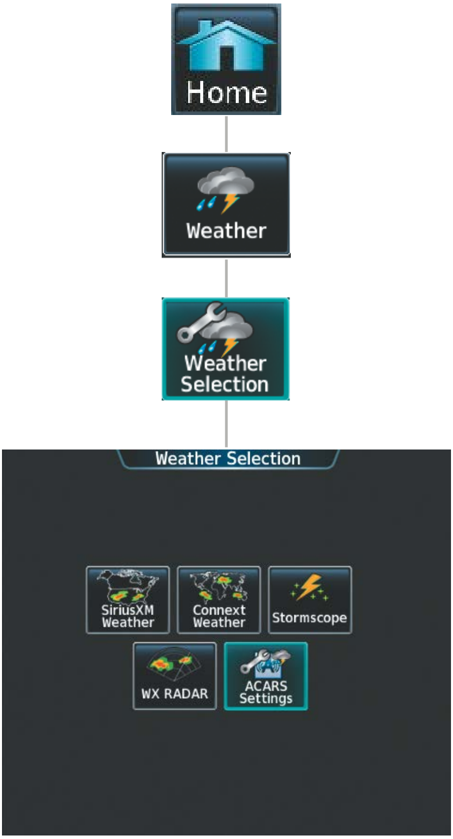
Services	Accesses 'Services' Screen on Touchscreen Controller. Includes phone and text messaging services, SiriusXM Satellite Radio controls, and Contacts.
Utilities	Accesses Trip Statistics, Timer, Scheduled Messages, GPS Status, Initialization, Electronic Documents, Screen Cleaning, Crew Profile, and Setup.
ATC Datalink	Displays 'ATC Datalink' Screen. Provides ATC Datalink status, controls for managing CPDLC connections, and message management features.
PERF	Accesses 'Takeoff/Landing Data' (when SurfaceWatch or TOLD is installed), 'Speed Bugs', and 'Weight and Fuel', on the Touchscreen Controller.
Waypoint Info	Provides information about Airports, Intersections, VORs, NDBs, VRPs, and User Waypoints. Also allows creation of User Waypoints.
Nearest	Provides information about the nearest Airports, Intersections, VORs, NDBs, VRPs, User Waypoints, Airspace, ARTCC facilities, Flight Service Stations, and Weather reporting stations.

‘MAP SELECTION’ SCREEN


Home
Map
Map Selection
Map Selection
Map Settings
VFR
IFR Low
IFR High

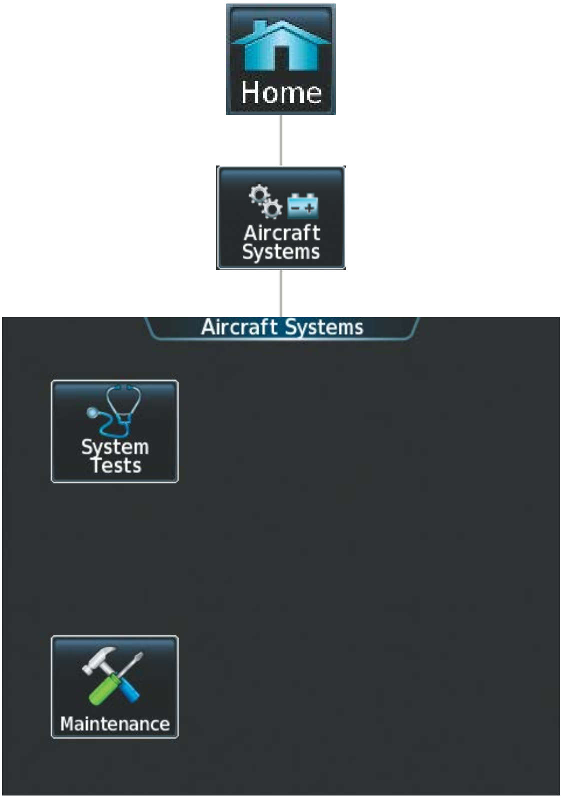
Touching the **Map** Button on the ‘Map Selection’ Screen displays the ‘Navigation Map’ Pane and the button name will change to **Map Settings**.

‘WEATHER SELECTION’ SCREEN


Home
Weather
Weather Selection
Weather Selection
SiriusXM Weather
Connext Weather
Stormscope
WX RADAR
ACARS Settings

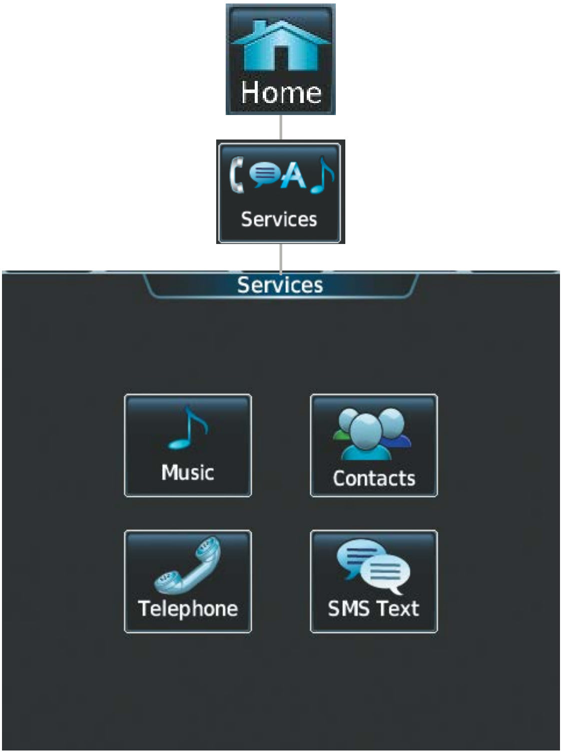
Touching a button within the ‘Weather Selection’ Screen (shown above) will display a respective ‘SiriusXM Weather’, ‘Connext Weather’, ‘Weather Radar’ Pane or ‘ACARS Weather Settings’. Additionally, once touched, the button name will change to a ‘Settings’ syntax. Touching any of these ‘settings’ buttons will open a settings screen which are each discussed in the Hazard Avoidance Section.

'AIRCRAFT SYSTEMS' SCREEN



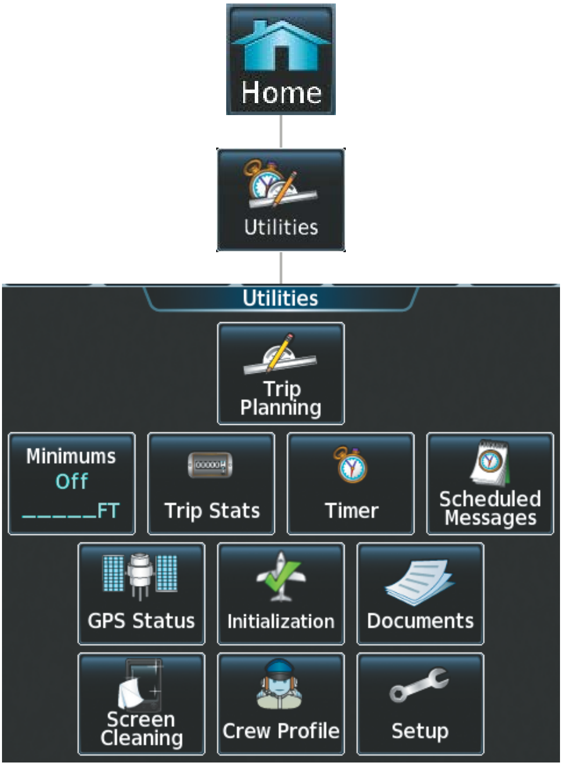
The 'Aircraft Systems' Screen shows the **Maintenance** and **System Tests** buttons. Touching the **System Tests** Button will open the 'System Tests' Screen which shows **Radio Altimeter** and **TCAS** test buttons. Details are discussed in the Engine Indication and Crew Alerting Systems (EICAS) Section. The **Maintenance** Button provides functions accessible to maintenance personnel with password.

‘SERVICES’ SCREEN

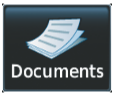

Home
Services
Services
Music
Contacts
Telephone
SMS Text

Communication functions, settings, and processes for the buttons within the ‘Services’ Screen are discussed in the Audio and CNS Section.

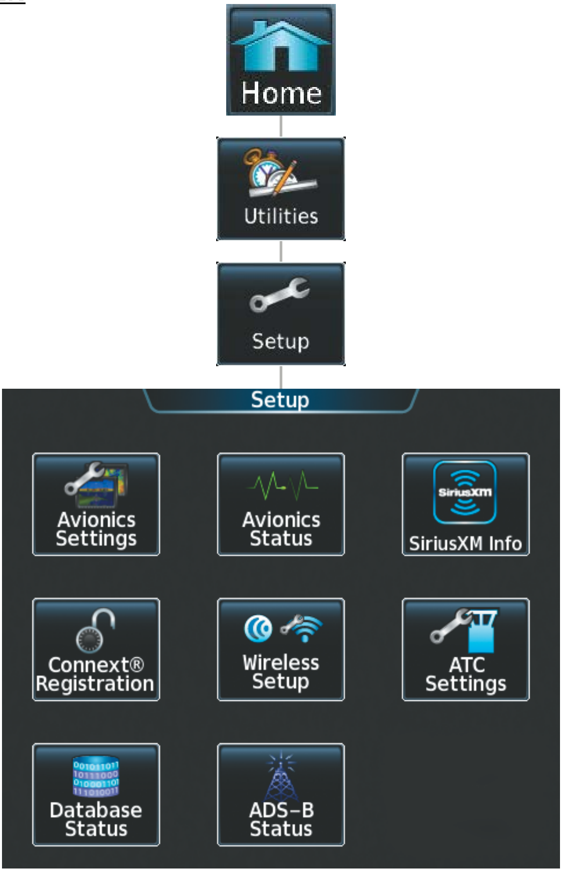
'UTILITIES' SCREEN


Home
Utilities
Utilities
Trip Planning
Minimums
Off
______FT
Trip Stats
Timer
Scheduled Messages
GPS Status
Initialization
Documents
Screen Cleaning
Crew Profile
Setup

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.
Trip Stats	Accesses the 'Trip Statistics' Screen on the Touchscreen Controller. Shows information regarding Flight Time, Departure Time, Arrival Time, Odometer, Trip Odometer, Fuel Used, Average Ground Speed, Maximum Ground Speed, Trip Air Odometer, Average Wind Speed, and Average Wind Direction.
Timer	Accesses the 'Timer' Screen on the Touchscreen Controller. Controls the timer on the PFD.

Scheduled Messages	Used to create custom messages to be displayed one-time or periodically. The Touchscreen Controller displays these messages on the 'Notifications' Screen on the Touchscreen Controller.
	Displays the 'GPS1...' or 'GPS2 Status' Pane.
Initialization	Displays the 'Initialization' Screen.
	Shows controls for viewing electronic documents on the Touchscreen Controller, and displays documents in the selected pane.
Screen Cleaning	Feature temporarily disables touchscreen glass input to allow for manual cleaning. Turn or push any knob on the Touchscreen Controller to exit Screen Cleaning Mode.
Crew Profile	Accesses the 'Crew Profile' Screen to access controls for activating and managing crew profiles.
	Accesses Avionics Settings and Status, Data Link Services registration and status, WiFi Setup, ATC Settings, Database Status, and ADS-B Status.

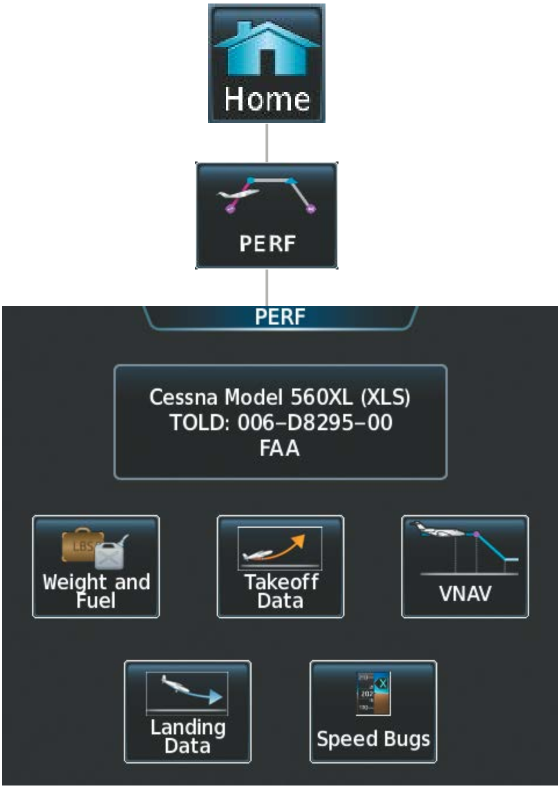
'SETUP' SCREEN


Home
Utilities
Setup
Setup
Avionics Settings
Avionics Status
SiriusXM
SiriusXM Info
Connext® Registration
Wireless Setup
ATC Settings
Database Status
ADS-B Status

Avionics Settings	Provides controls for changing system avionics settings, such as, time format, units of measure, various alert settings, MFD Data Bar Fields, and audio.
Avionics Status	Displays information on the Touchscreen Controller for installed LRUs, airframe, system software, databases, and data links.
SiriusXM Info	Displays information on data/audio radio status and weather products.
Connext® Registration	Used to register with Garmin Connext. Also provides information on current Connext registration.

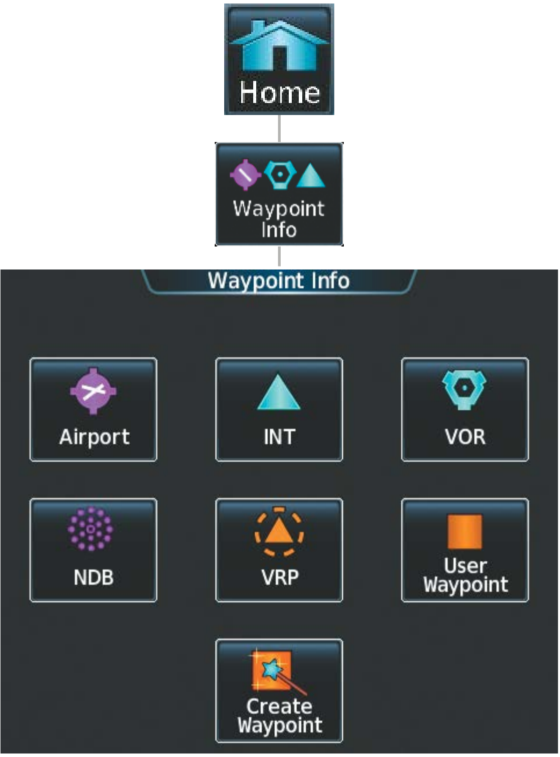
Wireless Setup	Provides access to the Networks and displays signal security status.
Database Status	Provides access to the 'Database Status' Screen for checking database cycle information.
ADS-B Status	Provides access to the optional 'ADS-B' Status Screen for information on the reception of ADS-B services.

'PERF' (PERFORMANCE) SCREEN


Home
PERF
PERF
Cessna Model 560XL (XLS)
TOLD: 006-D8295-00
FAA
Weight and Fuel
Takeoff Data
VNAV
Landing Data
Speed Bugs

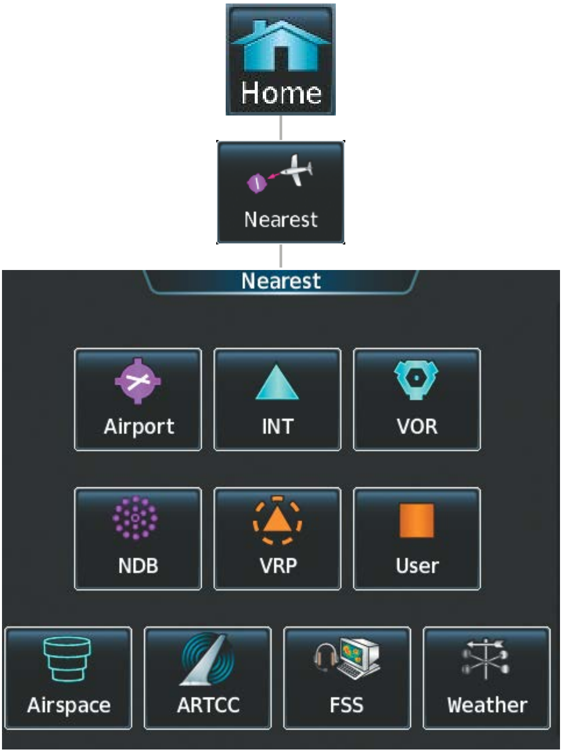
Aircraft performance related functions, settings, and processes for the buttons within the 'PERF' Screen are discussed in the Flight Management Section.

'WAYPOINT' INFO SCREEN


Home
Waypoint Info
Waypoint Info
Airport
INT
VOR
NDB
VRP
User Waypoint
Create Waypoint

Functions, settings, and processes for the buttons within the 'Waypoint Info' Screen are discussed in the Flight Management Section.

'NEAREST' SCREEN



Functions, settings, and processes for the buttons within the 'Nearest' Screen are discussed in the Flight Management Section.

SCREEN CLEANING

Screen Cleaning mode temporary deactivates touch input on the Touchscreen Controller screen to facilitate cleaning. The screen can be cleaned using a microfiber or soft cotton cloth lightly dampened with clean water. Do not use chemical cleaning agents, as these may damage the coating on the glass surface.

Cleaning the Touchscreen Controller screen:

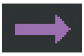
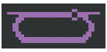
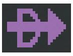
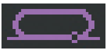
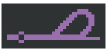
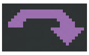
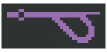
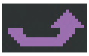
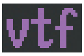
1) From Home, touch **Utilities** > **Screen Cleaning**.

2) The Touchscreen Controller indicates the screen may be cleaned. Clean the screen as needed.

3) Push or turn any knob to return to the 'Utilities' Screen.

SYMBOLS

PFD NAVIGATION STATUS BOX / MFD NAVIGATION DATA BAR

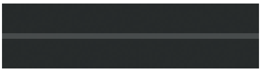
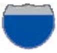
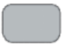
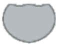
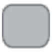
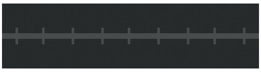
Symbol	Description	Symbol	Description
	Active Leg		Right Holding Pattern
	Direct-to		Left Holding Pattern
	Right Procedure Turn		Right DME Arc / Radius to Fix Leg
	Left Procedure Turn		Left DME Arc / Radius to Fix Leg
	Vector to Final		

PFD Navigation Status Box Symbols

MAP SYMBOLS

Land Symbols

The following table describes items that are configured on the **Land** Tab on the 'Map Settings' Screen. See the Hazard Avoidance Section for more information on Obstacles.

Land Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Obstacles (Point)	See Hazard Avoidance Section	10	25
Roads		see below	
- Interstate Highway (Freeway)		50	150
- International Highway (Freeway)		50	150
- US Highway (National Highway)		15	100
- State Highway (Local Highway)		10	15
- Local Road (Local Road)	N/A	4	10
- Railroad		7.5	15

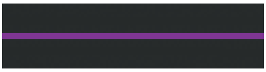
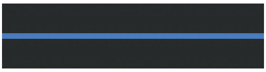
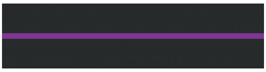
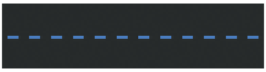
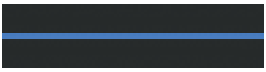
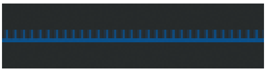
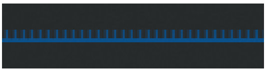
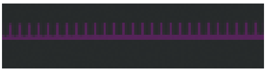
Land Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Large City (> 200,000)	●	100	1000
Medium City (> 50,000)	●	50	75
Small City (> 5,000)	●	25	50
State/Province	▬	750	1000
Rivers and Lakes (River/Lake)		75	75

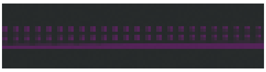
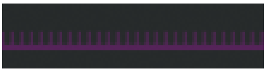
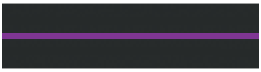
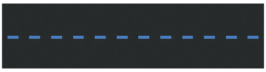
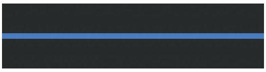
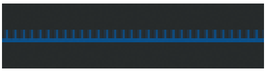
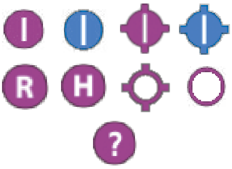
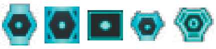
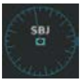
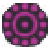
Land Symbol Information

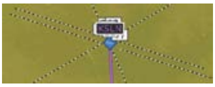
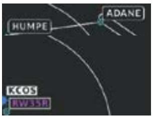
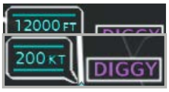
Aviation Symbols

The following items are configured on the **Aviation** Tab of the 'Map Settings' Screen.

Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Low Altitude Airways (V and T Routes)		50	50
High Altitude Airways (J and Q Routes)		50	75
Class B Airspace Altitude Label (ceiling/floor)	80 30	Label placement and ranges are variable, in order to provide the best representation and minimal clutter	
Class C Airspace Altitude Label (ceiling/floor)	53 SFC		
Class D Airspace Altitude Label (ceiling)	36		
CL B/TMA/AWY	(see below)		
- Class B (CL B) and Terminal Manoeuvring Area (TMA) [1]	▬	50	100
- Airway (AWY) [1]	▬		

Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
CL C/CTA	(see below)		
- Class C Airspace (CL C)		50	75
- Control Area (CTA) [1]			
CL A/D	(see below)		
- Terminal Radar Service Area (TRSA), Controlled Traffic Region (CTR) [1], and Class A (CL A) [1]		10	50
- Class D			
- Aerodrome Traffic Zone (ATZ) [1]			
- Traffic Information Zone (TIZ) [1]			
Restricted and Prohibited Areas (Restricted)		50	75
Military Operations Areas (MOA (Military))		50	75

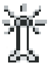
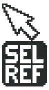
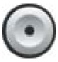
Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Other	(see below)		
- ADIZ		50	75
- Alert			
- Class E [1]			
- Class G [1]			
- Temporary [1]			
- Danger, Warning, Unknown, Special Rules [1], and Training [1]			
Large Airport (Longest Runway ≥ 8100 ft)		100	250
Medium Airport (8100 ft > Longest Runway ≥ 5000 ft, or Longest Runway < 5000 ft with control tower)		50	75
Small Airport (Longest Runway < 5000 ft without control tower)		25	50
VOR Waypoint		50	150
- VOR Compass Rose On/Off		N/A	N/A
INT Waypoint		10	25
NDB Waypoint		25	50
VRP Waypoint		25	40
User Waypoint	(Route) (Airport)	50	50

Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
SafeTaxi	See Additional Features	1.5	5
Runway Extension		7.5	75
Missed Approach Preview On/Off		N/A	N/A
Altitude/Speed Constraints		1000	1000

[1] *Not located in the United States*

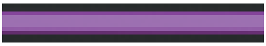
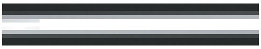
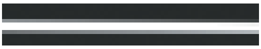
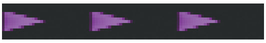
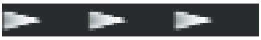
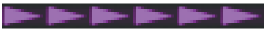
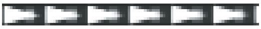
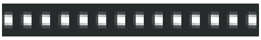
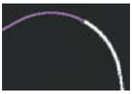
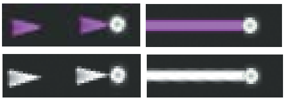
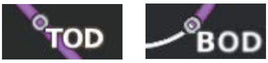
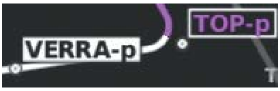
Aviation Symbol Information

ADDITIONAL MAP DISPLAY ITEMS

Symbol Name	Description	Symbol
ARTCC Frequency or FSS Frequency	Displayed when using the Nearest Frequencies function	
Map Pointer	Displayed when panning	
Measuring Pointer	Displayed when measuring bearing and distance	
No heading aircraft icon	Replaces the normal aircraft icon when aircraft GPS location is valid, but the heading is invalid.	
Dead reckoning aircraft icon	'DR' text displayed over the aircraft icon when the GPS solution is invalid	DR

Miscellaneous Map Symbols

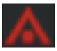
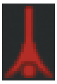
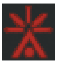
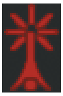
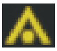
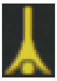
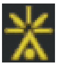
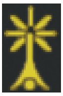
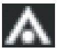
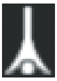
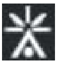
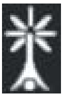
FLIGHT PLANNING SYMBOLS

Symbol Name	Description	Symbol
Course Leg	Course leg currently flown	
	A future course leg in the current phase of flight	
	A course leg in either a previously flown course leg, or a future course leg not in the current phase of flight	
Heading Leg	Heading leg currently flown	
	Future heading leg	
Roll Steering Path [1]	Turning path currently flown	
	Turning path for the next flight plan leg	
	Turning path beyond the next flight plan leg	
Turn Anticipation Arc	Displayed when sequencing to the next flight plan leg via a fly-by waypoint, a lead turn is created, adjusting for groundspeed	
Fly-Over Waypoint	Displayed as a fly-over waypoint	
Along Track Waypoint	Displayed when an along track offset waypoint is created	
Flight Path Fix	A fix that terminates: manually, at a specified altitude, or at a specified distance or radial when flying a heading	
Top of Descent (TOD) and Bottom of Descent (BOD)	When vertically navigating, the system will display where the aircraft will begin complete the descent	
Parallel Track Waypoint	Displayed when a parallel track is created	

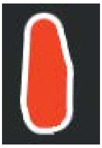
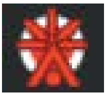
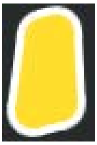
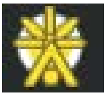
[1] *Roll Steering Path transitions between two disconnected legs (i.e. holding), some procedure turn segments, parallel track segments, or after some fly-over waypoints (discussed later in this section).*

Flight Plan Symbols

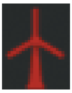
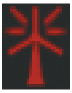
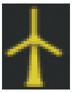
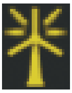
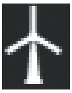
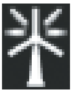
TERRAIN SYMBOLS

Unlighted Obstacle		Lighted Obstacle		Obstacle Location
< 1000′ AGL	> 1000′ AGL	< 1000′ AGL	> 1000′ AGL	
				Red obstacle is above or within 100 ft below the aircraft altitude.
				Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
				White obstacle is more than 1000 ft below aircraft altitude.

TAWS Relative Obstacle Symbols and Colors

Potential Impact Area Examples	Alert Type	Example Annunciation
 or 	Warning	PULL UP
 or 	Caution	TERRAIN

TAWS Potential Impact Point Areas with Annunciations

Unlighted Wind Turbine Obstacle	Lighted Wind Turbine Obstacle	Wind Turbine Obstacle Location
		Red obstacle is above or within 100 ft below the aircraft altitude.
		Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
		White obstacle is more than 1000 ft below aircraft altitude.

Wind Turbine Obstacles and Colors

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