# **CIRRUS PERSPECTIVE TOUCH+**

**Cockpit Reference Guide** 





System Software Version 3956.Q2 or later

**FLIGHT INSTRUMENTS** 

**ENGINE & AIRFRAME SYSTEMS (EAS)** 

AUDIO AND CNS

FLIGHT MANAGEMENT SYSTEM

HAZARD AVOIDANCE

AUTOMATIC FLIGHT CONTROL SYSTEM

**ADDITIONAL FEATURES** 

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**ANNUNCIATIONS & ALERTS** 

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This manual reflects the operation of System Software version 3956.Q2 or later for the Cirrus Perspective Touch+ by Garmin Integrated Avionics System. Where used, references to 'SR2x' are inclusive of the SR20, SR22, and SR22T. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions. Always refer to the approved current pertinent flight manual for a description of systems, limitations, and procedures.

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



**WARNING:** Do not use SurfaceWatch<sup>™</sup> 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.



**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 databasedependent 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 find 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<sup>®</sup> and ChartView<sup>TM</sup>. 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. Before 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:** The pilot/operator must review all portions of the flight plan following a flight plan import from any source.



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



**NOTE:** 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 G2000 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				
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190-02954-00	А	Sep, 2022	All	Initial Release for GDU 32.01.10
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### FLIGHT INSTRUMENTS

#### FLIGHT INSTRUMENTS

#### AIRSPEED INDICATOR

#### Changing Vspeeds and enabling/disabling Vspeed Bugs:

- 1) From PFW Home, touch Speed Bugs.
- 2) Touch the General, Takeoff, or Landing Tab.
- **3)** To enable or disable a Vspeed bug, touch the button for the Vspeed bug. The button annunciation is green when the Vspeed bug is enabled and gray when disabled.
- 4) To change the Vrotate speed, touch the Vrotate Data Field and input a value using the keypad or large and small upper knobs, then touch the Enter Button or push the small upper knob. A pencil icon next to a Vspeed value indicates the Vspeed is a pilot-selected value.

#### Or:

- 1) From MFW Home, touch **PERF** > **Speed Bugs.**
- 2) Touch the General, Takeoff, or Landing Tab.
- **3)** To enable or disable a Vspeed bug, touch the button for the Vspeed bug. The button annunciation is green when the Vspeed bug is enabled and gray when disabled.
- 4) To change the Vrotate speed, touch the Vrotate Data Field and input a value using the keypad or large and small upper knobs, then touch the Enter Button or push the upper knob. A pencil icon next to the Vspeed value indicates the Vspeed is a pilot-selected value.

#### Enabling or disabling all General, Takeoff or Landing Vspeed bugs:

- 1) From PFW Home, touch **Speed Bugs**.
- 2) Touch the General, Takeoff, or Landing Tab.
- 3) To enable all Vspeed bugs, touch the **All On** Button.
- 4) To disable all Vspeed, touch the All Off Button.Or:
- 1) From MFW Home, touch **PERF** > **Speed Bugs**.
- 2) Touch the General, Takeoff, or Landing Tab.
- 3) To enable all Vspeed bugs, touch the **All On** Button.
- 4) To disable all Vspeed, touch the All Off Button.

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#### **Flight Instruments**



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- **Restoring Vspeed defaults:**
- From PFW Home, touch Speed Bugs. 1)
- 2) Touch the **Restore All Defaults** Button. Vspeeds are restored to default values and all Vspeed buttons are disabled.

Or:

- 1) From MFW Home, touch PERF > Speed Bugs.
- 2) Touch the **Restore All Defaults** Button. Vspeeds are restored to default values and all Vspeed buttons are disabled.

### ALTIMETER

#### Selecting the Altitude/Vertical Speed Display Units:

- 1) From MFW Home, touch **Utilities > Setup > Avionics Settings**.
- 2) Touch the **Units** Tab.
- Scroll and touch the Altitude/Vertical Speed Button. 3)
- 4) Touch either the Feet (FT, FPM) Button or the Meters (MT, MPS) Button.
- 5) When finished, touch the **Back** Button or the **Home** Button.

#### Setting the Selected Altitude:

- 1) Turn the **ALT** Knob on the AFCS Controller to update the Selected Altitude in 100-ft increments. Quickly turning the ALT Knob will change the selected altitude in larger increments.
- 2) If set, the Minimum Descent Altitude/Decision Height (MDA/DH) value is also available for the Selected altitude.
- 3) Push the ALT Knob to synchronize the selected altitude with the displayed altitude to the nearest 10 ft.

#### Enabling/Disabling Meters Overlays on the Altimeter:

- 1) From PFW Home, touch PFD Settings.
- Scroll and touch the Meters Overlay Button to enable (green annunciation). 2) Or:
- 1) Press the **PFD Settings** Softkey
- Press the Other PFD Settings Softkey 2)
- 3) Press the **Altitude Units** Softkey
- Press the Meters Softkey to display the meters overlay. Press again to disable the 4) overlay.
- 5) When finished, touch the **Back** Button.

#### 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:

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

#### Changing Altimeter Barometric Pressure Setting Units:

- 1) From PFW Home, touch PFD Settings.
- 2) Scroll down, and touch the Baro Select Units Button.
- Touch either the Inches (IN) or Hectopascals (HPA) Button.
  Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the Other PFD Settings Softkey.
- 3) Press the Altitude Units Softkey.
- 4) Press either the IN or HPA Softkey.
- **5)** When finished, touch the **Back** Button.

#### Enabling/disabling Automatically Switch BARO:

- 1) From MFW Home, touch Utilities >Setup > Avionics Settings.
- 2) Touch the System Tab.
- 3) Touch the Automatically Switch BARO Button to turn the alert on or off.

#### Setting the Baro Transition Alert:

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

### HORIZONTAL SITUATION INDICATOR (HSI)

#### Changing the HSI Display Format:

- 1) From PFW Home, touch PFD Map Settings.
- 2) Touch the Layout Button.
- 3) Touch the HSI Map Button.

#### Or:

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#### **Flight Instruments**

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- Touch the **Units** Tab. 3) Touch the Nav Angle Button.
- 4) Touch either the Magnetic (°) Button or True (°T) Button.

#### Selecting Bearing Display and Changing Sources:

Turn the upper knob to set the Selected Course.

the active waypoint or navigation station.

Changing the Navigation Angle Setting:

From PFW Home, touch the **Bearing 1** Button or the **Bearing 2** Button to change the 1) source with each touch (Off, GPS, NAV1, NAV2, ADF, BEST GLIDE, WPT).

Push the upper knob to re-center the CDI and return the course pointer to the bearing of

Turn the HDG Knob on the AFCS Controller to set the Selected Heading.

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

From MFW Home, touch **Utilities** >**Setup** > **Avionics Settings**.

To remove the bearing pointer and information, touch the **Bearing 1** Button or the 2) Bearing 2 Button followed by the Off Button.

#### Or:

- 1) Press the PFD Settings Softkey.
- Press the **Bearing 1** Softkey or the **Bearing 2** Softkey to change the source with each 2) touch (NAV1, NAV2, GPS, ADF, WPT, and Off).

### COURSE DEVIATION INDICATOR (CDI)

#### **Changing Navigation Sources:**

From PFW Home, touch the Nav Source Button to select GPS, VOR1/VOR2, or LOC1/ LOC2.

Or:

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

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3) Press the HSI Map Softkey. Adjusting the Selected Heading:

Adjusting the Selected Course:

Press the **PFD Map Settings** Softkey.

Press the Map Layout Softkey.



#### **REQUIRED NAVIGATION PERFORMANCE AND ESTIMATED POSITION ERROR**

#### Setting the RNP Manually:

- 1) From MFW Home, touch Utilities > FMS Sensors > RNP/EPE Tab.
- 2) Touch the RNP/EPE Button.
- 3) Enter the new RNP setting using the keypad or large/small data entry knobs.
- **4)** Touch the **Enter** Button or push the upper right knob. The new setting is now displayed on the HSI and on the RNP Button with a pencil icon to indicate it has been manually entered.

#### **Canceling Manual RNP Setting:**

- 1) From MFW Home, touch Utilities > FMS Sensors.
- 2) Touch the RNP/EPE Tab.
- 3) Touch the RNP Button.
- 4) Touch the Restore Default Button. The system now automatically sets the RNP.

#### Enabling/Disabling OBS Mode While Navigating a GPS Flight Plan:

- 1) From PFW Home, touch the **OBS** Button to select OBS Mode.
- **2)** Turn the upper knob to select the desired course to/from the waypoint. Push the upper Knob to synchronize the Selected Course with the bearing to the next waypoint.
- Touch the OBS Button again to return to automatic waypoint sequencing.
  Or:
- 1) Press the OBS Softkey to select OBS Mode
- **2)** Turn the upper knob to select the desired course to/from the waypoint. Push the upper 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.

#### **ANGLE OF ATTACK (AOA) INDICATOR**

#### Selecting the AOA Indicator Display Mode:

- 1) From PFW Home, touch the **PFD Settings** Button.
- 2) Touch the AOA Button.
- Touch the On, Off, or Auto Button.
  Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the Other PFD Settings Softkey.
- 3) Press the AOA Softkey to cycle through the different modes (On, Off, or Auto).



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### GARMIN SVT™ (SYNTHETIC VISION TECHNOLOGY)

### SVT OPERATION

#### Enabling/Disabling SVT Modes:

- 1) From PFW Home, touch PFD Settings > Synthetic Vision.
- Touch the Auto, Flight, or Off Button.
  Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the SVT Mode Softkey.
  - 3) Press the Auto, Flight, or Off Softkey.

#### Enabling/Disabling SVT Settings (SVT must be enabled):

- 1) From PFW Home, touch the PFD Settings > Settings.
- Touch the Pathways, Runway Locator, Airport Signs, or Wire Buttons.
  Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the SVT Settings Softkey.
- 3) Press the Pathways, Runway Locator, Airport Signs, or Wire Softkeys.

#### Enabling/Disabling SVT Horizon Heading (SVT must be enabled):

- From PFW Home, touch PFD Settings > Horizon Heading. Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the Attitude Instruments Softkey.
- 3) Press the Horizon Heading Softkey.

#### Operation Operation

#### Enabling or Disabling the Field of View Indication:

- 1) From MFW Home, touch Map Selection > Map Settings.
- 2) Touch the **Other** Tab.
- 3) Scroll and touch the Field of View Button to enable/disable field of view display.

### SUPPLEMENTAL FLIGHT DATA

### WIND DATA

#### **Displaying Wind Data:**

1) From PFW Home, touch PFD Settings > Wind.

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- Touch the Option 1 Button to display direction arrows with headwind and crosswind components or touch the Option 2 Button to display wind direction arrow and speed.
  Or:
- 1) Press the PFD Settings Softkey.
- 2) Press the Other PFD Settings Softkey.
- 3) Press the Wind Softkey.
- 4) Press desired wind option softkey ( → DEG KT, ↑→ KT, or Off) to change how wind data is displayed.

#### **TIMER**

#### Setting the Timer:

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- 1) From PFW Home, touch the **Timers** Button.
- 2) Touch an existing timer button or Add Timer Button.
- **3)** Input the desired time using the numeric keypad, then touch the **Enter** Button or push the upper knob.
- 4) Touch the **Up** or **Down** Button.
- To start timer, touch the Start Button. When the timer is active, 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

#### MINIMUM ALTITUDE ALERTING

#### Setting the Minimum Descent Altitude/Decision Height (MDA/DH) Bug:

From PFW Home, touch Minimums.
 Or:

From MFW Home, touch **Utilities > Minimums**.

- 2) On the Minimums Screen, touch the **Minimums** Button.
- To set the MDA/DH bug, touch the Baro, or Temp Comp Buttons. To disable Minimums, touch the Off Button.
- 4) If Temp Comp was selected, and the destination temperature was not entered previously, the Destination Temp Screen appears. Enter the destination temperature using the keypad or large and small knobs, then touch the Enter Button or push the small upper knob. If the temperature is negative, touch the ± Button if necessary in order to place a minus sign in front of the temperature datafield.
- **5)** Enter the MDA/DH altitude using the keypad or the large/small upper knob. When finished, touch the **Enter** Button or push the small upper knob.

#### **Flight Instruments**



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### **ENGINE AND AIRFRAME SYSTEMS**

### ENGINE/AIRFRAME SYSTEMS INDICATIONS

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#### **Engine & Airframe Systems**

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Flap position is normally displayed using a rotating pointer and the flap



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- 16 Ice Protection Displays total remaining Ice Protection Fluid in Gallons. Fluid
  - Displays the field elevation for the selected destination airfield.
- AIRCRAFT SYSTEMS

(17) Destination

Elevation

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Synoptics diagrams show current conditions of certain aircraft functionalities on aviation system diagrams. Lines and components shown in the diagrams change color to indicate various conditions such as flow, normal, automatic, manual, advisory, caution, or warning. Refer to the specific synoptic sections for more information. Aircraft systems depicted in the synoptic diagrams include:

- Ice Protection (if equipped)
- Electrical
- Engine & Fuel

- Status & Information
- Video (if equipped)



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#### **STATUS & INFO**

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The 'Status & Info' Synoptics Page shows temperatures, aircraft information, landing information, hours, parking brake status, and door status. The Takeoff/Performance data block will change based on the aircraft status. Takeoff performance is shown when the aircraft is on the ground, landing performance is shown when the aircraft is in the air.



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## ENGINE & FUEL

The 'Engine & Fuel' Synoptic Page uses a simplified diagram of the aircraft's fuel system to display the system status. The fuel quantity and temperature displays repeat the displays from the EIS. When the fuel system is operating normally, all objects and lines are shown in green, blue or white on the system diagram. Lines between objects represent fuel lines. Green lines indicate there is flow. White lines indicate there is no flow. Blue lines represent flow with manual selection. Amber objects, text/background, or lines indicates an abnormal or caution state. Red objects or text/background indicate a warning state. Fuel tanks will show a green border when selected, a white border when unselected, a cyan border when manually selected, and an amber border when a caution state is detected. Fuel level will show green when normal, amber in caution state, and red in warning state.



#### Accessing the Engine & Fuel Synoptics:

From MFW Home, touch Aircraft Systems > Engine & Fuel.

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#### SR20 CHT/EGT

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The 'Electrical Synoptic' Page uses a simplified diagram of the aircraft's electrical system to display the system status. When the electrical system is operating normally, all objects and lines are shown in green or white on the system diagram. Lines between objects represent electrical connections. Green lines indicate there is current flow. White lines indicate there is no current flow. Objects in green are active. Objects in white are inactive. Amber objects, text/ background, or lines indicates an abnormal or caution state. Red objects or text/background indicates a warning state.

#### Accessing the Electrical Synoptics:

From MFW Home, touch Aircraft Systems > Electrical Power.

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## **Engine & Airframe Systems**



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#### ICE PROTECTION

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If the Ice Protection System is equipped, the 'Ice Protection' Synoptic Page uses a simplified diagram of the aircraft's ice protection system to display the system status. Lines between objects indicate connections to the Ice Protection System. Green lines indicate flow. White lines indicate there is no flow. Objects in green are active. Cyan objects are manually selected. Objects in white are inactive. Amber objects, text/background, or lines indicates an abnormal or caution state. Red objects, lines, or text/background indicates a warning state. IP Valve status will read in white if off, green if auto-selected, cyan if manually selected, or black on an amber background if in an abnormal status.

#### Accessing the Ice Protection Synoptics:

#### From MFW Home, touch Aircraft Systems > Ice Protection.



#### **Ice Protection Synoptics**

#### **SYSTEM TESTS**



**NOTE:** Information on system tests is superseded by the current version of the pertinent flight manual.

Pilot initiated systems tests are located on the 'System Test' Screen. These tests are ADS-B and TAWS.

#### Accessing the System Tests:

- 1) From MFW Home, touch Aircraft Systems > System Tests.
- 2) Touch the desired system test.

System Test	Description
ADS-B	Tests the Automatic Dependent Surveillance - Broadcast System (ADS-B).
TAWS	Tests the Terrain Awareness and Warning System (TAWS).

#### System Tests

#### LEAN ASSIST MODE



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**NOTE:** The pilot should follow the engine manufacturer's recommended leaning procedures in the current version of the pertinent flight manual.

A leaning assist function is available on the 'Engine & Fuel' Page to assist in the leaning process.

#### Accessing Lean Assist Mode:

- 1) From MFW Home, touch Aircraft Systems.
- Touch the Engine & Fuel Button. The Lean Assist Button will now appear on the Aircraft Systems Screen.
- 3) Touch the Lean Assist Button.

When the **Lean Assist** Button is touched, the system initially highlights the number and places a cyan box around the EGT display of the cylinder with the hottest EGT. The  $\Delta$  Peak temperature is the difference between the peak temperature and the present temperature for the peaked cylinder. When the first peak is detected, "1st" is annunciated below that cylinder's EGT bar and the temperature is enclosed in a cyan box.

The system continues to detect peak EGT's for each cylinder lean of peak as the fuel flow is decreased, and the peak of each cylinder's EGT is indicated by a cyan marker on the graph. Once all cylinders are lean of peak, the last cylinder to peak is denoted by the "Last" annunciation below its bar on the graph.

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## **REVERSIONARY MODE**

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



EIS (Reversionary Mode)

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## AUDIO AND CNS

#### **COM OPERATION**

#### **COM TRANSCEIVER SELECTION AND ACTIVATION**

#### Selecting a COM Radio for transmission:

From NAV/COM Home, touch the **MIC** Button to switch between COM1 and COM2 radios.

#### Or:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the COM1 or COM2 MIC Button.

#### Selecting a COM Radio for monitoring:

From NAV/COM Home, touch the MON Button to monitor the desired COM.

Or:

- 1) From NAV/COM Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
- 2) Touch the COM1 Button or COM2 Button.

#### **COM FREQUENCY TUNING**

#### Selecting a COM1 or COM2 frequency from the 'NAV/COM Home' Screen:

- 1) Touch the COM1 STBY Button or COM2 STBY Button to select for tuning.
- 2) Use the keypad to select the frequency.
- **3)** Touch the **Enter** Button to accept the new frequency as the COM1 or COM2 standby frequency (not required if tuning with the upper knobs).
- **4)** Touch the **XFER** Button to accept the new frequency as the COM1 or COM2 active frequency and transfer the previously active frequency to the standby frequency:

#### COM frequency tuning from the 'Audio & Radios' Screen using the COM Frequency Buttons:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the COM1, or COM2 Frequency Button to display the COM1 or COM2 keypad.
- **3)** Use the keypad to select the frequency.
- 4) Touch the Enter Button to accept the new frequency as the standby frequency:

#### COM frequency tuning from the 'Audio & Radios' Screen using the COM Volume Slider Buttons:

- 1) From NAV/COM Home, touch the **Audio & Radios** Button to display the 'Audio & Radios' Screen.
- 2) Touch the COM1 or COM2 Volume Slider Button to select that radio for tuning.



- **3)** Turn the large and small upper knobs to select the frequency (Large knob increases/ decreases MHz; Small knob increases/decreases kHz).
- **4)** If desired, push and hold the small upper knob to accept the new frequency as the active frequency and transfer the previously active frequency to the standby frequency.

#### Transferring the active and standby COM frequencies:

From NAV/COM Home, touch the **COM1** Button or **COM2** Button to transfer the standby and active frequencies.

#### Or:

- **1)** From NAV/COM Home, push the small upper knob to select the standby COM desired for transfer (selected standby frequency is cyan).
- **2)** Push and hold the small upper knob to transfer the standby frequency to the active frequency.

#### Or:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the COM1 or COM2 Volume Slider Button to select the radio for frequency transfer.
- 3) Push and hold the small upper knob to transfer the frequencies.

#### Selecting the Sync to Pilot Button:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the **Copilot** Tab or **Pass** Tab.
- **3)** Touch the **Sync to Pilot** Button. 'Audio & Radios' Screen Buttons are not available to the copilot or passengers when **Sync to Pilot** Button is enabled.

#### Finding and selecting a COM frequency using the Find Button:

- 1) From NAV/COM Home, touch the **Find** Button to display the 'Find COM Frequency' Screen.
- **2)** Touch the tab for the desired type of frequency (Recent, Nearest, Dest, Flight Plan, or Favorite).
- **3)** Scroll the list to find the desired frequency.
- **4)** Touch the Frequency Button to accept the new frequency as the COM1 or COM2 standby frequency.

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

- From MFW Home, touch Waypoint Info > Airport to display the 'Airport Information' Screen.
- 2) If needed, touch the airport button to enter or find the desired airport.
- 3) Touch the Freqs Tab to display the 'Airport Frequencies' Screen.

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6) Scroll the list to find the desired frequency.

Scroll the list to find the desired frequency.

Scroll the list to find the desired airport.

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4)

5)

6)

1)

2)

3)

4)

5)

Touch the Frequency Button to display the 'Load Frequency' Screen. 7)

Touch the **Freqs** Tab to display the 'Airport Frequencies' Screen.

Touch the **Frequency** Button to display the 'Load Frequency' Screen.

Touch the location button to load the frequency into COM1 or COM2 Active, Standby, or

Finding and selecting a COM1 or COM2 frequency from the 'Nearest Airport' Screen:

Touch the desired **Airport** Button to display the 'Waypoint Options' Window.

Touch the Airport Info Button to display the 'Airport Information' Screen.

From MFW Home, touch **Nearest > Airport** to display the 'Nearest Airport' Screen.

8) Touch the location button to load the frequency into COM1 or COM2 Active, Standby, or Favorites.

#### Finding and selecting a COM1 or COM2 frequency from the 'Nearest' Screen:

- 1) From MFW Home, touch the **Nearest** > (Airspace or ARTCC or FSS or Weather) to display the Nearest (Airspace or ARTCC or FSS or Weather) Screen.
- Scroll the list to find the desired frequency. 2)
- Touch the Frequency Button to display the 'Load Frequency' Screen. 3)
- 4) Touch the location button to load the frequency into COM1 or COM2 Active, Standby, or Favorites.

#### Adding a COM frequency to favorites:

- From NAV/COM Home, touch the Find Button. 1)
- 2) Touch the **Favorite** Tab.
- 3) Touch the **Add Favorite Frequency** Button to display the 'Add User Frequency' Screen.
- 4) Touch the Name Button.
- 5) Enter the desired frequency name.
- Touch the **Enter** Button. 6)
- 7) Touch the **Frequency** Button.
- Use the keypad to select the frequency. 8)
- Touch the **Enter** Button. 9)
- 10) Touch the Add Favorite Button.

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

From any 'Load Frequency' Screen, touch the **Add to Favorites** Button. 1)

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- GARMIN.
- 2) Touch the Name Button to change the name if desired.
- 3) Touch the Add to Favorite Button.

#### Selecting a COM frequency from favorites:

- 1) From NAV/COM Home, touch the Find Button.
- 2) Touch the Favorite Tab.
- 3) Touch the desired Frequency Button.
- 4) Touch the Enter Button to accept the new frequency as the standby frequency.

#### Removing a COM frequency from Favorites:

- 1) From NAV/COM Home, touch the **Find** Button.
- 2) Touch the Favorite Tab.
- 3) Touch the X Button next to the frequency to be deleted.
- **4)** Touch the **OK** Button to confirm.

#### Changing COM frequency channel spacing:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings.
- 2) Touch the System Tab.
- 3) Touch the COM Channel Spacing Button.
- 4) Select desired spacing (8.33 kHz or 25.0 kHz).

## NAV OPERATION

#### Selecting/deselecting a navigation radio for monitoring:

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

## Tuning a NAV frequency from the 'Audio & Radios' Screen:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the NAV1 or NAV2 Frequency Button to display the NAV1 or NAV2 Standby Screen.
- 3) Use the keypad to select the desired frequency.
- **4)** Touch the **Enter** Button to accept the new frequency as the NAV1 or NAV2 standby frequency:

#### Transferring the active and standby NAV frequencies:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the NAV1/NAV2 Frequency Button to display the NAV1/NAV2 Standby Screen.
- **3)** Touch the **XFER** Button or push and hold the small upper knob to transfer the frequencies.

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#### **GARMIN** Adding a NAV frequency to favorites: From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' 1) Screen. Touch the NAV1/NAV2 Frequency Button. 2) Touch the Find Button. 3) 4) Touch the Favorite Tab. Touch the Add Favorite Frequency Button. 5) Touch the **Name** Button. 6) Enter the desired frequency name. 7)

- Touch the **ENTER** Button or push the small upper knob. 8)
- Touch the **Frequency** Button. 9)
- **10)** Use the keypad to select the frequency.
- **11)** Touch the **ENTER** Button or push the small upper knob.
- 12) Touch the Add Favorite Button.

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

- 1) From any 'Load Frequency' Screen, 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 NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen
- Touch the NAV1/NAV2 Frequency Button. 2)
- 3) Touch the **Find** Button.
- Touch the **Favorite** Tab. 4)
- Touch the desired Frequency Button. 5)
- Touch the **Enter** Button to accept the new frequency as the standby frequency. 6)

#### Removing a frequency from favorites:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' 1) Screen.
- Touch the NAV1/NAV2 Frequency Button. 2)
- Touch the **Find** Button. 3)
- 4) Touch the Favorite Tab.
- Touch the **X** Button next to the frequency to be deleted. 5)
- 6) Touch the **OK** Button to confirm.

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

- From MFW 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 navigation frequency.
- 5) Touch the Frequency Button to display the 'Load Frequency' Screen.
- **6)** Touch the location button to load the frequency to NAV1 or NAV2 Active/Standby or Favorites.
- 7) Touch the **Done** Button or the **Back** Button to return to the 'Airport Frequencies' Screen.

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

- 1) From MFW Home, touch **Waypoint Info** > **VOR** to display the 'VOR Information' Screen.
- 2) If needed, touch the VOR button to enter/find the desired VOR.
- **3)** Touch the Frequency Button to display the 'Load Frequency' Screen.
- **4)** Touch the location button to load the frequency to NAV1 or NAV2 Active/Standby or Favorites.
- 5) Touch the **Done** Button or the **Back** Button to return to the 'VOR Information' Screen.

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

- 1) From MFW Home, touch **Nearest > Airport** to display the 'Nearest Airport' Screen.
- 2) Touch the desired airport button to display the 'Waypoint Options' Window.
- 3) Touch the Airport Info Button to display the 'Airport Information' Screen.
- 4) Touch the Freqs Tab to display the 'Airport Frequencies' Screen.
- **5)** Scroll the list to find the desired frequency.
- 6) Touch the Frequency Button to display the 'Load Frequency' Screen.
- **7)** Touch the location button to load the frequency to NAV1 or NAV2 Active/Standby or Favorites.
- 8) Touch the **Done** Button or the **Back** Button to return to the 'Airport Frequencies' Screen.

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

- **1)** From MFW Home, touch **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 location button to load the frequency to NAV1 or NAV2 Active/Standby or Favorites.
- 5) Touch the **Done** Button or the **Back** Button to return to the 'Nearest VOR' Screen.

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## Selecting a DME mode:

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- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Scroll the list to find the **DME** Button.
- **3)** Touch the DME Mode Control Button to display the 'DME' 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 TRANSPONDERS**

#### Selecting transponder mode:

- **1)** From NAV/COM Home, touch the Transponder Code/Mode Button to display the 'Transponder' Screen.
- 2) Touch desired Mode Selection Button to activate the desired transponder mode.

#### Entering a transponder code with the keypad:

- 1) From NAV/COM Home, touch the Transponder Code/Mode Button.
- 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) From NAV/COM Home, touch the Transponder Code/Mode Button.
- **2)** Turn the large upper knob one click in any direction to select the first digit of the existing code.
- 3) Turn the small upper knob to enter the desired first digit.
- 4) Turn the large upper knob clockwise to move the cursor to the next digit.
- 5) Turn the small upper knob to enter the next digit and repeat steps 4 and 5 until complete.
- 6) Touch the Enter Button or push the small upper knob to enter the new code. Touching the Cancel Button before code entry is complete cancels code entry and restores the previous code.

#### Entering the VFR code with the VFR Button:

- 1) From NAV/COM Home, touch the Transponder Code/Mode Button.
- 2) Touch the VFR Button.
- 3) Touch the Enter Button or push the small upper knob to enter the new code. Pressing the Cancel Button before code entry is complete cancels code entry and restores the previous code.

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Enabling/Disabling Intercom Connections:

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- **1)** From NAV/COM Home, touch the **Intercom** Button.
- 2) Touch link arrow to enable connection between positions. Arrow turns green.
- 3) Touch link arrow to disable connection between positions. Arrow turns gray.

#### Adjusting the intercom volume:

- 1) From NAV/COM Home, touch the Intercom Button.
- 2) Touch the Pilot, Copilot, or Pass Volume Button to display the Intercom Settings Screen.
- **3)** Adjust the volume by using the lower knob.

#### Adjusting intercom squelch:

- 1) From NAV/COM Home, touch the Intercom Button.
- 2) Touch the **Pilot**, **Copilot**, or **Pass Volume** Buttons to display the Intercom Settings Screen.
- 3) Touch the Squelch Auto Button to disable automatic squelch.
- 4) Adjust squelch manually using the lower knob.

#### Enabling/Disabling 3D Audio:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings.
- 2) Touch the Audio Tab.
- 3) Touch the Pilot 3D Audio Button or Copilot 3D Audio Button.

## Enabling/Disabling Left-Right Swap:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings.
- 2) Touch the Audio Tab.
- 3) Touch the Pilot L-R Swap Button or Copilot L-R Swap Button.

## Selecting/deselecting the Auxiliary Audio input:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the Pilot, Copilot or Pass Tab.
- **3)** Scroll the list to find the **Music** Button.
- 4) Touch the Music Button to select/deselect audio input.

## Configuring SiriusXM audio Mute Settings:

- 1) From NAV/COM Home, touch the **Pilot Music 1** Button to display the 'Music' Screen.
- 2) Touch the Volume Button to display the 'Music Volume' Screen.
- 3) Touch the Mute Settings Button to display the 'Music Mute Settings' Screen.
- **4)** Select the **Intercom**, **Radio Inputs**, and/or **Aural Alerts** Buttons to enable/disable mute SiriusXM audio.

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#### Configuring Auxiliary Audio Mute Settings:

- 1) From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the Pilot, Copilot or Pass Tab.
- **3)** Scroll the list to find the **Music Button**.
- 4) Touch the **Mute Settings** Button to display the 'Music Mute Settings' Screen.
- **5)** Select the **Intercom**, **Radio Inputs**, and/or **Aural Alerts** Buttons to enable/disable mute auxiliary audio.

#### Configuring audio feedback:

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- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the Pilot or Copilot Tab.
- **3)** Scroll the list to find the **Clicks Button**.
- 4) Touch the **Clicks** Button to display the 'Audio Feedback Settings' Screen.
- **5)** Touch the desired audio feedback setting.

#### Selecting a paired device as an audio source:

- From NAV/COM Home, touch the Audio & Radios Button to display the 'Audio & Radios' Screen.
- 2) Touch the Pilot, Copilot, or Pass Tab.
- **3)** Scroll the list to find the paired device.
- 4) Touch the paired device button to enable/disable connected device audio.
- 5) Touch the Music Button (pilot/copilot tab) or Music 1 Button (passenger tab) to enable/disable SiriusXM or other music source audio.
- 6) Adjust volume using the slider bar.
- **7)** Adjust mute settings by touching the **Mute Settings** Button and selecting desired options.





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## FLIGHT MANAGEMENT

### NAVIGATION DATA

#### Changing a field in the MFW Navigation Data Bar:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings.
- 2) Touch the MFD Fields Tab.
- 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 MFW Home, touch Map.
- 2) Touch the Map Selection Button, if necessary. This button is only available if IFR/VFR charts are installed.
- Touch the Map Settings Button. The 'Map Settings' Screen is displayed.
  Or:
- 1) From MFW 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 MFW Home, touch Map > Map Selection > Map Settings > Map Sync.
- 2) Touch the **Onside** Button or the **All** Button.
- **3)** Touch the button for the desired setting.

#### Or:

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

#### MAP ORIENTATION

#### Changing the map display orientation:

- 1) From MFW 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.



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

- 1) From MFW 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

#### Configuring automatic zoom:

- 1) From MFW 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' Window.
- 5) Touch the Auto Zoom Max Look Fwd Button to display the numeric keyboard.
- 6) Use the keypad and touch the **Enter** Button 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.

## MAP PANNING

#### Panning the map:

- **1)** Push the lower knob to display the Map Pointer.
- 2) Turn the upper knobs on the Touchscreen Controller, 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 either knob 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:

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Push either knob to exit the waypoint information screen, 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.

Or:

**GARMIN** 

Place the Map Pointer over multiple map items.

Touch the **Prev** or **Next** Button to cycle to the desired map item.

Or:

- a) Touch the Map Item Button to open the 'Map Item Selection' Screen.
- **b)** Touch the desired map item.
- 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 either knob 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 lower knob. (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 **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 either knob, or touch the **Back** Button.

#### Measuring bearing and distance between any two points:

- **1)** Push the lower knob. (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 **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 **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 either knob, or touch the **Back** Button.

## ABSOLUTE TERRAIN

#### Displaying/removing absolute terrain data:

- 1) From MFW 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 PFW Map:

- 1) From PFW Home, touch PFD Map Settings.
- 2) Touch the Terrain Button to display the 'Inset Map Terrain Displayed' Window.
- 3) Display or remove absolute terrain data:

Touch the **Absolute** Button to display absolute terrain data on the PFW Map. **Or**:

Touch the **Off** Button to remove absolute terrain data from the PFW Map.

#### Or:

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

Press the **Terrain** Softkey until 'Absolute' is shown to display absolute terrain data on the PFW Map.

#### Or:

Press the **Terrain** Softkey until 'Off' is shown to remove absolute terrain data from the PFW Map.

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#### Selecting an absolute terrain data range:

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- 1) From MFW 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 MFW 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.

## MAP SYMBOLS

#### Displaying/removing a land or aviation symbol type:

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

#### Selecting an Aviation or Land item maximum range:

- 1) From MFW 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.

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#### Displaying/removing the VOR compass rose:

- 1) From MFW 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.

## Adjusting the map detail:

- 1) From MFW 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 PFW Map Detail:

- 1) From PFW Home, touch PFD Map Settings > Map Detail.
- Slide up or down on the Map Detail Slider to adjust the PFW Map detail.
  Or:
- 1) Press the PFD Map Settings Softkey on the PFW.
- 2) Press the Detail Softkey, as required, to cycle to the desired PFW Map detail.

## ADDITIONAL MAP DISPLAY ITEMS

## Displaying/removing other map items:

- 1) From MFW 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.

## Selecting track vector look-ahead time:

- 1) From MFW 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.

## Selecting fuel reserves time:

- 1) From MFW 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 and touch the **Enter** Button to enter the fuel reserves time.

## Selecting the lat/lon line maximum range:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- **2)** Touch the **Other** Tab, if necessary.

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- **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 MFW 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.

#### Viewing information for a nearest airport:

- 1) From MFW 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 MFW 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 MFW 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.

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## NON-AIRPORT AND USER CREATED WAYPOINTS

#### Selecting a non-airport waypoint or User Waypoint:

- 1) From MFW 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 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:

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- a) For choosing a User Waypoint, touch the WPT List Tab.
- **b)** Touch the desired User 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 MFW 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 MFW 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.



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- **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.

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

- 1) From MFW 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.

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

- 1) From MFW 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.
- 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.

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- 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 the previous steps 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 gray, 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 lower knob to activate the panning function and display the 'Map Pointer Control' Screen on the Touchscreen Controller.
- 2) Use 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.

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- GARMIN.
- 5) Use the keypad and the Enter Button to select a user waypoint name.
- 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 MFW 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?".
- **9)** If the user waypoint is part of an existing flight plan, a second pop up window is displayed. Touch the **OK** Button in response to the question "User waypoint is part of at least one flight plan. Any modifications affect the associated flight plan(s).".

#### Editing a user waypoint name:

- 1) From MFW 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.
- 7) Touch the **Save** Button to accept the new name.

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- **8)** Touch the **OK** Button in response to the question "Are you sure you want to modify this waypoint?".
- **9)** If the user waypoint is part of an existing flight plan, a second pop up window is displayed. Touch the **OK** Button in response to the question "User waypoint is part of at least one flight plan. Any modifications affect the associated flight plan(s)."

#### Editing a user waypoint type, mode, elevation, and location:

- 1) From MFW 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 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?".
- **10)** If the user waypoint is part of an existing flight plan, a second pop up window is displayed. Touch the **OK** Button in response to the question "User waypoint is part of at least one flight plan. Any modifications affect the associated flight plan(s)."

Deleting a single user waypoint:

Touch the **Delete** Button.

waypoint <waypoint>?". Deleting all user waypoints:

Waypoint Selection Button.

Touch the **Delete All** Button.



1)

2) 3)

1)

2)

3)

4)

5)

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#### waypoints?". Importing user waypoints:

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

From MFW Home, touch **Waypoint Info** > **User Waypoint**.

From MFW Home, touch **Waypoint Info** > **User Waypoint**.

Touch the **Waypoint Options** Button to display the 'Waypoint Options' Window.

4) Touch the OK Button in response to the question "Would you like to delete the user

If needed, touch the **WPT List** Tab to display the list of user waypoints, and touch any

Touch the Waypoint Options Button to display the 'Waypoint Options' Window.

Touch the **OK** Button in response to the question "Would you like to delete all user

- 2) Touch the **Waypoint Options** Button.
- 3) Touch the **Import** Button.
- 4) Touch the **OK** Button.

#### Exporting user waypoints:

- From MFW Home, touch **Waypoint Info** > **User Waypoint**. 1)
- Touch the WPT List Tab to display the list of user waypoints. 2)
- Scroll the list, if needed, and touch a User Waypoint Button Information for the selected 3) waypoint is displayed.
- Touch the **Waypoint Options Button**. 4)
- Touch the **Export** Button. 5)
- 6) Touch the **OK** Button in response to the question, 'Would you like to export user waypoints?'.

## AIRSPACES

## NEAREST AIRSPACE

#### Setting the altitude buffer distance:

- From MFW Home, touch Utilities > Setup > Avionics Settings > Alerts Tab. 1)
- Scroll as required, and touch the Airspace Alert Altitude Buffer (displays current selection 2) in cyan).
- Enter the desired altitude buffer value and touch the **Enter** Button. 3)

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#### Enabling/disabling an airspace alert:

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- From MFW Home, touch **Utilities > Setup > Avionics Settings > Alerts Tab**. 1)
- 2) Touch the Airspace Alerts **Settings** Button.
- 3) 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, gray when disabled.

#### **Viewing Nearest Airspace Information**

#### Viewing information for the Nearest Airspace:

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

## SMART AIRSPACE

#### Enabling/disabling the Smart Airspace function:

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

## FLIGHT PLANNING

## FLIGHT PLAN DATA FIELDS

#### Changing a field in the Active or Flight Plan Screen:

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

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

- 2) Touch the **Edit Data Fields** Button to display the 'Flight Plan Data Fields' Screen.
- 3) Touch the **Data Field 1** Button or the **Data Field 2** Button to display the 'Select Field Type' Screen.
- Scroll the list if necessary and touch a data field type button to select the field type and 4) return to the 'Flight Plan Data Fields' Screen.
- 5) Touch the other data field button to choose another data field type, if necessary.

## FLIGHT PLAN DISPLAY

## Displaying/removing the flight plan preview:

to display the 'Flight Plan Catalog' Screen.

d) Touch the Flight Plan Options Button.

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

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

a) From MFW Home, touch Flight Plan > Flight Plan Options > Flight Plan Catalog

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

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

2) Touch the Preview FPL Button. A preview of the flight plan is shown on the active

**b)** Scroll as needed, and touch the selection button corresponding to the desired

Touch the Preview FPL Button again or return to the 'MFW Home' Screen to disable the

Touch the **Flight Plan Text** Button to display/remove the active flight plan text on the

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

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

**Preview FPL** Button and remove the preview from the display.

From MFW Home, touch **Map** > **Map** Selection > Map Settings.

## Or:

For the stored flight plan:

Options' Window.

**3)** To view a flight plan segment:

a) Touch the Back Button.

segment of the flight plan.

Displaying/removing the Flight Plan Text Inset:

display pane.



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- From MFW Home, touch Map > Map Selection > Map Settings.

Displaying/removing the Flight Plan Progress Inset:

Touch the Inset Window Tab.

'Navigation Map' Pane.

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

Flight Plan Text Button.

- Touch the Flight Plan Progress Button to display/remove the flight plan progress inset. 3)
  - Cockpit Reference Guide for the Cirrus SR2x with Perspective Touch+ by Garmin 190-02954-01 Rev. A

## Viewing Flight Plan Legs for the active flight plan:

 From MFW Home, touch Flight Plan Information > Flight Plan Legs. Or:

#### From MFW Home, touch Flight Plan > Flight Plan Options > Display FPL Legs.

- 2) Push either knob to activate the scrolling function on the 'Active Flight Plan' Pane.
- **3)** Turn the upper **knobs** to scroll the 'Active Flight Plan' Pane.
- **4)** Touch the **Display FPL Legs** Button again (if previously used) to remove the 'Active Flight Plan' Pane from the display.

#### Viewing historical flight plan data:

- 1) From MFW Home, touch Flight Plan Information > Flight Plan History.
- 2) Push either knob to activate the scrolling function.
- 3) Turn the upper knobs to scroll the 'Flight Plan History' Pane.

#### Deleting flight plan history:

- 1) From MFW Home, touch Flight Plan Information > Flight Plan History > Delete Flight Plan History.
- Touch the OK Button in response to the question, 'Clear current waypoints from the flight plan history?'.

## **DIRECT-TO NAVIGATION**

## Selecting a nearby airport as a direct-to destination:

- 1) From MFW 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 → 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 →** 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 → <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.

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- 3) Touch the → 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 →** 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 → <a href="https://www.waypoint-selfore?">www.waypoint-selfore?</a> (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 identifier, facility, or city name:

- **1)** From MFW Home, touch  $\rightarrow$  on the Button Bar.
- **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 → <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.

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

## Or:

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- 1) From MFW Home, touch Flight Plan.
- 2) Touch the → Button to display the 'Direct To' Screen with the active flight plan waypoint selected the direct-to destination.
- 3) Touch the Activate -D+ Button to activate the direct-to.

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

- 1) Push the lower knob to display the pointer.
- 2) Place the map pointer at the desired destination location.
- If the pointer is placed on a waypoint, the waypoint ID is highlighted, and the -D+ Button is activated.

#### Or:

If the pointer is placed over multiple map items.

Touch the Prev or Next Button to cycle to the desired waypoint.

## Or:

- a) Touch the Map Item Button to open the 'Map Item Selection' Screen.
- **b)** Touch the desired waypoint.
- **4)** Touch the **→** 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 →** 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.

## Removing a Direct To:

- 1) From MFW Home, touch → on the Button Bar.
- 2) Touch the **Remove** → Button.
- 3) Touch the OK Button in response to the question "Remove → <waypoint>".

## Selecting a manual direct-to course:

- **1)** From MFW Home, touch  $\rightarrow$  on the Button Bar.
- 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) Touch the Course or Radial Button.

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- **4)** Use the keypad to select the desired course to the waypoint or the radial from the waypoint.
- 5) Touch the Enter Button to accept the course, and return to the 'Direct To' Screen.
- 6) Touch the Activate → Button to activate the direct-to using the manually selected course.

#### Reselecting the direct course from the current position:

- 1) From MFW Home, touch → on the Button Bar.
- 2) Touch the Activate -D+ Button to activate the direct-to using the direct course.

#### Inserting abeam crossing waypoints within a direct-to course:

- 1) Choose the flight plan waypoint as the direct-to destination:
  - a) From MFW Home, touch  $\rightarrow$  on the Button Bar.
  - **b)** Touch the **Flight Plan** Tab.

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- c) Scroll as required and 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.
   Or:
- a) From MFW Home, touch Flight Plan.
- **b)** Touch a Waypoint Selection Button to display the 'Waypoint Options' Window.
- c) Touch the → Button to choose the waypoint as the direct-to destination and display the 'Direct To' Screen.
- 2) Touch the **Insert Abeam Crossing Points** Button to activate the insert abeam crossing waypoints feature.
- **3)** Touch the **Activate →** Button to activate the direct-to.

## FLIGHT PLAN KEYPAD OPERATION

#### Enabling/Disabling the Sliding Flight Plan Keyboard:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings. The System Tab is highlighted.
- 2) Touch the Sliding Flight Plan Keyboard Button to enable/disable.

#### **Route Entry**

Route Entry	Description	2
" <entry wpt="">*<airway>*<exit wpt="">"</exit></airway></entry>		ppenuix
Or:	Basic Airway Segment with a specified exit waypoint.	
"* <airway>*<exit wpt="">"</exit></airway>		Index



ht nents	Route Entry	Description
Flig Instrun	" <entry wpt="">*<airway1>*<airway2>*"</airway2></airway1></entry>	
	Or:	Airway-to-airway transition. Airways must meet at a transition waynoint recognized by the system
AS	"* <airway1>*<airway2>*"</airway2></airway1>	adisition waypoint recognized by the system.
ш	" <wpt1>*<wpt2>"</wpt2></wpt1>	Direct routing (back-to-back waypoint entry)

#### Acceptable Route Entry Patterns

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Audic	Airway to Airway Route Entry	Description
	" <entry wpt="">*<airway>*<exit wpt="">"</exit></airway></entry>	The entry waypoint is specified.
Flight anagement	"* <airway>*<exit wpt="">"</exit></airway>	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

Hazard /oidane	Airway to Airway Route Entry	Description
A	" <entry wpt&gt;*<airway1>*<airway2>*"</airway2></airway1></entry 	The entry waypoint is specified.
AFCS	"* <airway1>*<airway2>*"</airway2></airway1>	The entry waypoint is implied (already in the flight plan) by the insertion point.

#### Airway to Airway Route Entry Descriptions

onal	All way to All way route Entry Descriptions				
ormal Additi ration Featu	Keypad Entry of Route Segment (In Sequential Order)	Flight Plan Action	Characters Displayed in the Route Entry Field After the Flight Plan Action		
lerts Ope	"MCI*J24*WELTS*"	Review and load J24 airway with entry point "MCI" and exit point "WELTS" into flight plan.	WELTS*		
Annun/A	WELTS* " <b>JIGSY</b> *"	WELTS to JIGSY leg added into flight plan.	JIGSY*		
Appendix	JIGSY* " <b>J134*FLM*</b> "	Review and load J134 airway with entry point "JIGSY" and exit point "FLM" into flight plan.	FLM*		
Index	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 Flight Plan Action Order)		Characters Displayed in the Route Entry Field After the Flight Plan Action	
BIGAL* " <b>AML</b> " Enter Key	BIGAL to AML leg added into flight plan. The flight plan is displayed showing all route		EAS
segments that were added.			

#### **Example Sequence of Entries for Flight Plan**

#### Adding User Waypoints and Along Track Offset Waypoints Using Route Entry

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

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 MFW Home, touch Flight Plan.

Or:

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

Or:

For a stored flight plan:

- a) From MFW 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.

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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 upper 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.

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8) Enter the enroute waypoints:

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.
- 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.

## FLIGHT PLAN MODIFICATION AND NAVIGATION

## Waypoints

## Adding a waypoint to a flight plan:

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

Or:

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

For the stored flight plan:

- a) From MFW 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.

Enter waypoints in the flight plan: 2)

> 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 (this step is not available from the 'Edit Stored Flight Plan' Screen).

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

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

- From MFW Home, touch Waypoint Info. 1)
- 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.
- Touch the **Waypoint Options** Button. 4)
- 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.

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

- From MFW Home, touch Nearest. 1)
- 2) Touch the Airport Button, INT Button, VOR Button, NDB Button, VRP Button, or User Button.
- 3) Scroll as necessary and touch the desired waypoint button.
- Touch the Insert in Flight Plan Button. 4)
- 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.

## Adding waypoints using the Map Pointer (Rerouting):

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

## Or:

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

## Or:

For the stored flight plan:

- a) From MFW 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.
- d) Touch the Flight Plan Options Button.
- e) Touch the **Preview FPL** Button to display the stored flight plan map.
- Push the lower knob to the display 'Map Pointer Control' Screen on the Touchscreen 2) Controller, and to activate the Map Pointer.
- 3) Place the map pointer over a waypoint or map location for the next desired waypoint. Or:

Place the map pointer over multiple map items.

Touch the **Prev** or **Next** Button to cycle to the desired waypoint.

Or:

- a) Touch the Map Item Button to open the 'Map Item Selection' Screen..
- **b)** Touch the desired waypoint.
- 4) Touch the Insert In FPL Button. The 'Insert Before Waypoint' Screen is displayed.
- 5) Scroll the list as necessary, and touch the Waypoint Selection Button to select where to insert the new waypoint. The waypoint is inserted before the selected waypoint.

## Or:

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

#### Or:

For airfield waypoints, touch the **Set as Destination** Button if desired. The waypoint is inserted as the flight plan destination.

If a new User Waypoint is inserted, the system will create a User Waypoint using the LAT/ LON Mode. The default name of the new User Waypoint will be 'WPT' followed by the numerals '000'. Future rerouting requiring the creation of new User Waypoints will have similar default names with an incremental numeric value (example: 'WPT001', etc.).

6) Touch the **Done** Button to update the flight plan.

## Or:

Add more waypoints to the planned rerouting:

- a) Touch the **Continue Reroute** Button.
- **b)** Use the **Touchpad** to move the pointer to a waypoint or the map location for the next desired waypoint.
- c) Touch the Reroute Insertion Button to insert into the planned rerouting.
- **d)** Touch the **Load** Button to add the entire rerouting to the flight plan, or repeat Step 6b and 6c.

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

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

#### Or:

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

For the stored flight plan:

- a) From MFW 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.
- Scroll the list if necessary and touch a Waypoint Selection Button to display the 'Waypoint Options' Window. Then, touch the Remove WPT(s) Button.

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

#### Or:

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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.

#### Enabling/disabling a fly over waypoint:

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

#### Or:

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

For the stored flight plan:

- a) From MFW 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.
- Touch a Waypoint Selection Button to display the 'Waypoint Options' Window. 2)
- 3) Touch the **Fly Over Waypoint** Button to enable/disable the waypoint as a fly-over waypoint.

#### Adding a heading after a waypoint in the active flight plan:

- From MFW Home, touch the Flight Plan Button. 1)
- Annun/Alerts 2) Scroll the list as necessary, and touch the desired Waypoint Selection Button. The heading will be inserted after this waypoint.
- 3) Touch the **Insert Heading Leg** Button to display the keypad.
- Use the keypad to enter the heading and touch **Enter**. A 'manseg' heading Waypoint 4) Selection Button will be added to the active flight plan.

## Editing a heading after a waypoint in the active flight plan:

- From MFW Home, touch Flight Plan. 1)
- 2) Scroll the list as necessary, and touch the desired 'manseg' heading Waypoint Selection Button to display the 'Waypoint Options' Window.

- 3) Touch the Edit Heading Leg Button to display the keypad.
- 4) Use the keypad to enter the heading and touch **Enter**.

## Removing a heading from the active flight plan:

- 1) From MFW Home, touch the Flight Plan Button.
- **2)** Scroll the list if necessary and touch the desired 'manseq' heading Waypoint Selection Button to display the 'Waypoint Options' Window.
- 3) Touch the **Remove WPT(s)** Button.
- **4)** Touch the **OK** Button in response to 'Remove <waypoint name>?'. The heading is removed. To cancel the request, touch the **Cancel** Button.

## Creating a fix:

1) From MFW Home:

## Touch Flight Plan > Flight Plan Options > Fix Function.

Or:

- a) Touch the Flight Plan Button.
- **b)** Touch any Waypoint Selection Button to open the 'Waypoint Options' Window.
- c) Touch the Fix Function Button.
- 2) Touch the **Type** Button to open the 'Select Fix Type' Screen.
- 3) Touch the button corresponding to the desired type of fix.
- 4) For an Abeam fix:
  - a) Touch the Reference Button.
  - **b)** Enter the waypoint identifier, and touch the **Enter** Button. The 'Radial' Field will auto-populate.

## Or:

For a Radial fix:

- a) Touch the **Reference** Button, enter the waypoint identifier, and touch the **Enter** Button.
- **b)** Touch the **Radial** Button, enter the radial value, and touch the **Enter** Button.

## Or:

For a Distance fix:

- a) Touch the **Reference** Button, enter the waypoint identifier, and touch the **Enter** Button.
- **b)** Touch the **Distance** Button, enter the distance value, and touch the **Enter** Button.

## Or:

For a LAT/LON fix, touch the LAT/LON Button, to open the 'LAT/LON' Screen:

For a latitude intersecting fix, enter the latitude, and touch the **Enter** Button.

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For a longitude intersecting fix, enter only the longitude, by touching the **E** or **W** Button followed by the full longitude value, and touch the **Enter** Button.

- 5) To show the new fix on the map:
  - a) Touch the Edit Fixes Button.
  - **b)** Scroll as required and touch the new fix button on the 'Fix List' Screen.
  - c) Touch the Show On Map Button to display the fix on the navigation map.
  - d) Touch the **Back** Button twice to return to the 'Create Fix' Screen.
- 6) Touch the **Done** Button to create the fix:
- 7) To create another fix, touch the Create Next Fix Button and repeat steps 2 6.

#### Editing a fix:

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**1)** From MFW Home:

## Touch Flight Plan > Flight Plan Options > Fix Function.

Or:

- a) Touch the Flight Plan Button.
- **b)** Touch any Waypoint Selection Button to open the 'Waypoint Options' Window.
- **c)** Touch the **Fix Function** Button.
- 2) Touch the Edit Fixes Button.
- 3) Touch the desired Fix Button to edit.
- 4) Touch the Edit Button.
- 5) Re-enter the desired changes and touch the **Done** Button.

## Deleting a fix or all fixes:

**1)** From MFW Home:

## Touch Flight Plan > Flight Plan Options > Fix Function.

Or:

- a) Touch the Flight Plan Button.
- **b)** Touch any Waypoint Selection Button to open the 'Waypoint Options' Window.
- c) Touch the Fix Function Button.
- 2) Touch the Edit Fixes Button.
- **3)** Touch the desired Fix Button to delete.
- 4) Touch either the **Delete Fix** or the **Delete All Fixes** Button to delete the selected fix or all fixes, respectively.
- **5)** Touch the **OK** Button to confirm the deletion.

## Adding a waypoint to the active flight plan using fix information:

1) From MFW Home:

Touch Flight Plan > Flight Plan Options > Fix Function.

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#### Or:

- a) Touch the Flight Plan Button.
- b) Touch any Waypoint Selection Button to open the 'Waypoint Options' Window.
- c) Touch the Fix Function Button.
- 2) Touch the Edit Fixes Button.
  - **3)** Touch the desired Fix Button to be added.
  - 4) Touch Edit > Insert Into Flight Plan.
- **5)** 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.

## Airways

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## Adding an individual airway to a flight plan:

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

## Or:

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

## Or:

For the stored flight plan:

- a) From MFW 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 Selection 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.

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## Removing an entire airway from the flight plan:

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

#### Or:

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

For the stored flight plan:

- a) From MFW 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.
- Scroll the list if necessary and touch an Airway Selection Button to display the 'Airway 2) 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.

#### Collapsing/expanding the airways in the flight plan:

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

Or:

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

For the stored flight plan:

- a) From MFW 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.
- Scroll the list if necessary and touch an Airway Selection Button to display the 'Airway 2) Options' Window.
- 3) Touch the corresponding button to collapse/expand an individual airway, or collapse/ expand all airways.
- Touch the **Back** Button to return to the flight plan. 4)

#### Changing Collapsed/Expanded settings for newly loaded airways:

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



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For the standby flight plan: From MFW 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**

5000ft

Cross AT or ABOVE 5.000 ft

2300FT Cross AT 2.300 ft

#### Altitude Constraints within a Flight Plan

KMKC / KCOS       ALT       FPA /DIS         HABUK       10140FT       26.1NM         PROC       FALUR       9000FT       170°         Standby       FIght       9000FT       7.0NM         Standby       CEGIX       8100FT       6.5NM         VNAV       RW35R       900FT       -3.00°         Flight       6600FT       6600FT       0.9NM		Active F	ligh	nt Plan 🛛 🦯		
HABUK       10140FT       26.1NM         PROC       FALUR       9000FT       1.70°         Standby       FIght       9000FT       1.30°         Flight       Plan       8100FT       6.5NM         VNAV       RW35R       3.00°       6.1NM         Flight       6600FT       6600FT       0.9NM         Published Altitude       Not Designated       Not Designated         VNAV       RW35R       0.9NM       Published Altitude         Not Designated       Not Designated       Not Designated         Options       6600FT       0.9NM       Published Altitude		KMKC / KCOS		ALT	FPA /DIS	
PROC       FALUR       9000FT       1.70°         Standby       Flight       7.0NM       AT or ABOVE         Flight       6600FT       6.5NM       Auto Designated Altitude AT or ABOVE         VNAV       RW35R       -3.00°       (Cyan Text with Pencil Icon)         Flight       Plan       6600FT       0.9NM	-₽+	HABUK	•	10 140ft	<u></u> ° 26.1мм	Altitude (White Text)
Standby Flight Plan     CEGIX     8100FT     -1.30°     Auto Designated Altitude AT or ABOVE (Cyan Text)       VNAV     RW35R     -3.00°     (Cyan Text)       Flight Plan     6600FT     600FT     0.9NM	PROC	FALUR	•	9000ft 🖌	<del>-1.70°</del> 7.0nm	<ul> <li>Modified Altitude Constraint AT or ABOVE (Cvan Text with Pencil Icon)</li> </ul>
VNAV     RW35R     -3.00°     (Cyan Text)       Flight Plan Options     6600FT     9NM     Published Altitude Not Designated (White Text with Altitude Destriction Park)	Standby Flight Plan			8100FT	−1.30° 6.5мм	— Auto Designated Altitude AT or ABOVE
Flight Plan Options     6600FT     0.9MM     Not Designated (White Text with Altitude Descriptions	VNAV	RW35R	$\odot$		−3.00° 6.1мм	(Cyan Text)
Unctriction Unit	Flight Plan Options	6600ғт		<u>6600ft</u>	0.9NM	Not Designated (White Text with Altitude

**Altitude Constraint Types** 



Cross AT or BELOW 3,000 ft



Cross BETWEEN 3,000 ft & 5,000 ft



Manual Input of Temperature Compensation

Active Flight Plan – Waypoint Altitude Constraints

Appendix



	White Text	Cyan Text	Flig
	5000ft	5000ft	ght ments
Adv estimat	isory altitudes calculated by the system ting 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.	EAS
Altitud White l	<b>5000FT</b> le retrieved from the navigation database. line above and/or below indicates the type	The system cannot use this altitude in determining vertical guidance because of an invalid constraint	Audio and CNS
of con These are	astraint, as shown in the preceding figure. altitudes are provided as a reference, and e not designated for vertical guidance.	condition.	Flight Managemen
	Altitude Constra	int Color Coding	
Enteri	ing or modifying an altitude constrai	nt:	Haz
<b>1)</b> F	For the active flight plan: From MFW Hor	ne, touch <b>Flight Plan</b> .	ard lance
(	Dr:		
F C	or the standby flight plan: From MFW H	ome, touch <b>Flight Plan</b> > <b>Standby Flight Plan</b> .	AFC
F	For the stored flight plan:		S
a	<ul> <li>a) From MFW Home, touch Flight Plan to display the 'Flight Plan Catalog' Sc</li> </ul>	> Flight Plan Options > Flight Plan Catalog reen.	Addition Feature
k	b) Scroll the list if needed and touch a stored flight plan button to display the 'Catalog Options' Window.		
c 2) S i'	<ul> <li>c) Touch the Edit Button to display the 'Edit Stored Flight Plan' Screen.</li> <li>2) Scroll the list, if necessary, and touch the desired VNAV ALT Button. If the desired altitude is already displayed, skip to Step 7 to designate the altitude constraint for vertical.</li> </ul>		
Q	guidance.		Ann
<b>3)</b> II B	<b>3)</b> 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.		
<b>4)</b> Ii r	<ol> <li>If necessary, touch the Flight Level Button or the MSL Button to select the altitude mode.</li> </ol>		Apper
5) ⊺ V	Fouch the <b>Enter</b> Button to accept the alti Nindow.	tude entry and return to the 'VNAV Constraint'	ndix
6)    B F	f necessary, touch the <b>Type</b> Button, then <b>Between</b> Button. If the <b>Between</b> Button Enter Button to enter the ceiling and floo	touch the <b>At</b> , <b>At or Above</b> , <b>At or Below</b> or n is selected, use the keypad and touch the or altitudes.	Index

7) 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 MFW Home, touch Flight Plan.

#### Or:

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

UI To

For the stored flight plan:

- a) From MFW 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 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 MFW Home, touch Flight Plan.

#### Or:

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

#### Or:

For the stored flight plan:

- a) From MFW 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 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.

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

- 1) From MFW Home, touch Flight Plan.
- 2) Scroll the active flight plan list and touch the desired VNAV ALT Button.
- 3) Touch the VNAV → <waypoint> Button to activate the vertical navigation direct-to. Vertical guidance begins to the altitude constraint for the selected waypoint.
   Or:
- 1) From MFW Home, touch Flight Plan > VNAV.
- 2) If necessary, touch the **Profile** Tab. Touch the **VNAV** → Button to display the 'Select VNAV Direct To' Screen with a list of possible VNAV direct-to choices.
- 3) Scroll the list, if necessary, and touch a VNAV Waypoint Selection Button.
- **4)** Touch the **OK** Button to activate the vertical navigation direct-to. Vertical guidance begins to the altitude constraint for the selected waypoint.
- 5) Touch the **Back** Button to exit and return to the previous screen.

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

- 1) From MFW Home, touch Flight Plan.
- 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.

## VNAV Enablement

## Enabling/disabling VNAV guidance:

- 1) From MFW Home, touch Flight Plan > VNAV.
- **2)** If necessary, touch the **Settings** Tab. Touch the **VNAV Enabled** Button to enable/disable vertical navigation.

## Active Flight Plan VNAV Profile

## Entering or modifying a flight path angle constraint in the active flight plan:

- 1) From MFW Home, touch Flight Plan > VNAV.
- 2) Touch the **Profile** Tab, if needed. Then touch the **FPA** Button to display the 'VNAV Flight Path Angle' Screen.
- 3) Use the keypad to select the angle. (FPA must be between -7.0 and -1.00)
- 4) Touch the **Enter** Button to accept the new FPA constraint.

## Removing a flight path angle constraint in the active flight plan:

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

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- 2) Touch the **Profile** Tab, if needed. Then touch the **FPA** Button to display the 'VNAV Flight Path Angle' Screen.
- 3) Touch the **Remove FPA** Button.
- **4)** Touch the **OK** Button. The FPA reverts to the FMS computed value, or to dashes. To cancel the request, touch the **Cancel** Button.

## Changing the flight plan descent FPA default:

- 1) From MFW Home, touch **Flight Plan > VNAV**.
- 2) Touch the **Descent** Tab.
- 3) Touch the Default Flight Path Angle Button to bring up the selection window.
- **4)** To define a new descent FPA, touch the **Pilot-Defined Descent** Button. Then, use the keypad and the **Enter** Button to enter the FPA and return to the previous screen.

#### Or:

To use a pre-defined FPA, touch the desired descent button to select it and return to the previous screen.

## Entering or modifying the VS Target in the active flight plan:

- 1) From MFW Home, touch Flight Plan > VNAV.
- 2) Touch the VS Target Button to display the 'VNAV VS Target' Screen.
- 3) Use the keypad to select the descent rate.
- **4)** Touch the **Enter** Button to select the new vertical speed target and to display a new system-calculated FPA.

## Vertical Situation Display

## Enabling/disabling the VSD:

- 1) From MFW 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 MFW 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 Selection Button to select it and return to the 'Vertical Situation Display Settings' Window.

## Advisory Descent

## Enabling/disabling the Advisory Descent:

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

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2) Touch the Settings Tab.

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3) Touch the Advisory Descent Button to enable/disable.

## FLIGHT PLAN OPERATIONS

## Activating a flight plan leg:

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

## Along Track Offsets

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

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

## Or:

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

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

For the active flight plan: From MFW Home, touch Flight Plan.
 Or:

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

- **2)** Touch the Along Track Offset Waypoint Selection 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.

## Activating parallel offset:

- 1) From MFW Home, touch Flight Plan > Flight Plan Options > Parallel Offset.
- 2) Touch the **Distance** Button to display the keypad.
- **3)** Use the keypad to select the distance.

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- 4) Touch the Enter Button to accept the distance, and return to the 'Parallel Offset' Screen.
- 5) If desired, touch the **Direction** Button to choose the offset direction.
- 6) Touch the **Start After** Button to display the flight plan waypoints.
- 7) Scroll if required and touch the desired flight point where the parallel offset will begin.
- 8) Touch the End Before Button to display the flight plan waypoints.
- **9)** Scroll if required and touch the desired flight point where the parallel offset will end.
- **10)** Touch the **Create** Button to accept the information and create the parallel offset, and return to the 'Active Flight Plan' Screen.

## Canceling parallel offset:

- 1) From MFW Home, touch Flight Plan > Flight Plan Options > Parallel Offset.
- 2) Touch the Cancel Parallel Offset Button to cancel the parallel offset function.

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

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

For the stored flight plan:

- a) From MFW 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.

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

For the active flight plan: From MFW Home, touch Flight Plan.
 Or:

For the standby flight plan: From MFW 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.

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- 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.
- 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 MFW 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.

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- **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 → 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 MFW 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 → 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 MFW 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) To remove only the selected hold, touch the OK Button in response to 'Remove <waypoint name>?'. The hold is removed. To cancel the request, touch the Cancel Button.

#### Or:

To remove the hold along with a series of multiple waypoints:

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- a) Touch the **Remove Multiple** Button to display the 'Remove From <hold waypoint> Through' Window.
- **b)** Touch a Waypoint Button that is sequenced before or after the previously selected hold waypoint. The confirmation window 'Remove <waypoint> Through <waypoint>?'is displayed.
- c) Touch the OK Button to confirm the removal of the two selected waypoints and all waypoints sequenced between them. To cancel the request, touch the Cancel Button.

# Exiting a user-defined hold at an active flight plan waypoint or direct-to waypoint (hold active):

From PFW Home, touch the **SUSP** Button to return to automatic waypoint sequencing. **Or**:

Press the **SUSP** Softkey to return to automatic waypoint sequencing.

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

- 1) From MFW Home, touch Flight Plan.
- Scroll the list, if necessary, and touch the PPOS-H Waypoint Selection Button, or touch the
   → Button. The 'Direct To' Window is displayed.
- 3) Touch the **Remove PPOS-H** Button.
- 4) Touch the **OK** Button in response to "Remove → PPOS-H?". The holding pattern is removed. To cancel the request, touch the **Cancel** Button.

## **Inverting a Flight Plan**

## Inverting the active or standby flight plan:

For the active flight plan: From MFW Home, touch Flight Plan.
 Or:

For the standby flight plan: From MFW 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 MFW Home, touch Flight Plan > Flight Plan Options.
- 2) Touch the Flight Plan Catalog Button to display the 'Flight Plan Catalog' Screen.
- **3)** Scroll the list if necessary and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
- 4) Touch the 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

#### Viewing the active and standby flight plan screen:

- 1) From MFW 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.

## Linking aircraft present position (Insert P. POS Link) to the standby flight plan:

- 1) From MFW Home, touch Flight Plan > Standby Flight Plan.
- **2)** Touch the desired Waypoint Selection Button to link the aircraft present position to a waypoint.
- 3) Touch the Insert P. POS Link 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 through 4 for the desired waypoint.

#### Removing P. POS link from the standby flight plan:

- 1) From MFW Home, touch Flight Plan > Standby Flight Plan.
- 2) Touch the P. POS Button.
- 3) Touch the Remove P.POS Link Button.
- **4)** Touch the **OK** Button in response to 'Remove link from P. POS?'. To cancel the request, touch the **Cancel** Button.

#### Loading and activating the standby flight plan:

- 1) From MFW Home, touch Flight Plan > Standby Flight Plan.
- 2) Load the Standby Flight Plan and preserve previous active leg guidance:
  - a) Touch the Load Standby Button.

#### Or:

## Touch Flight Plan Options > Load Standby.

**b)** Touch the **OK** Button in response to the 'Load Standby Flight Plan and Replace Active Flight Plan.' prompt and return to the 'Flight Plan Plan' Screen. The standby flight plan is copied to the active flight plan, and an off-route direct-to leg is created for the previously active leg.

#### Or:

Load the Standby Flight Plan and create new direct-to leg guidance:

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- a) Touch the Flight Plan Options Button.
- **b)** Touch Load & Activate Standby Button.
- c) Touch the OK Button in response to the 'Active Standby Flight Plan < flight plan leg >.' prompt and return to the 'Flight Plan Plan' Screen. The standby flight plan is copied to the active flight plan and new direct-to guidance is provided to the previously linked waypoint. If there was no P. POS link in the standby flight plan, the system chooses which waypoint to create a direct-to instead.

## MANAGING FLIGHT PLANS

## **Importing and Exporting Flight Plans**

## Ignoring a pending flight plan transfer from a wireless connection:

- When a flight plan transfer has been initiated from a mobile device, the notification button will change to a flashing **Connext**<sup>®</sup> Button on the Touchscreen Controller, and a Connext annunciation appears on the PFW.
- **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:

- 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 PFW.
- **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) Load the Standby Flight Plan, or Load and Activate the Standby Flight Plan:

Touch the **Load Standby** Button. The Standby will replace the Active Flight Plan and vice versa.

Or:

Touch **Flight Plan Options** > **Load Standby**. The Standby will replace the Active Flight Plan and vice versa.

Or:



- a) Touch Flight Plan Options > Load & Activate Standby. The Standby will replace the Active Flight Plan and vice versa.
- b) To activate, touch the OK Button in response to the 'Active Standby Flight Plan < flight plan leg >.' prompt and return to the 'Flight Plan Plan' Screen, or touch the Cancel 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 MFW 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 Stored Flight Plan 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 MFW Home, touch Flight Plan > Flight Plan Options.
- 3) Touch the Flight Plan Catalog Button to display the 'Flight Plan Catalog' Screen.
- **4)** Touch a Stored Flight Plan 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 upper 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:

For the active flight plan: From MFW Home, touch Flight Plan > Flight Plan Options.
 Or:

For the standby flight plan: From MFW 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.

## Viewing information about a stored flight plan:

1) From MFW Home, touch Flight Plan > Flight Plan Options.

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- 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:

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For the active flight plan: From MFW Home, touch Flight Plan > Flight Plan Options.
 Or:

For the standby flight plan: From MFW 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:

- 1) From MFW Home, touch Flight Plan > Flight Plan Options.
- 2) Touch the Flight Plan Catalog Button to display the 'Flight Plan Catalog' Screen.
- 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 MFW Home, touch Flight Plan > Flight Plan Options.
- 2) Touch the Flight Plan Catalog Button to display the 'Flight Plan Catalog' Screen.
- **3)** Scroll the list if necessary and touch a Stored Flight Plan Button to display the 'Catalog Options' Window.
- 4) Touch the 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 to another flight plan memory slot:

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

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- **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 MFW 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:

- 1) From MFW 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.

## Storing the active flight plan and changing the comment:

- 1) For the standby flight plan: From MFW Home, touch **Flight Plan > Flight Plan Options**.
- 2) Touch the Store Button.
- 3) Touch the **Rename** Button to display the keypad.
- **4)** Use the keypad to select the comment.
- **5)** Touch the **Enter** Button. The comment is changed for the active flight plan, and the 'Store <flight plan comment> into the catalog?' prompt is displayed.
- 6) Touch the OK Button to store the flight plan and return to the 'Active Flight Plan' Screen.Or:

Touch the Cancel Button to return to the 'Active Flight Plan' Screen.

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#### Changing a flight plan comment for the standby or stored flight plan:

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

#### Or:

For the stored flight plan:

- a) From MFW 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.

## PROCEDURES

#### Viewing available procedures at an airport:

- 1) From MFW 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 **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 MFW 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.



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- 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 MFW Home, touch **Nearest** > **Airport**.
- 2) If necessary, scroll the list to find the desired airport and touch the Airport Selection Button to display the 'Waypoint Options' Window for the selected airport.
- 3) Touch the Airport Info Button to display the 'Airport Information' Screen.
- 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 MFW Home, touch Flight Plan.

## Or:

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

## Or:

For the stored flight plan:

- a) From MFW 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 the Departure, Arrival, or Approach Header 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.

## **DEPARTURES**

## Loading a departure into the flight plan:

1) For the active flight plan:

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a) From MFW Home, touch **PROC**.

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

Or:

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For the standby flight plan:

- a) From MFW 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 MFW 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.

## Removing a departure from a flight plan:

- **1)** For the active flight plan:
  - a) From MFW 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 MFW 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 MFW 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 MFW 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 MFW 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.



**WARNING:** Never touch the Edit Runway Button while holding at a waypoint within a departure or arrival procedure. Doing so will remove the holding pattern from the flight plan, and the aircraft will fly its current heading without flying the remainder of the flight plan.

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- 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.
- Scroll the list if needed and available. Touch a Transition Selection Button to select the 4) transition. The 'Select Runway' Screen will open.
- Scroll the list if needed and touch a Runway Selection Button to select the runway and 5) 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.

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

- **1)** For the active flight plan:
  - a) From MFW 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 MFW 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 MFW 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.

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- a) From MFW 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 MFW 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.



**WARNING:** Never touch the Edit Runway Button while holding at a waypoint within a departure or arrival procedure. Doing so will remove the holding pattern from the flight plan, and the aircraft will fly its current heading without flying the remainder of the flight plan.

## Changing the arrival runway for a published arrival procedure:

**1)** For the active flight plan:

From MFW Home, touch Flight Plan.

## Or:

For the standby flight plan:

From MFW Home, touch Flight Plan > Standby Flight Plan.

#### Or:

For the stored flight plan:

- a) From MFW 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) Display the 'Select Runway' Screen:

Touch the Arrival Runway Button.

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- a) Touch the Runway Waypoint Button to display the 'Waypoint Options' Window.
- **b)** Touch the **Edit RWY** Button to display the 'Select Runway' Screen.
- **3)** Touch an arrival runway option.

If an approach was previously loaded that is not compatible with the arrival, the 'Arrival does not service loaded Approach. Edit Approach?' message will be displayed. Touch the **Yes** Button to change the approach. Otherwise, touch the **No** Button.

## **APPROACHES**

**Instrument Approaches** 

	HSI Annunciation	Description	Example on HSI
<b>b</b>	LNAV	Approach to the publiched MDA	<b>296°</b>
	LP	Approach to the published MDA	
-	LNAV+V	Approach with advisory vertical	10
	LP+V	guidance to the published MDA	GPS LPV
	L/VNAV	Approach with approved vertical	Approach Service Level – LNAV, LNAV+V, L/VNAV, LP, LP+V, LPV
	LPV	guidance to the published DA	

## **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 <sup>1</sup> or Baro VNAV <sup>2</sup>
•	LP	GPS <sup>1</sup>	N/A
~	LP+V	GPS 1	GPS <sup>1</sup> (advisory only)

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Арј	proach Service Level	Lateral Navigation Source	Vertical Navigation Source	Flight Instruments			
	LPV	GPS <sup>1</sup>	GPS <sup>1</sup>				
<sup>1</sup> SBA	S required	I	11	EAS			
<sup>2</sup> See	Approach Downgrade Be	havior Table					
	Source of Lateral a	nd Vertical Navigation per Appi	oach Service Level	Aud			
User A	Approach Mode Selecti	on		io and NS			
Ena	bling/Disabling User Ap	proach Mode Select:		_			
1) From MFW Home, touch Utilities > Setup > Avionics Settings.							
2)	If necessary, touch the <b>System</b> Tab.						
<b>3)</b> Scroll the list and touch the Allow User Approach Mode Select Button to enable/disable.							
Modifying the active flight plan Approach Mode:							
1)	From MFW Home, touch <b>PROC &gt; Approach &gt; Approach Mode</b> .						
2)	Change the Approach M	ode:					
	Touch the <b>Auto</b> Button to enable automatic mode selection, if necessary. The button annunciator is green when automatic mode selection is enabled.						
	Or:						
	<ul> <li>a) Touch the Auto Butt is gray when automa the Vertical Source b</li> </ul>	on to disable automatic mode se atic mode selection is disabled, ar uttons become selectable.	lection. The button annunciator ad the Service Level buttons and	Additional Features			
	<b>b)</b> Touch the desired 'Se	ervice Level' Button.					
	<b>c)</b> Touch the desired 'V	ertical Source' Button		Abnoi Opera			
3)	Touch the <b>Enter</b> Button.			rmal			
Loss o	F SBAS						
Due may re approa	to the high level of pre equire the pilot to ackno ach. See the following ta	cision required by some appro wledge a downgrade of approa ble for approach degradation be	ach service levels, losing SBAS ch service level, or to abort the chavior:	Annun/Alerts			
	0			P			
				Append			



Flight Instruments	Approach Becomes Unavailable Description		Action Required	Downgrade	
EAS	LNAV Approach LNAV+V phase not specified		SBAS not required. The approach is continued.	None	N/A
udio and CNS	LNAV/	Before the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'. <sup>2</sup>	Acknowledge message to display Baro VNAV Glidepath	N/A
light A igement	VNAV	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV <sup>1</sup>
e Mana		More than 1 min to the FAF	HSI displays approach service level in amber;	None	N/A
Hazard Avoidanc	LP	Within 1 min to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. <sup>2</sup>	Acknowledge message to redisplay CDI with LNAV <sup>1</sup>	LNAV <sup>1</sup>
AFCS		At/after the FAF	CDI is removed. <sup>2</sup>	Acknowledge ABORT APR message to redisplay CDI	N/A
Additional Features		More than 1 min to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'.	None	N/A
Abnormal Operation	LP+V	Within 1 min to the FAF	HSI displays downgraded approach service level in amber; CDI is removed. VDI displays 'NO GP'. <sup>2</sup>	Acknowledge message to redisplay CDI with LNAV+V <sup>1</sup> and Baro VNAV Glidepath	LNAV+V <sup>1</sup>
Annun/Alerts		At/after the FAF	CDI is removed; VDI displays 'NO GP'. <sup>2</sup>	Acknowledge ABORT APR message to redisplay CDI	N/A



Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade	Instruments
	More than 1 min to the FAF	HSI displays approach service level in amber.	None	N/A	EAS
LPV	Within 1 min to the FAF	HSI displays downgraded approach service level in amber; VDI displays 'NO GP'. <sup>2</sup>	Acknowledge message to display Baro VNAV Glidepath	LNAV/ VNAV <sup>1</sup>	Aud
	At/after the FAF HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV <sup>1</sup>	IIO and CNS Ma	

<sup>1</sup> Some approaches may not publish minimums for the downgrade given as an example in this table. The system will select the appropriate downgrade, if available, for each published approach as it is derived from the database. If an appropriate downgrade is not available, the approach should be aborted.

<sup>2</sup> System message is generated.

#### Approach Degradation Behavior

#### LOSS OF GPS ON A PUBLISHED GPS APPROACH

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, the annunciation 'UNABLE RNP' will be displayed on the PFD, and the 'Notifications' Screen will display a system message concerning the loss of GPS. If the aircraft is at or beyond the FAF when the condition occurs, a system message to abort the approach is given. The CDI deviation bar is removed from the HSI and cannot be restored when GPS positioning is unavailable.

#### Loss of Integrity

When the system is no longer receiving sufficient GPS integrity while on the final segment of a GPS approach, the approach service level on the HSI will turn amber, the annunciation 'GPS LOI' will be displayed on the PFD, and the 'Notifications' Screen will display a system message concerning the loss of GPS. If the aircraft is at or beyond the FAF when the condition occurs, a system message to abort the approach is given and the CDI deviation bar is removed from the HSI. The CDI deviation bar will reappear after acknowledging the system message to abort the approach.

## Loading and Activating an Approach

#### Loading an approach into the active/standby flight plan:

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

#### Or:

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

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- 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.
- e) If a visual approach was selected, to change the Final Approach Distance, touch the Final Approach Distance Button, then touch the numeric button for the desired distance.

0r:

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.

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**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)** To set the landing runway, touch the **Landing RWY** Button to display the 'Select Landing Runway' Screen and touch the desired runway.
- 7) 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.
- 8) Select the Approach Mode:

If an RNAV approach was selected and User Approach Mode Selection is enabled, touch the **Approach Mode** Button and change the mode to the desired settings.

9) Touch the Load Button to insert the approach into the flight plan. If a visual approach was selected, an advisory message will appear stating that obstacle clearance is not provided and the approach glidepath and threshold crossing height will also be displayed. Touch the OK Button to continue.

## Loading an approach procedure into a stored flight plan:

- 1) From MFW Home, touch Flight Plan > Flight Plan Options.
- 2) Touch the Flight Plan Catalog Button to display the 'Flight Plan Catalog' Screen.
- 3) Touch a Stored Flight Plan Button to display the 'Catalog Options' 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.

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- **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 an 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.
- **f)** If a visual approach was selected, and it is necessary to change the Final Approach Distance, touch the **Final Approach Distance** Button, then touch the numeric button for the desired distance.

#### 0r:

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).

#### 0r:

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)** To set the landing runway, touch the **Landing RWY** Button to display the 'Select Landing Runway' Screen and touch the desired runway.
- **9)** 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.
- **10)** Touch the **Load** Button to insert the approach into the stored flight plan.

## Activating a previously loaded approach:

- **1)** From MFW Home, touch **PROC**.
- Touch the Activate Approach Button to activate the approach.
   Or:
- 1) From MFW 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 with vectors to final:

- 1) From MFW Home, touch **PROC**.
  - Cockpit Reference Guide for the Cirrus SR2x with Perspective Touch+ by Garmin 190-02954-01 Rev. A

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- Touch the Activate Vectors To Final Button to activate vectors to final.
   Or:
- 1) From MFW 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.

## **Removing an Approach**

## Removing an approach from the active/standby flight plan:

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

## Or:

For the standby flight plan: From MFW 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:

For the active flight plan: From MFW Home, touch Flight Plan.
 Or:

For the standby flight plan: From MFW 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:

- From MFW Home, touch Flight Plan > Flight Plan Options > Flight Plan Catalog to display the 'Flight Plan Catalog' Screen.
- 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.

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- 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

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## Activating a missed approach in the active flight plan:

Press the Go-Around 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 touch the **SUSP** Button on the PFW Home Screen or press the **SUSP** Softkey on the PFW.

#### Or:

- 1) From MFW 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 GPS is the active NAV source on the PFW.)

## Or:

- 1) From MFW Home, touch Flight Plan.
- 2) Touch the Approach Header Button to display the 'Approach Options' Window.
  - 3) Touch the Activate Missed Approach Button to activate the missed approach. 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 GPS is the active NAV source on the PFW.)

## Temperature Compensation



**NOTE:** The use of temperature compensated altitudes outside the final approach segment will be coordinated with ATC.

## Manually enabling/disabling temperature compensation for approach waypoint altitudes:

- 1) From MFW 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.

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- 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.

#### Entering a temperature compensated minimum into an approach:

- From MFW Home, touch PROC > Approach to display the 'Approach Selection' Screen. Or:
  - a) From MFW 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.

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#### Selecting the Weight and Balance Display Type:

- 1) From MFW Home, touch **PERF** > **Weight and Balance**.
- 2) Display the full pane or the desired half pane:

To view the full pan, if necessary, touch the **Full** Button to display a full sized display pane showing the Station vs. Weight Box, 'Aircraft Weight and Balance' Box, and 'Aircraft Load' Box.

Or:

- a) To view a half pane, touch the Half Button on the Button Bar, if required.
- b) Touch the Display Button to display the 'Select Display Type' Window.
- c) Touch the button corresponding to the desired display type.

#### Entering the aircraft load weights:

- 1) From MFW Home, touch **PERF** > **Weight and Balance**.
- 2) Touch the Aircraft Loading Tab to display the aircraft load weight buttons.
- **3)** Touch an aircraft load weight button to display the keypad.

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- 4) Use the keypad to enter the item weight.
- **5)** Touch the **Enter** Button to accept the entry, and return to the 'Weight and Balance' Screen.
- 6) Repeat steps 3 5 as necessary.

## Entering the fuel on board quantity:

- 1) From MFW Home, touch **PERF** > **Weight and Balance**.
- 2) Touch the **Fuel** Tab to display the fuel entry buttons.
- 3) Touch the Fuel Init Button to display the 'Initial Fuel' Screen.
- 4) Touch the Initial Fuel Button to display the 'Set Initial Gallons' Screen.
- 5) Use the keypad to enter the item quantity.
- 6) Touch the Enter Button to accept the entry, and return to the 'Initial Fuel' Screen.
- 7) Touch the Confirm Button to use the value for fuel calculations.Or:
- 1) From MFW Home, touch **PERF** > **Weight and Balance**.
- 2) Touch the Fuel Tab to display the fuel entry buttons.
- 3) Touch the Fuel Init Button to display the 'Initial Fuel' Screen.
- **4)** Touch the **FOB SYNC** Button. The fuel on board quantity is set to the current measured fuel.
- 5) Touch the **Confirm** Button to use the value for fuel calculations.

## Entering the taxi fuel quantity:

- 1) From MFW Home, touch **PERF** > **Weight and Balance**.
- 2) Touch the **Fuel** Tab to display the fuel entry buttons.
- 3) Touch the Taxi Fuel Button to display the entry keypad.
- 4) Use keypad to enter desired fuel allotment for taxi.

## GENERAL PERFORMANCE AND TRIP PLANNING

## DATALINK WEATHER FOR PERFORMANCE ESTIMATES

## Changing the datalink wind and temperature source setting for general performance data:

- 1) From MFW Home, touch **PERF** > **Datalink WX PERF**.
- **2)** A window is displayed showing the available datalink wind and temperature sources. Touch the button for the desired datalink source.

## TRIP PLANNING

## Selecting the Stored Flight Plan – Cumulative trip route mode:

1) From MFW Home, touch Utilities > Trip Planning.

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- 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 MFW 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 MFW 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 MFW 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 MFW 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.

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- 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 MFW 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 ASSISTANT (TOLA)

## ACCESSING TOLA

## Accessing the 'Takeoff Data' Screen:

From MFW Home, touch **PERF** > **Takeoff Data**.

## Accessing the 'Landing Data' Screen:

From MFW Home, touch **PERF** > **Landing Data**.

## TAKEOFF DATA

## Origin Tab

## Manually selecting an origin airport and runway on the 'Takeoff Data' Screen:

- 1) From MFW Home, touch **PERF** > **Takeoff Data** to display the **Origin** Tab.
- **2)** Touch the Origin Airport Button (may be displayed as six cyan dashes if empty) to display the keypad.
- **3)** Use the keypad to enter the origin airport.
- **4)** Touch the **Enter** Button to accept the entry, and return to the 'Takeoff Data' Screen.
- 5) Touch the Runway Button to display the 'Select Runway' Screen.
- 6) Touch the desired Runway Selection Button, and return to the 'Takeoff Data' Screen.

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#### Entering takeoff run available:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the Runway Tab.
- **3)** Touch the **Runway 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.
  - c) Touch the Enter Button to accept the entry.Or:
  - a) Touch the Takeoff Run Available Button to display the keypad.
  - **b)** Use the keypad to enter the 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.
  - d) Touch the Enter Button to accept the entry. 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.
  - c) Touch the Enter Button to accept the entry.
- 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.

## Entering the takeoff Runway Required distance:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the Runway Tab.
- 3) Touch the Runway Required Button to display the keypad.
- **4)** Use the keypad to enter the takeoff runway distance required.
- 5) Touch the Enter Button to accept the entry, and return to the Runway Tab.

## Manually entering takeoff runway elevation, heading, or gradient:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the Runway Tab.
- Touch the Runway Elevation Button, Runway Heading Button, or the Runway Gradient 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 Runway Tab.
- 6) Repeat Steps 3 through 5 until all runway values are entered as desired.



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## Reload runway data from database:

- From MFW Home, touch **PERF** > **Takeoff Data**. 1)
- Touch the **Runway** Tab to display the runway data. 2)
- Touch the Reload from Database Button. The cyan pencil icon is removed from each 3) of the manual entries, and the values are replaced with data derived from the Navigation Database.

## Takeoff Config Tab

## Selecting the flaps position on the 'Takeoff Data' Screen:

- From MFW Home, touch **PERF** > **Takeoff Data**. 1)
- 2) Touch the **Takeoff Config** Tab.
- 3) Touch the Flaps Button.
- 4) Touch the desired flap setting button and return to the **Takeoff Config** Tab.

## Speed Bugs Tab

## Enabling/disabling takeoff Vspeed bugs:

- From MFW Home, touch **PERF** > **Takeoff Data**. 1)
- 2) Touch the Speed Bugs Tab.
- 3) Enable/disable takeoff Vspeed bugs:

Touch the button for the desired Vspeed bug to enable or disable it. The annunciator bar is green when enabled.

## Or:

Touch the **All On** Button to enable all Vspeed bugs.

## Or:

Touch the All Off Button to disable all Vspeed bugs.

## Manually entering takeoff Vspeed values:

- MFW Home, touch **PERF** > **Takeoff Data**. 1)
- 2) Touch the **Speed Bugs** Tab.
- 3) Touch the desired Speed Button to display the keypad.
- 4) Use the keypad to enter the new speed value.
- 5) Touch the Enter Button to accept the entry and return to the 'Takeoff Data' Screen.
- Repeat Steps 3 through 5 until all values are entered as desired. 6)

## Restoring all takeoff Vspeed values:

- MFW Home, touch **PERF** > **Takeoff Data**. 1)
- 2) Touch the **Speed Bugs** Tab.
- Touch the Restore All Defaults Button. The system restores all default takeoff Vspeed 3) values and disables all takeoff Vspeed bugs.

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## **EMER Return Tab**

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#### Manually selecting the emergency return airport and runway:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the EMER Return Tab.
- 3) Touch the Emergency Return Airport Button to display the keypad.
- 4) Use the keypad to enter the emergency return 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' Screen.
- **7)** Touch the desired Runway Selection Button to select it, and return to the 'Takeoff Data' Screen.

## Modifying the Runway Available for the emergency return runway:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the EMER Return Tab.
- **3)** Touch the **Runway 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.
  - c) Touch the Enter Button to accept the entry.Or:
  - a) Touch the Landing Distance Available Button to display the keypad.
  - **b)** Use the keypad to enter the shortened landing distance available.
  - **c)** If a Departure runway had been selected, touch the **DEP** Button or **APPR** Button to shorten the distance from the approach or departure end.
  - d) Touch the Enter Button to accept the entry.

#### 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.
- c) Touch the Enter Button to accept the entry.
- 5) Repeat Step 4 until the landing distance data is displayed correctly.
- 6) Touch the Save Button to make the changes and return to the EMER Return Tab.

## Reload runway data from database for the emergency return runway:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the EMER Return Tab to display the runway data.
- 3) Touch the **Reload from Database** Button.

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## Entering the Runway Required distance for emergency return:

- 1) From MFW Home, touch **PERF** > **Takeoff Data**.
- 2) Touch the EMER Return Tab.
- 3) Touch the Runway Required Button to display the keypad.
- 4) Use the keypad to enter the required landing distance.
- 5) Touch the Enter Button to accept the entry, and return to the EMER Return Tab.

## LANDING DATA

## DEST TAB

## Manually selecting an destination airport and runway on the 'Landing Data' Screen:

- 1) From MFW Home, touch **PERF** > Landing Data to display the **DEST** Tab.
- **2)** Touch the Destination Airport Button (may be displayed as six cyan dashes if empty) to display the keypad.
- **3)** Use the keypad to enter the destination airport.
- 4) Touch the Enter Button to accept the entry, and return to the 'Landing Data' Screen.
- 5) Touch the **Runway** Button to display the 'Select Runway' Screen.
- 6) Touch the desired Runway Selection Button, and return to the 'Landing Data' Screen.

## Accessing the 'Weight and Fuel' Screen from the DEST Tab:

- 1) From MFW Home, touch **PERF** > Landing Data to display the **DEST** Tab.
- 2) Touch the Weight and Fuel Button to display the 'Weight and Fuel' Screen.

## Loading data for emergency return:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the Load Emergency Return Button. 'Load emergency return data for landing?' is displayed.
- **3)** Touch the **OK** Button to copy the data for emergency return to the 'Landing Data' Screen.

## Runway Tab

## Manually entering landing runway available distance:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the Runway Tab.
- 3) Touch the **Runway Available** Button to display the 'Landing Distance Available' Screen.
- 4) Enter or change the landing runway available distance:
  - a) Touch the Land and Hold Short Button to display a list of intersections and LAHSO buttons. Each button displays the name of the intersecting runway and LAHSO designation (if available), and the landing distance available before that intersection/LAHSO point.

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**b)** Scroll the list if necessary and touch the button for the desired intersection or LAHSO point.

Or:

- a) Touch the **Intersection Exit** Button to display a list of intersections. Each Intersection Button displays the name of the intersecting runway or taxiway, and the landing distance available before that intersection.
- b) Scroll the list if necessary and touch the button for the desired intersection takeoff.Or:
- 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.
- c) Touch the Enter Button to accept the entry.Or:
- a) Touch the Landing Distance Available Button to display the keypad.
- **b)** Use the keypad to enter the shortened landing distance available.
- c) If a Departure runway had been selected, touch the **DEP** Button or **APPR** Button to shorten the distance from the approach or departure end.
- d) Touch the Enter Button to accept the entry.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.
- c) Touch the Enter Button to accept the entry.
- 5) Repeat Step 4 until the landing runway available distance data is displayed correctly.
- 6) Touch the Save Button to make the changes and return to the 'Landing Data' Screen.

## Entering the landing Runway Required distance:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the **Runway** Tab.
- 3) Touch the Runway Required Button to display the keypad.
- 4) Use the keypad to enter the landing runway distance required.
- 5) Touch the Enter Button to accept the entry, and return to the Runway Tab.

## Manually entering landing runway elevation, heading, or gradient:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the Runway Tab.
- Touch the Runway Elevation Button, Runway Heading Button, or the Runway Gradient 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.

- GARMIN.
- 6) Repeat Steps 3 through 5 until all runway values are entered as desired.

## Reload runway data from database:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the **Runway** Tab to display the runway data.
- **3)** Touch the **Reload from Database** Button. The cyan pencil icon is removed from each of the manual entries, and the values are replaced with data derived from the Navigation Database.

## Selecting the flaps position on the 'Landing Data' Screen:

- 1) From MFW Home, touch **PERF** > Landing Data.
- 2) Touch the Landing Config Tab.
- **3)** Touch the **Flaps** Button.
- 4) Touch the desired flap setting button and return to the Takeoff Config Tab.

## 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.



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**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.

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  $\pm 15$  min of the specified arrival date and time.



**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.

## Predicting RAIM availability:

- 1) From MFW Home, touch Utilities > FMS Sensors.
- **2)** Touch the Position Sensors Tab.

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- **3)** Touch the **GPS1** or GPS2 Button and select the GPS1 Status or GPS2 Status Button. The button annunciator is green when enabled and gray when disabled.
- **4)** Touch the RAIM Prediction Tab.
- 5) Touch the Location Button.
- 6) Touch the **Waypoint** Button to enter the location for which RAIM will be predicted. Touch the **Present Position** Button to enter the aircraft current position as the prediction location.
- 7) If the Waypoint Button was touched in step 6, enter the waypoint identifier using the alphanumeric buttons or the large and small upper knobs. If the Present Position Button was touched in step 6, proceed to step 9.
- **8)** Touch the **Enter** Button. The location selected for RAIM prediction is now displayed on the **Location** Button.
- **9)** Touch the **Arrival Time** Button.
- **10)** Enter the planned arrival time for the selected location using the numeric buttons.
- 11) Touch the Enter Button. The time is now displayed on the Arrival Time Button.
- **12)** Touch the **Arrival Date** Button.
- **13)** 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.
- **14)** 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.
- 15) 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.
- **16)** 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.

 $\bullet$  '-----'— RAIM has not been computed for the specified waypoint, time, and date combination.

- 'Computing'-RAIM calculation in progress
- $\bullet$  '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

 $\bullet$  '-----'—RAIM has not been computed for the specified waypoint, time, and date combination





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## DATA LINK WEATHER

## **ACTIVATING DATA LINK WEATHER SERVICES**

#### Establishing a SiriusXM Weather Data account:

- 1) From MFW Home, touch Utilities > Setup > SiriusXM Info.
- 2) Note the ID shown in the 'Data Radio' Window.
- **3)** Contact SiriusXM customer service. Follow the instructions provided by SiriusXM customer service.

## Activating SiriusXM Weather services:

- **1)** Position the aircraft so the GDL 69A SXM antenna has an unobstructed view of the sky, away from buildings.
- 2) Connect aircraft to external power source if available.
- 3) Power on the avionics and allow the system to energize in normal mode.
- 4) For the GDL 69A SXM, service activation is performed automatically by the system.
- To verify the correct subscription package, from MFD Home, touch Utilities > Setup > SiriusXM Info.
- 6) On the 'SiriusXM Info' Screen, verify the correct subscription package is displayed in the 'Service Class' Window.
- 7) In the 'Weather Products' Window, scroll as needed to view available weather products. Available weather products appear as white text (data has not been received); A green check indicates the weather product data has been received and is available for use, unavailable weather products appear in subdued (gray) text. It may take 45 - 60 minutes before activation is complete and all subscribed-to weather products become available.

## **REGISTERING THE SYSTEM FOR GARMIN CONNEXT SERVICES**

#### Registering the system to receive Garmin Connext Weather:

- **1)** Ensure the aircraft is outside and has a clear view of the sky (if connecting through the Iridium network).
- **2)** From MFW Home, touch **Utilities > Setup > Connext Settings**. If the Registration Information Window indicates 'Not Registered', continue with this procedure.
- 3) Touch the Register Tab.
- 4) Scroll as necessary and touch the **Register** Button
- **5)** Use the keypad or large and small upper knobs to supply the access code provided from Garmin Connext customer service.

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6) Touch the **Enter** Button or push the upper 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.

## ACCESSING FIS-B WEATHER INFORMATION

#### Viewing the 'FIS-B Weather' Pane:

From MFW Home, touch Weather > Weather Selection > FIS-B Weather.

#### Enabling/disabling the FIS-B weather data reception:

- From MFW Home, touch Weather > Weather Selection > FIS-B Weather > FIS-B Settings.
- 2) Touch the Enable FIS-B or Disable FIS-B Button.

## WEATHER PRODUCT AGE

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

- 1) From PFW Home, touch PFD Map Settings.
- 2) Touch the Layout Button. If not selected, touch either the HSI Map or Inset Map Buttons.
- 3) Touch the Weather Legend Button.

#### Or:

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

beration	SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)	SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)
erts 0 <sub>1</sub>	Next-generation Radar (NEXRAD)	-	30	Winds Aloft	•^	90
Annun/Al	Cloud Tops	~~	60	County Warnings		60
Appendix	Echo Tops	Ż	30	Cyclone (Hurricane) Warnings	5	60
Index	SiriusXM Lightning	놖	30	Icing Potential (CIP and SLD)	***** ***** *****	90

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SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)	SiriusXM Weather Product	Product Symbol	Expiration Time (Minutes)	Flight Instruments	
Storm Cell Movement		30	Pilot Weather Report (PIREPs)		90	EAS	
SIGMETs	SIGM	60	Air Report (AIREPs)		90	Audi	
AIRMETs	AIRM	60	Turbulence	_∧_	180	o and NS	
METARs	V	90	No Radar Coverage	No product symbol	30	Flight Management	
City Forecast		90	Temporary Flight Restrictions (TFRs)	TFR	60	Hazard Avoidance	
Surface Analysis	1	60	Terminal Aerodrome Reports (TAFs)	No product symbol	60	AFCS	
Freezing Levels		120	Temps Aloft	<mark>∦</mark> °	90	Addi Fea	
Surface Visibility	VIS	30	Center Weather Advisories	CWA	120	itional tures	
SiriusXM Weather Product Symbols and Data Timing							

FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)	FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)	Annun/Ale
NEXRAD Composite (US)		30	Temporary Flight Restriction (TFR)	TFR	60	Prts Ap
NEXRAD Composite (Regional)		30	Pilot Weather Report (PIREP)		90	pendix
Cloud Tops	-12	120	SIGMETs	SIGM	60	Index

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Flight Instruments	FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)	FIS-B Weather Product	Product Symbol	Expiration Time (Minutes)
EAS	METARs		90	Graphical AIRMETs	GAIRM	60
g	Lightning	4	30	Center Weather Advisories	CWA	60
Audio ar CNS	Winds Aloft	<u>``</u>	90 <sup>1</sup>	Terminal Aerodrome Forecast (TAF)	No product image	60
Flight iagement	Turbulence	▲	120	No Radar Coverage	No product image	30
e Manag	Icing Forecast	***** ***** *****	30			
Hazard Avoidance	<sup>1</sup> The Winds Aloft model data for th	oroduct no lo e time given,	onger issues an if one is availa	expiration time. It us ble, to set an expirat	ses the best ap ion time.	oplicable

The Winds Aloft product no longer issues an expiration time. It uses the best applicable model data for the time given, if one is available, to set an expiration time. 1

<b>FIS-B</b> Weather	Product	Symbols and	d Data	Timing

Garmin Connext Weather Product	Product Symbol	Expiration Time (Minutes)
Connext Radar		30
Cloud Tops		60
Connext Lightning	<u>*</u> *	30
SIGMETs	SIGM	60
AIRMETs	AIRM	60
Meteorological Aerodrome Report (METARs)	V	90
Winds Aloft	s an	90

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Garmin Connext Weather Product	Product Symbol	Expiration Time (Minutes)
Pilot Weather Reports (PIREPs)		90
Temporary Flight Restrictions (TFRs)	TFR	60
Terminal Aerodrome Reports (TAFs)	no product image	60

#### Garmin Connext Weather Product Symbols and Data Timing

**WARNING:** Do not use the indicated data link weather product age to ascertain 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 DATA LINK WEATHER PRODUCTS**

#### Weather Data Link Pane

Viewing the Weather Data Link Pane and changing the data link weather source, if applicable:

- From MFW 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, FIS-B, or Connext).
- 2) Touch the Weather Selection Button. The 'Weather Selection' Screen appears.
- 3) Touch either SiriusXM Weather, Connext Weather or FIS-B Weather Button. Touched button is highlighted and becomes the settings Button. For example, if the SiriusXM Weather Button is touched it becomes the SiriusXM Settings Button.
- **4)** If not selected, touch either the **SiriusXM**, **Connext**, **or FIS-B Settings** Button to access controls for the selected weather pane.

#### Selecting a Data Link Weather Source for Navigation Map Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.

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- **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, FIS-B, or Connext, if installed).

## Selecting a Data Link Weather Source for PFD Maps (Inset Map, HSI Map):

- 1) From PFW Home, touch the **PFD Map Settings** Button.
- Scroll as needed and touch the WX Source Button. The button will change to reflect desired source (SiriusXM, FIS-B, or Connext).

#### Or:

- 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.

## Setting up and customizing 'Data Link' Weather Products on navigation maps:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- **3)** Scroll through the list to view the available weather products.
- 4) Touch a weather product annunciator button to enable/disable the selected weather product. Button annunciator is green when a weather product is enabled, or gray when disabled.
- **5)** If not selected, touch a range button next to the corresponding weather product, then touch to select the maximum map range at which the system will display the selected weather product.

## Selecting Maximum Navigation Map Range for Data link Weather Products:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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, Connext, or FIS-B) Weather Pane:

 From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 'Data Link' Weather Settings

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- Scroll as needed in the 'Overlays' Window and touch the Legend Button. The 'Weather 2) Legends' Window appears on the Touchscreen Controller.
- 3) Scroll as needed to view the weather legends in the 'Weather Legends' window.
- To remove the 'Weather Legends' Window, touch **Back** or **Home**. 4)

Selecting a map orientation for the Data Link (SiriusXM, Connext, or FIS-B) Weather Pane:

- From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 1) 'Data Link' Weather Settings.
- Touch the **Orientation** Button to change the selected map orientation (displayed in 2) cyan).
- Touch the desired map orientation button (Heading Up, Track Up, North Up, Sync to 3) Nav Map).

#### Displaying/Removing Weather Product Age Information on the (PFD Inset Map or HSI Map):

- 1) From PFW Home, touch the **PFD Map Settings** Button.
- 2) Scroll as needed and touch the **Weather Legend** Button. Or:
- 1) Press the PFD Map Settings Softkey.
- Press the Weather Legend Softkey to enable/disable the weather product age 2) information.

#### Setting Data Link Radar Opacity on VFR/IFR Charts :

- From MFW Home, touch Map > Map Selection > Map Settings. 1)
- 2) Touch the **VFR** Button **> VFR Settings** Button.
  - Or:

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- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) Touch the **IFR Low** Button **> IFR Low Settings** Button. Or:
- From MFW Home, touch Map > Map Selection > Map Settings. 1)
- 2) Touch the **IFR High** Button **> IFR High Settings** Button.
- 3) To increase or decrease the Data link Radar Opacity touch -/+ Button or move the slider left or right to the desire setting. Setting the Data link Radar Opacity percentage to the same percentage shown as the MFD Backlight Level will cause the Day/Night view to switch at the current backlight setting. Adjusting the Data link Radar Opacity setting greater than the MFD Backlight Level will cause the display to remain in Night Mode longer. Adjusting the Data link Radar Opacity setting lower than the MFD Backlight Level will cause the display to change to Day Mode sooner.

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## CONNEXT WEATHER DATA REQUESTS

## Defining Weather Data Request Coverage Area:

- From MFW 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 selection 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 large and small upper knobs to enter a waypoint to include in the weather data request, then touch the **Enter** Button or press the small upper knob.

**9)** When finished, touch the **Back** Button to return to the 'Connext Weather Settings' Screen, or touch the **Home** Button.

## Sending/Canceling an Immediate Weather Data Request:

- From MFW 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 Reques**t Button while a request is occurring. 'Data Request' Window displays 'Canceled'.

## Enabling/disabling automatic Connext Data Requests:

 From MFW Home, touch Weather > Weather Selection > Connext Weather > Connext Settings.

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- 2) Touch the Auto Request Button.
- 3) From the selection 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 ascertain 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 on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- Touch the NEXRAD Button in the 'Background' Window to enable/disable the display of NEXRAD information.

#### Changing the NEXRAD coverage area on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) Touch the NEXRAD Settings Button. The 'NEXRAD Options' Window appears.
- **3)** Touch the **NEXRAD Type** Button.
- 4) 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 on the 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the NEXRAD 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 on the 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the NEXRAD Settings Button.
- **4)** Touch the **NEXRAD Type** coverage Button (displaying either 'Composite Reflectivity' or 'Base Reflectivity' in cyan).

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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 SiriusXM NEXRAD weather information (PFD Inset Map or HSI Map):

- 1) If necessary, enable the Inset Map or HSI Map.
- 2) From PFW Home, touch PFD Map Settings.
- Scroll in the Overlays Tab and touch the NEXRAD Button.
   Or:
- 1) Press the PFD Map Settings Softkey.
- 2) Press the WX Overlay Softkey until SiriusXM is displayed in cyan. Each press cycles through an available option, displayed in cyan. When 'SiriusXM' is displayed, SiriusXM NEXRAD is enabled. When 'Off' is displayed, SiriusXM NEXRAD data is disabled.

## Changing the SiriusXM NEXRAD coverage area (PFD Inset Map or HSI Map):

- 1) From PFW Home, touch the **PFD Map Settings** Button.
- 2) Scroll in the Overlays Tab, and touch the NEXRAD Settings Button.
- 3) Touch the **NEXRAD Type** Button.
- 4) Touch the Composite Reflectivity CONUS or Base Reflectivity All Regions Button, or touch Back or Home to exit without changing the coverage area.

#### Or:

- 1) Press the PFD Map Settings Softkey.
- 2) Press the Data Link Settings Softkey.
- **3)** Press the **NEXRAD** Softkey. Each selection of the softkey changes the source 'COMP' or 'Base', which is displayed in cyan on the softkey.

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

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) If not selected, touch the **NEXRAD** Button in the 'Background' Window to enable the display of NEXRAD.
- **3)** Touch the NEXRAD **Settings** Button.
- 4) Touch the Animation Button to enable/disable the animation.
- 5) When finished, touch **Back** or **Home**.

## Displaying Time-Lapse NEXRAD Animation on the 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll if necessary and touch the NEXRAD Settings Button.
- **4)** Touch the **NEXRAD Animation** Button to enable/disable the animated NEXRAD information.
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5) When finished, touch **Back** or **Home**.

### Displaying Time-Lapse NEXRAD Animation on the PFD Inset Map:

- 1) If necessary, enable the Inset Map.
- 2) From PFW Home, touch the PFD Map Settings Button.
- 3) Scroll and touch the NEXRAD Settings Button.
- **4)** Touch the **NEXRAD Animation** Button to enable/disable the animated NEXRAD information on the Inset Map

### Or:

- 1) Press the PFD Map Settings Softkey.
- 2) Press the Data Link Settings Softkey.
- 3) Press the NEXRAD Animation Softkey.

### NEXRAD (FIS-B)

### Enabling/Disabling FIS-B weather information on the 'FIS-B Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > FIS-B Weather > FIS-B Settings.
- 2) Touch the **Enable FIS-B** Button in the 'FIS-B Data Status' Window to enable/disable the display of FIS-B Weather information.

### Displaying the NEXRAD weather product on the 'FIS-B Weather; Pane (CONUS or Regional):

- 1) From MFW Home, touch Weather > Weather Selection > FIS-B Weather > FIS-B Settings.
- 2) Touch the CONUS NEXRAD or Regional NEXRAD Buttons in the 'Overlays' Window.

### Displaying FIS-B NEXRAD weather information on the 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the **NEXRAD** Button.
- **4)** Touch the **CONUS**, **Regional**, or **Combined** Button to enable/disable the display of the NEXRAD weather product on the 'Navigation Map' Pane.

### Displaying FIS-B NEXRAD weather information (PFD Inset Map or HSI Map):

- 1) If necessary, enable the Inset Map or HSI Map.
- 2) From PFW Home, touch PFD Map Settings.
- Scroll in the Overlays Tab and touch the NEXRAD Button.
   Or:
- 1) Press the **PFD Map Settings** Softkey.

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2) Press the WX Overlay Softkey until FIS-B is displayed in cyan. Each press cycles through an available option, displayed in cyan. When 'FIS-B' is displayed, FIS-B NEXRAD is enabled. When 'Off' is displayed, FIS-B NEXRAD data is disabled.

### Changing the FIS-B NEXRAD coverage area (PFD Inset Map or HSI Map):

- 1) From PFW Home, touch the **PFD Map Settings** Button.
- 2) Scroll in the Overlays Tab, and touch the NEXRAD Button.
- **3)** Touch the either **CONUS**, **Regional**, or **Combined** Button for the desired FIS-B NEXRAD coverage data.

### Or:

- 1) Press the PFD Map Settings Softkey.
- 2) Press the Data Link Settings Softkey.
- Press the NEXRAD Softkey to select between 'CONUS', 'Regional', or 'Combined' FIS-B NEXRAD Coverage data.

### **Precipitation (Garmin Connext)**

### Displaying Garmin Connext Radar information on the 'Connext Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > Connext Weather > Connext Settings.
- 2) Touch the **Radar** Button in the 'Overlays' Window.

### Displaying Garmin Connext Radar information on the 'Navigation Map' Panes:

- 1) From MFW Home, Touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** tab.
- 3) Scroll if needed and touch the Connext Radar Button

### Displaying Connext Radar weather information (PFD Inset Map or HSI Map):

- 1) If necessary, enable the Inset Map or HSI Map.
- 2) From PFW Home, touch PFD Map Settings.
- Scroll in the Overlays Tab and touch the Connext Radar Button.
   Or:
- 1) Press the PFD Map Settings Softkey.
- 2) Press the WX Overlay Softkey until Connext is displayed in cyan. Each press cycles through an available option, displayed in cyan. When 'Connext' is displayed, Connext Radar is enabled. When 'Off' is displayed, Connext Radar is disabled.

### Enabling/Disabling Echo Tops information:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) Touch the Echo Tops Button in the 'Background' window.

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# Cloud Tops (SiriusXM/FIS-B)

## Enabling/Disabling Cloud Tops information on the 'Data Link Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 'Data Link' Weather Settings.
- Touch the Cloud Tops Button in the 'Background' Window (SiriusXM) or 'Overlays' Window (FIS-B).

## Infrared Satellite (Garmin Connext)

### Displaying Infrared Satellite information on the 'Connext Weather' Pane:

- 1) From MFW Home, touch Weather > Weather Selection > Connext Weather > Connext Settings.
- 2) Touch the IR Satellite Button in the 'Overlays' Window.

## METARs and TAFs

### Displaying METAR text on the 'Data Link Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 'Data Link' Weather Settings.
- 2) Touch the METARs Button in the 'Overlays' Window. The system displays graphical METAR flags at available reporting stations when METARs are enabled (button annunciator is green).
- 3) To view METAR text, press the lower knob and move the map pointer with the large and small upper knobs 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.

## Displaying Graphical METAR information on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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 lower knob and move the map pointer with the large and small upper knobs 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.

# Displaying METAR information (PFD Inset Map):

- 1) From PFW Home, touch PFD Map Settings.
- Scroll and touch the Graphical METARs Button. METAR flags appear on the map. Or:

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- 1) Press the PFD Map Settings.
- 2) Press the METAR Softkey.
- **3)** If the PFD Inset Map is shown, use the upper and lower knobs on the Touchscreen Controller to pan the Map Pointer over the desired METAR flag to view the original METAR text. Note: METAR text is not available on the HSI map.

### Viewing textual METAR/TAF information on the Airport Information Screen:

- 1) From MFW 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)** Enter the airport identifier using the keypad or the large and small upper knobs, then touch the **Enter** Button or push the upper 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.

### 💡 Data Link Lightning

### Enabling/Disabling 'Data Link' Lightning information:

- From MFW 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 on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the 'Data Link' Lightning Button.

### Displaying 'Data Link' Lightning information on PFD maps:

- 1) From PFW Home, touch PFD Map Settings.
- 2) If not selected, touch either the HSI Map or PFD Inset Map Button to access overlays buttons.
- Scroll if necessary in the Overlays Tab, and touch the 'Data Link' Lightning Button.
   Or:
- 1) If necessary, enable the HSI Map or PFD Inset Map to access 'Data Link' softkeys.
- 2) Press the PFD Map Settings Softkey.
- 3) Press the Datalink Lightning Softkey.

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### Winds Aloft

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### **Displaying Winds Aloft data:**

- From MFW 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 the pop-up window.

### Enabling/Disabling VSD (containing winds aloft data):

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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.

### Temperatures Aloft (SiriusXM)

### Displaying Temperatures Aloft data on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) Scroll in the 'Overlays' Window and touch the **Temps Aloft** Button.
- **3)** Touch the Temperatures Aloft altitude button (to the right of the **Temps Aloft** annunciator button) and touch the desired altitude from which to display temperature aloft data.

### Storm Cell Movement (SiriusXM)

### Enabling/Disabling Storm Cell Movement Information on the 'SiriusXM Weather' Pane:

- From MFW 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 on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the NEXRAD **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.

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### Displaying Storm Cell Movement with NEXRAD information (PFD Inset and HSI Map):

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- From PFW Home, touch PFD Map Settings. 1)
- If not selected, touch either the HSI Map or Inset Map Button to access overlays 2) buttons.
- 3) Touch the NEXRAD **Settings** Button.
- Touch the Storm Cell Movement Button. 4)
- 5) When finished, touch **Back** or **Home**.

### Or:

- 1) With the Inset Map or HSI Map shown, press the **PFD Map Settings** Softkey.
- 2) Press the Data Link Settings Softkey.
- 3) Press the Storm Cell Movement Softkey.
- 4) When finished, press the **Back** Softkey.

### Turbulence (SiriusXM/FIS-B)

### Displaying Turbulence data on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > Data Link Weather > Data 1) Link Weather Settings.
- Scroll in the 'Overlays' Window and touch the Turbulence Button. 2)
- 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.

### Icing (CIP & SLD) (SiriusXM/FIS-B)

### Displaying Icing data:

- From MFW Home, touch Weather > Weather Selection > Data Link Weather > Data 1) Link Weather Settings.
- 2) Scroll as needed in the 'Overlays' Window and touch the Current Icing Potential (SiriusXM) or Icing Forecast (FIS-B) Button to enable/disable icing information.
- Touch the altitude button (to the right of the Current Icing Potential or Icing Forecast 3) annunciator Button) and scroll to and touch the desired altitude Button (from 1,000 feet up to 30,000 feet (SiriusXM) or 2,000 feet up to 24,000 feet (FIS-B)).

### Freezing Level (SiriusXM)

### Displaying Freezing Level information on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > 1) SiriusXM Settings.
- Scroll as needed in the 'Overlays' Window and touch the Freezing Level Button. 2)

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### Temporary Flight Restrictions (TFRs)

### Enabling/disabling TFR information ('Data Link' Weather Pane):

- From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 'Data Link' Weather Settings.
- 2) Scroll in the 'Overlays' Window as needed and touch the **TFRs** Button.
- **3)** To view TFR text, push the lower knob to activate the map pointer and move the pointer with the large and small upper knobs or **Touchpad** until the selected TFR is highlighted. The TFR text appears near the map pointer for the selected TFR.
- 4) When finished, push either knob, or touch the **Back** Button or the **Home** Button.

### Enabling/disabling TFR information on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll and touch the **TFR** Button.

### Selecting the maximum map range to display TFR information:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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.

### **PIREPs and AIREPs**

### **Displaying PIREP or AIREP information:**

- From MFW Home, touch Weather > Weather Selection > 'Data Link' Weather > 'Data Link' Weather Settings.
- 2) Scroll in the 'Overlays' Window as needed and touch the AIREPs (SiriusXM only) or PIREPs Buttons.
- 3) To view PIREP/AIREP text, push the lower knob to activate the map pointer and use the large and small upper knobs or **Touchpad** to highlight a PIREP or AIREP symbol, then touch the **Info** Button.
- **4)** Scroll as needed through the report text, then touch the **Back** Button or the **Home** Button.

### SIGMETs and AIRMETs

### Enabling/Disabling AIRMET and SIGMET information:

 From MFW Home, touch Weather > Weather Selection > Data Link Weather > Data Link Settings.



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- 2) Scroll as needed and touch the **AIRMETs** (SiriusXM) and/or **SIGMETs** Buttons in the 'Overlays' Window.
- **3)** To view the text of a AIRMET or SIGMET, push the **Joystick** and move the map pointer with the **Joystick** over the SIGMET or AIRMET border or icon 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.

### Graphical AIRMETs (FIS-B)

### Enabling/Disabling Graphical AIRMET information:

- From MFW Home, touch Weather > Weather Selection > FIS-B Weather > FIS-B Settings.
- 2) Scroll as needed and touch the G-AIRMETs Buttons in the 'Overlays' Window.
- 3) To select a Graphical AIRMET filter, touch the **Current** Button.
- 4) On the 'G-AIRMETs Filter' Screen, touch either the Current or All Buttons.
  - Current: Displays all currently active G-AIRMETs.
  - All: Displays all current and future G-AIRMETs.
  - **5)** To view the text of a Graphical AIRMET push the **Joystick** and move the map pointer with the **Joystick** over the G-AIRMET border or icon until it is highlighted.
  - 6) Touch the Info Button to show the 'G-AIRMET Info' Screen with the selected G-AIRMET.
- **7)** Scroll as needed to view full text of the report, then touch the **Back** Button or the **Home** Button.

### Center Weather Advisories (SiriusXM/FIS-B)

### Enabling/Disabling Center Weather Advisory information:

- From MFW Home, touch Weather > Weather Selection > Data Link Weather > Data Link Settings.
- Scroll as needed and touch the Center WX Advisories (SiriusXM) or CWAs (FIS-B) Buttons in the 'Overlays' Window.
- **3)** To view the text of a Center Weather Advisory, push the **Joystick** and move the map pointer with the **Joystick** over the Center Weather Advisory border until it is highlighted.
- **4)** Touch the **Info** Button to show the 'Center Weather Advisory' Screen for the selected Center Weather Advisory.
- **5)** Scroll as needed to view full text of the report, then touch the **Back** Button or the **Home** Button.

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### Surface Analysis and City Forecast (SiriusXM)

Displaying Surface Analysis and City Forecast information on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) Scroll as needed in the 'Overlays' Window and touch the Surface Analysis or City Forecast Buttons.
- If needed, touch the Surface Conditions forecast period button (to the right of the Surface Analysis or City Forecast Buttons) and select from Current, 12 Hours, 24 Hours, 36 Hours, or 48 Hours forecast periods from the selection window.

### Cyclone Warnings (SiriusXM)

Enabling/Disabling cyclone (hurricane) weather product on the 'SiriusXM Weather' Pane:

- From MFW Home, touch Weather > Weather Selection > SiriusXM Weather > SiriusXM Settings.
- 2) Scroll as needed in the 'Overlays' Window and touch the Cyclone Warnings Button.

## County Warnings (SiriusXM)

### Displaying County Warning information on the 'SiriusXM Weather' Pane:

- From MFD 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 lower knob to activate the map pointer and turn the large and small upper knobs or use the Touchpad to select a County Warning. County Warning information appears in a box near the map pointer.
- 4) When finished, press either knob to deactivate the map pointer.

# STORMSCOPE LIGHTNING DETECTION SYSTEM

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

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Lightning Age	Symbol
Strike is less than 6 seconds old	4
Strike is between 6 and 60 seconds old	47
Strike is between 1 and 2 minutes old	÷
Strike is between 2 and 3 minutes old	¢

### Lightning Age and Symbols

## USING THE STORMSCOPE PANE Hazard Avoidance

### Displaying the 'Stormscope' Pane:

From MFW Home, touch Weather > Weather Selection > Stormscope > Stormscope Settings.

### Selecting a Stormscope Operating Mode on the 'Stormscope' Pane:

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

### Clearing Stormscope Information on the 'Stormscope' Pane:

- 1) From MFW Home, touch Weather > Weather Selection > Stormscope > Stormscope Settings.
- Touch the Clear Stormscope Lightning Button. 2)

### Enabling/Disabling Stormscope Lightning Information on the PFD maps:

- 1) From PFW Home, touch PFD Map Settings.
- 2) If not selected, touch either the **HSI Map** or **Inset Map** Button to allow for selection of map overlays.
- Scroll if necessary, and touch the Stormscope Lightning button to enable/disable 3) Stormscope information.

Or:

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

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### Selecting a Stormscope operating mode (PFD maps):

1) From PFW Home, touch PFD Map Settings.

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- 2) If not selected, touch either the HSI Map or Inset Map Button to allow for selection of map overlays.
- **3)** Touch the Stormscope Lightning **Settings** Button.
- **4)** Touch either the **Cell** or **Strike** Buttons.

### Clearing Stormscope Lightning (PFD maps):

- 1) From PFW Home, touch the **PFD Map Settings** Button.
- If not selected, touch either the HSI Map or Inset Map Button to allow for selection of map overlays.
- **3)** Touch the Stormscope Lightning **Settings** Button.
- **4)** Touch the **Clear Stormscope Lightning** Button.

### Selecting a maximum Stormscope map range for the PFD maps:

- 1) From PFW Home, touch PFD Map Settings.
- 2) If not selected, touch either the HSI Map or Inset Map Button to allow for selection of map overlays.
- **3)** Scroll as needed and touch the Stormscope Lightning **Settings** Button.
- 4) Touch the Stormscope Button (current range setting displayed in cyan).
- 5) Scroll as needed and touch a desired map range setting from the list.

### Enabling/disabling Stormscope information on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the **Stormscope Lightning** Button.

### Selecting a Stormscope mode for 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the Stormscope Lightning Settings Button.
- **4)** Touch either the **Cell** Button or the **Strike** Button. Button annunciator is green for currently selected mode.
- 5) When finished, touch **Back** or **Home**.

### Clearing Stormscope information on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the Stormscope Lightning Settings Button.

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- 4) Touch the Clear Stormscope Lightning Button.
- 5) When finished, touch **Back** or **Home**.

### Selecting a maximum Stormscope map range on 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Scroll as needed and touch the Stormscope Lightning Settings Button.
- 4) Touch the **Stormscope** Button (current range setting displayed in cyan).
- 5) Scroll as needed and touch a desired map range setting from the list.

# VERTICAL SITUATION DISPLAY TERRAIN

### Enabling/Disabling VSD Inset Window:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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 MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Touch the Terrain Button.
- 4) Touch either the Absolute, Relative, or Absolute + Relative Button to enable the display of Terrain information on the 'Navigation Map' Pane and VSD, or touch the Off Button to remove this information.

### Enabling/disabling Point Obstacle information in the VSD and 'Navigation Map' Pane:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the Land Tab.
- **3)** Touch the **Point Obstacle** Button to enable/disable the display of Point Obstacle information on the 'Navigation Map' Pane and VSD.

### Selecting a Point Obstacle information range in the VSD and 'Navigation Map' Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the Land Tab.
- 3) Touch the Point Obstacle **Settings** Button.
- 4) Touch the **Point Obstacles** Button (current range setting displayed in cyan).
- 5) Scroll as needed and touch a desired map range setting from the list.

### Changing the Vertical Situation Display Mode:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) Touch the Inset Window Tab.

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- 3) Touch the VERT Situation Display **Settings** Button.
- 4) Touch the **Mode** Button.

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- 5) Touch one of the following buttons to select a mode:
  - Auto: VSD shows terrain along the active flight plan route, or current track if there is no active flight plan.
  - **Flight Plan:** VSD shows terrain along the active flight plan route. VSD is unavailable if there is no active flight plan.
  - Track: VSD shows terrain along the current track.
- 6) When finished, touch the **Back** Button or the **Home** Button.

### Enabling/disabling the Track Mode Boundary:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) 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.

# TERRAIN DISPLAYS



**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.



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On-Ground Legend



In-Air Legend



**Relative Terrain Legend** 

### **DISPLAYING RELATIVE TERRAIN INFORMATION**

### Showing the Terrain Pane:

From MFW Home, touch the [Terrain] Button. [Terrain] can be Terrain-SVT, or TAWS.

### Enabling/disabling aviation information on the Terrain Pane:

- 1) From MFW Home, touch the [Terrain] Button. [Terrain] can be Terrain-SVT, or TAWS.
- 2) Touch the **Show Aviation Data** Button to enable/disable aviation information (airports, VORs, NDBs, Intersections) for the terrain pane.

### **Relative Terrain on the Navigation Maps**

### Controlling Relative Terrain Information (Navigation Map Panes):

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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 Relative Terrain Information (Inset and HSI Map):

- 1) From PFW Home, touch **PFD Map Settings**.
- 2) If the Inset Map or HSI Map is not presently shown on the PFD, do the following:
  - a) Touch the Layout Button.
  - **b)** Touch the **Inset Map** Button to display the Inset Map, or touch the **HSI Map** Button to display the HSI Map.
- **3)** Touch the **Terrain** Button.
- **4)** Touch the **Relative** Button to enable Relative Terrain, or **Off** to remove terrain information.

Or:

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1) 2) 3)	Press the <b>PFD Map Settings</b> Softkey. Press the <b>Terrain Settings</b> Softkey. Press the <b>Relative</b> Softkey.	Flight Instruments
Cust	tomizing terrain and obstacle display on the 'Navigation Map' Pane:	
1)	From MFW Home, touch Map > Map Selection > Map Settings.	EAS
2)	If not selected, touch the <b>Sensor</b> Tab.	
3)	Touch the <b>Terrain Settings</b> Button.	A
4)	Touch the <b>Map Settings</b> Button.	udio ai CNS
5)	The <b>Terrain</b> Button displays the maximum navigation map range to show relative terrain information in cyan. To change this value, touch the <b>Terrain</b> Button.	br N
6)	Scroll as needed, and touch a maximum navigation map range to display relative terrain information.	Flight 1anagemen
7)	Touch the <b>Back</b> Button three times to return to the 'Map Settings' Screen.	Ħ
8)	Touch the <b>Land</b> Tab.	H₂ Avo
9)	Touch the <b>Point Obstacle</b> Button to enable/disable the display of point obstacles on navigation maps.	azard idance
10)	Touch the Point Obstacle Settings Button.	
11)	Touch the <b>Point Obstacle</b> Button.	AFCS
12)	The Point Obstacle Button displays the maximum map range to show point obstacles in cyan. Touch this button to change the value.	
13)	Scroll as needed, and touch a maximum navigation map range to display point obstacle information.	Additional Features
14)	When finished, touch the <b>Back</b> Button or the <b>Home</b> Button.	
Enal	bling/disabling Smart Obstacles Information on (Navigation Maps):	Abr
1)	From MFW Home, touch Map > Map Selection > Map Settings.	ormal
2)	If not selected, touch the <b>Land</b> Tab.	
3)	Touch the Point Obstacle Settings Button.	Annu
4)	Touch the Smart Obstacles Button.	n/Aler
Con <sup>®</sup> Pane	trolling Absolute Terrain + Relative Terrain Information on the Navigation Map e:	ts A
1)	From MFW Home, touch Map > Map Selection > Map Settings.	ppend
2)	If not selected, touch the <b>Sensor</b> Tab.	×
3)	Touch the <b>Terrain</b> Button.	
4)	Touch the <b>Absolute + Relative</b> Button to enable Absolute + Relative Terrain feature, or <b>Off</b> to remove terrain information.	Index



### Enabling/disabling Absolute Terrain + Relative Terrain Information on the Inset Navigation Map and HSI Map:

- 1) From PFW Home, touch **PFD Map Settings** Button.
- 2) If the HSI Map is not presently shown on the PFD, do the following:
  - a) Touch the Layout Button.
  - b) Touch the HSI Map Button to display the HSI Map.
- 3) Touch the Terrain Button.
- 4) Touch the **Absolute + Relative** Button to enable Absolute + Relative Terrain feature, or **Off** to remove terrain information.

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- 1) Press the PFD Map Settings Softkey.
- 2) Press the Terrain Settings Softkey.
- 3) Press the Absolute + Relative Softkey.

### TERRAIN-SVT AND TAWS-B TERRAIN AND OBSTACLE ALERTS

### Acknowledging Terrain Alerts:

- 1) Touch the Terrain-SVT or TAWS Button to display the terrain pane and terrain settings screen.
- 2) Touch the OK Button to remove the pop-up alert. Or:

Touch the Terrain Inhibit or TAWS Inhibit Button to inhibit the terrain system from issuing alerts.

### Inhibiting/enabling Terrain SVT alerting:

1) From MFW Home, touch Terrain SVT > Terrain SVT Settings.

### Or:

- a) From MFW Home, touch Map > Map Selection > Map Settings.
- **b)** If not selected, touch the **Sensor** Tab.
- c) Touch the Terrain Settings Button.

### Or:

- a) From PFW Home, touch PFD Map Settings.
- **b)** If not selected, touch the **HSI Map** or **Inset Map** button to enable the Overlays buttons.
- c) Touch the Terrain Settings Button.
- **2)** Touch the **Terrain Inhibit** Button. When the annunciator on the button is green, Terrain SVT alerting is inhibited. When the annunciator is gray, Terrain SVT alerting is enabled.

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#### Inhibiting Terrain SVT alerting while an alert is occurring: Flight Instruments Touch the Terrain Inhibit Button on the Terrain SVT pop-up window. Inhibiting/enabling TAWS-B FLTA and PDA alerting: From MFW Home, touch TAWS > TAWS Settings. 1) Touch the TAWS Inhibit Button. When the annunciator on the button is green, TAWS-B 2) EAS alerting is inhibited. When the button annunciator is gray, TAWS-B alerting is enabled. Or: 1) From MFW Home, touch Map > Map Selection > Map Settings. ludio and 2) If not selected, touch the **Sensor** Tab. 3) Touch the Terrain **Settings** Button. Flight Management 4) Touch the **TAWS Inhibit** Button. TAWS-B alerting is inhibited when the button annunciator is green, enabled when gray. Or: 1) From PFW Home, touch **PFD Map Settings**. Hazard Touch the Terrain Settings Button in the 'Overlays' Window. 2) 3) Touch the **TAWS Inhibit** Button. Inhibiting TAWS-B alerting while an alert is occurring:

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

### TAWS-B

### Manually testing the TAWS System:

- 1) From MFW Home, touch Aircraft Systems > System Tests.
- 2) Touch the TAWS Button.

# TAS 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.

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포 꼳		
Flig Instrun	Traffic Symbol	Description
EAS	$\diamondsuit$	Other Non-Threat Traffic
Audio and CNS	$\blacklozenge$	Proximity Advisory (PA)
light agement		Traffic Advisory (TA)
d F Nana		Traffic Advisory Off Scale
Hazar Avoidar		TAS Traffic Symbology
AFCS	Traffic Symbol	Description
onal res		Traffic Advisory with ADS-B directional information. Points in the direction of the intruder aircraft track.
Additi Featu		Proximity Advisory with ADS-B directional information. Points in the direction of the aircraft track.
Abnormal Operation	$\land$	Other Non-threat traffic with ADS-B directional information. Points in the direction of the intruder aircraft track.
in/Alerts		TAS Traffic with ADS-B Symbology (GTX 335 Transponder)
Ann	Symbol	Description
Appendix		Traffic Advisory with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
Index		Traffic Advisory without directional information.

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Symbol	Description	Instru
	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.	ight Iments
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.	EAS
	Proximity Advisory with ADS-B directional information. Arrow points in the direction of the aircraft track.	Audio and CNS
	Proximity Advisory without directional information.	Flight Managemer
$\land$	Other Non-Threat traffic with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.	Hazar Avoidau
$\diamond$	Other Non-Threat traffic without directional information.	nce /
	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.	FCS
	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.	Additional Features
	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.	Abnormal Operation
	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.	Annun/Alert

### TAS Traffic with ADS-B Traffic Symbology (GTX 345R Transponder)

### SYSTEM TEST



**NOTE:** Traffic surveillance is not available during the system test. Use caution when performing a system test during flight.

Appendix



### Testing the Traffic System:

- From MFW Home, touch **Traffic > Traffic Settings**. 1)
- Turn the lower knob on the GTC to adjust the map range to 2 NM for the inner range 2) ring, and 6 NM for the outer range ring. This ensures the full traffic test pattern is depicted on the map.
- If the traffic system is in Operating Mode, touch the Standby Button and the ADS-B 3) **Display** Button.
- Touch the **Home** Button to return to the MFW Home screen. 4)
- From MFW Home, touch Aircraft Systems > System Test. 5)
  - 6) Touch the **ADS-B Button**.

### OPERATION

### Displaying the 'Traffic Map' Pane:

From MFW Home on the Touchscreen Controller, touch Traffic > Traffic Settings.

### Or:

If the PFW is in Split Mode, press the Traffic Softkey or touch the Traffic Map Button from **PFW Home** on the Touchscreen Controller.

### Selecting an operating mode:

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

### Or:

- a) From MFW Home, touch Map > Map Selection > Map Settings.
- b) If not selected, touch the Sensor Tab.
- c) Touch the Traffic Settings Button.
- In the TCAS Mode Window, touch one of the following buttons: 2)
  - Operate: System interrogates other aircraft transponders and displays traffic.
  - Standby: Traffic system does not interrogate other aircraft transponders or display traffic.

### **Altitude Range**

### Changing the altitude range:

From MFW Home, touch **Traffic > Traffic Settings**.

### Or:

- 1) From MFW Home, touch Map > Map Selection > Map Settings > Traffic Settings Button.
- 2) Touch the **Altitude Range** Button:

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- GARMIN
  - 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 on Navigation Map Panes:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, touch the **Sensor** Tab.
- 3) Touch the Traffic Button.

### Enabling/disabling the display of traffic information (HSI Map or Inset Map):

- 1) From PFW Home, touch **PFD Map Settings**.
- 2) Touch the Layout Button. If not selected, touch the HSI Map Button or Inset Map Button to access the Overlays settings.
- Touch the Traffic Button in the 'Overlays' Window to enable/disable the display of traffic on the HSI Map or Inset Map.

### Or:

- 1) Press the PFD Map Settings Softkey.
- 2) Press the Traffic Softkey.

### Customizing traffic display on the navigation maps:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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 traffic labels on navigation maps.
- 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.

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### Or:

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

### Enabling/disabling the Traffic Inset Map on the PFD:

With the PFW in Full Mode, press the Traffic Map Softkey

Or:

From PFW Home, touch Traffic Map Button.

### Showing the HSI Traffic Map:

- 1) From PFW Home, touch PFD Map Settings.
- 2) Touch the Layout Button.
- 3) Touch the HSI Traffic Button. Or:
- 1) On the PFW, press the PFD Map Settings Softkey.
- 2) Press the Map Layout Softkey.
- 3) Press the HSI Traffic Softkey.

### Enabling/disabling traffic overlay on PFD navigation maps:

- 1) With the Inset Map or HSI Map displayed, press the Map/HSI Softkey.
- 2) Press the Traffic Softkey to enable/disable the traffic overlay.
- 3) Press the Back Softkey to return to the top-level PFD softkeys.

# ADS-B TRAFFIC

# **OPERATION**

### Enabling/disabling the display of ADS-B traffic:

1) From MFW Home, touch Traffic > Traffic Settings.

Or:

- a) From MFW Home, touch Map > Map Selection > Map Settings.
- **b)** Touch the **Traffic Settings** Button on the **Sensor** Tab.

Or:

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- a) From PFW Home, touch PFD Map Settings.
- **b)** Touch the Traffic **Settings** Button.
- 2) Touch the ADS-B Display Button.

### **Displaying Motion Vectors**

### Selecting a Motion Vector display:

- 1) From MFW Home, touch Traffic > Traffic Settings.
- 2) Touch the Motion Vector Button.
- 3) Touch a button to select the desired Motion Vector display mode: Off, Absolute, or Relative.
- To change the duration of time used to forecast motion vectors, touch the Vector Duration Button.
- 5) Touch a button for the desired duration: **30SEC**, **1MIN**, **2MIN**, or **5MIN**.

### **Additional Traffic Displays**

### Showing additional traffic information:

- 1) From MFW Home, touch Traffic > Traffic Settings.
- 2) Touch the Target Selection Button.
- 3) Turn the upper 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 upper knob.
- 5) When finished, touch the Target Selection Button again to disable the button.

### Customizing traffic display on the navigation maps:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) If not selected, 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 traffic labels on navigation maps.
- **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.

Or:

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

### Traffic Map Display Range

### Selecting the 'Traffic Map' Pane display range:

- 1) From MFW Home, touch the **Traffic > Traffic Settings** Button.
- **2)** Turn the lower knob clockwise to increase map range, or counter-clockwise to decrease map range.
- 3) The following range options are available:
  - 750 ft.
  - 750 ft and 1500 ft.
  - 1500 ft and 0.5 nm.
  - 0.5 nm and 1 nm.
  - 1 and 2 nm.
  - 2 and 6 nm.
  - 6 and 12 nm.
  - 12 and 24 nm.
  - 24 and 40 nm.

### Viewing ADS-B Traffic Status:

- 1) From MFD 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.

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# 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 pressing the AP Key on the AFCS Controller. PFW Engaging the autopilot also engages the optional 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.
- Autopilot Engagement with Flight Director On If the flight director is on, the autopilot will smoothly pitch and roll the airplane to capture the flight director 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 DISC Switch, which is located on the control stick. When disengaged an autopilot disconnect tone will be heard and annunciated on the PFW. Other ways to disconnect the autopilot include:
  - » Pressing the AP Key on the AFCS Controller.
  - » Pressing the TO/GA Switch, if on the ground and the autopilot is engaged.
  - » Pulling the autopilot circuit breaker.

In the event of unexpected autopilot behavior, pressing and holding the **AP DISC** Switch will disconnect the autopilot and remove all power to the servos.

### AFCS PREFLIGHT TEST (PFT)

The AFCS Preflight Test is initiated upon system startup. Evidence of this test is indicated by a white 'PFT' annunciation.



**NOTE:** During system PFT an "Autopilot" aural alert may be observed with the autopilot servos circuit breaker pulled.

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# FLIGHT DIRECTOR OPERATION ACTIVATING THE FLIGHT DIRECTOR

	Control Droccod	Modes Selected			
EAS	Control Pressed	Lateral		Vertical	
	FD Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
	AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
CNS	TO/GA Switch	Takeoff (on ground) Go Around (in air)	TO GA	Takeoff (on ground) Go Around (in air)	TO GA
ent	ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
nagem	FLC Key	Roll Hold (default)	ROL	Flight Level Change	FLC
Mar	VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
ຍ	<b>VNV</b> Key	Roll Hold (default)	ROL	Vertical Path Tracking <sup>1</sup>	VPTH
AFCS AVOID	NAV Key	Navigation <sup>2</sup>	GPS VOR LOC BC	Pitch Hold (default)	PIT
ares A	<b>APR</b> Key	Approach <sup>2</sup>	GPS VAPP LOC	Pitch Hold (default)	PIT
Feat	HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT
	LVL Key	Level	LVL	Level	LVL

<sup>1</sup> Valid VNAV flight plan must be entered before **VNV** Key press activates flight director. When the **VNV** Key is pressed in conjunction with another mode selection, a 'V' is displayed with the selected mode annunciation.

<sup>2</sup> The selected navigation receiver must have a valid VOR or LOC signal or active GPS course before NAV or APR Key press activates flight director.

### **Flight Director Activation**

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# **AFCS MODES VERTICAL MODES**

Vertical Mode	Description	Control	Annun	ciation	EAS
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/descend to the Selected Altitude	(default)	PI	T	CNS
Selected Altitude Capture	Captures the Selected Altitude	1	AL	TS	Mar
Altitude Hold	Holds the current Altitude Reference	<b>ALT</b> Key	ALT	nnnnn <sub>FT</sub>	nagement
Vertical Speed	Holds the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	<b>VS</b> Key	VS	nnnn FPM	Avoidance
Flight Level Change	Holds the current aircraft airspeed while the aircraft is climbing/ descending to the Selected Altitude	FLC Key	FLC	nnn kt	AFCS

<sup>1</sup> ALTS is armed automatically when the Selected Altitude is to be captured instead of the VNAV Target Altitude.

<sup>2</sup> While in ALT Hold Mode, the **UP/DN** Wheel will change the altitude ref in 10 ft increments up to a maximum of 180 ft from the initial reference.

### **Flight Director Vertical Modes**

### LATERAL MODES

Lateral Mode	Description	Control	Annunciation	
Roll Hold	Holds the current aircraft roll attitude	(default)	ROL	AIGIN
Heading Select	Captures and tracks the Selected Heading	HDG Key	HDG	App

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Flight struments	Lateral Mode	Description	Control	Annunciation
-		Navigation Mode		
EAS	GPS Arm/Capture/Track VOR Enroute Arm/Capture/ Track	Captures and tracks the selected	NAV Key	GPS
P				VOR
Audio an CNS	LOC Arm/Capture/Track (No Glideslope)			LOC
Flight Aanagement		Flight Director Lateral Modes		

### **Flight Director Lateral Modes**

### **COMBINATION MODES**

Hazard Avoidano	Mode	Description	Control	Annunciation		
£		Vertical Navigation Modes				
A	Vertical Path Tracking	Captures and tracks descent legs of an active vertical profile	<b>VNV</b> Key	V PATH		
Additional Features	VNV Target Altitude Capture	Captures the Vertical Navigation Target Altitude	1	ALTV		
	VOR Approach Mode					
Abnormal Operation	VOR Arm/Capture/Track	Captures and tracks VOR navigation source	<b>APR</b> Key	VAPP		
		GPS Approach Mode				
Annun/Alerts	GPS Arm/Capture/Track	Captures and tracks GPS navigation source		GPS		
dix A	Glidepath	Captures and tracks the SBAS glidepath on approach	APR Ney	GP		
Appen	LOC Approach Mode					
Index	LOC Arm/Capture/Track	Captures and tracks the LOC navigation source		LOC		
	Glideslope	Captures and tracks the ILS glideslope on approach	AFN Ney	GS		



Mode	Description	Control	Annunciation	Flight Instruments
Backcourse Arm/Capture/Track	Captures and tracks the LOC source for backcourse approaches	NAV Key	BC	EAS
	Additional Modes			
Takeoff	Commands a constant pitch angle on the ground in preparation for takeoff	<b>TO/GA</b> Switch	ТО	Audio and CNS
Go Around	Commands a constant pitch angle and wings level in the air		GA	Flig Manag
Level	Commands straight and level flight	LVL Key <sup>2</sup>	LVL	ht ement

<sup>1</sup> ALTV is armed automatically under V PATH when the VNAV Target Altitude is to be captured instead of Selected Altitude.

<sup>2</sup> Level Mode can also become activated as a function of Electronic Stability and Protection (ESP<sup>™</sup>). Refer to the Additional Features section for a detailed discussion of the optional ESP feature.

### **Flight Director Combination Modes**

### Descending with V FLC Mode:

- **1)** Ensure a flight plan or direct-to waypoint with a vertical constraint is loaded into the system.
- 2) Activate the flight plan leg or waypoint.
- 3) Press the FLC Key on the AFCS Controller.
- 4) Press the VNV Key on the AFCS Controller.
- 5) Set the Selected Altitude below the current altitude.
- 6) Ensure vertical navigation is active (green 'V').

### **Executing a Descent Now:**

- **1)** From MFW Home, touch Flight Plan and ensure a flight plan with a vertical constraint is loaded.
- **2)** On the 'Active Flight Plan' Page, touch the altitude constraint button for the desired waypoint.
- **3)** Press the **VNAV Direct To** Button. The TOD is recalculated to be just in front of the aircraft and the descent can begin.

Or:

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### AFCS



- 1) From MFW Home, touch Flight Plan > VNAV.
- 2) Touch the VNAV Direct To Button and the 'Select VNAV Direct To' Page is displayed.
- **3)** From the list, select the desired descent. In the example below, the **FL200 at ININN** Button is selected.

### APPROACH MODE



**NOTE:** The selected navigation receiver must have a valid VOR or LOC signal or active FMS course for the flight director to enter Approach Mode.

### VOR Approach Mode

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- Selecting VOR Approach Mode:
- **1)** Ensure a valid VOR frequency is tuned.
- **2)** Ensure that VOR is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 3) Press the APR Key.

### **GPS Approach Mode**

### Selecting GPS Approach Mode without a Glidepath:

- **1)** Ensure an RNAV 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 GPS is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 3) Press the NAV Key.



**WARNING:** Do not rely on the autopilot to level the aircraft at the MDA/DH when flying a coupled approach with GP or GS modes active. The autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.

### Selecting GPS Approach Mode with a Glidepath:

- **1)** Ensure an RNAV approach with vertical guidance (LPV, LNAV/VNAV, LP+V, LNAV+V) 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 GPS is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 3) Press the APR Key.

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### LOC Approach Mode

### Selecting LOC Approach Mode without a Glideslope:

- 1) Ensure a valid localizer frequency is tuned.
- **2)** Ensure that LOC is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 3) Press the NAV Key.

Or:

- **1)** Ensure that GPS is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 2) Ensure a LOC/ILS approach is loaded into the active flight plan.
- **3)** Ensure the corresponding LOC frequency is tuned.
- 4) Press the NAV Key.

### Selecting LOC Approach Mode with a Glideslope (ILS):

- **1)** Ensure a valid ILS frequency is tuned.
- **2)** Ensure that LOC is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 3) Press the APR Key. Or:
- **1)** Ensure that GPS is the selected navigation source (press the **Active NAV** Softkey to cycle through navigation sources if necessary).
- 2) Ensure an ILS approach is loaded into the active flight plan.
- **3)** Ensure the corresponding LOC frequency is tuned.
- 4) Press the **APR** Key.

### Backcourse Mode (BC)



**NOTE:** In order to Arm a LOC Backcourse, the aircraft heading must be within 75 degrees of the LOC Backcourse.



**NOTE:** When making a backcourse approach, set the Selected Course to the localizer front course.



**NOTE:** The **NAV** Key must be used to arm Backcourse Mode; the **APR** Key will not arm the approach.

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Backcourse Mode captures and tracks a localizer signal in the backcourse direction. When Flight Instruments making a backcourse approach, set the Selected Course to the localizer front course. The flight director creates roll steering commands from the Selected Course and deviation.

### Selecting Backcourse Mode:

- Ensure a valid localizer backcourse frequency is tuned. 1)
- Ensure that LOC is the selected navigation source (press the Active NAV Softkey to cycle 2) through navigation sources if necessary).
- Set the Selected Course to the localizer front course. 3)
- 4) Press the **NAV** Key.

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# ADDITIONAL FEATURES

### SAFETAXI

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**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:** To view the SafeTaxi feature, 'Airports' must be enabled on the 'Map Settings' Page through the **Aviation** Tab on the Touchscreen Controller and Garmin SVT<sup>TM</sup> must be active.



**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.

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



NOTE: For 3D SafeTaxi to function, the SafeTaxi2 database must be utilized.

3D SafeTaxi provides a three dimensional depiction of the airport environment which assists the pilot with ground maneuvers and airport identification. Information displayed includes 3D building footprints (e.g., hangars, terminals, and towers), taxiways, aprons, signs, and other markings. This taxi view is only available in SVT Auto Mode.

### **Enabling SVT Auto Mode:**

- 1) From PFW Home, touch **PFD Settings**.
- 2) With the PFD Tab selected, touch the Synthetic Vision Button.
- 3) Touch the Auto Button.

### Enabling/disabling SafeTaxi:

- 1) From MFW 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 SafeTaxi on the Navigation and inset maps. A green annunciator on the button indicates SafeTaxi is enabled.

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### **Additional Features**



### Flight Instruments

- Configuring SafeTaxi range:
- 1) From MFW 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.

# SURFACEWATCH (OPTIONAL)

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**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.

voidance

**NOTE:** The SafeTaxi database must be available to provide information regarding taxiways, aprons and other objects in the airport environment.

### Enabling/disabling SurfaceWatch:

- 1) From MFW 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 system message 'SFC WATCH INHIB' is also displayed in the 'CAS' Window indicating SurfaceWatch is inhibited. The inhibit setting will be canceled after a power cycle.

# SURFACEWATCH SETUP

### Entering origin/destination airport when no flight plan has been entered:

- 1) From MFW 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 MFW 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 MFW Home, touch Flight Plan > Destination > Select Arrival Runway.
- **2)** On the 'Select Runway' Screen, scroll down as required and select the appropriate runway.

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# **Additional Features**

### Selecting required takeoff / landing distance using the 'PERF' Page:

- From MFW Home, touch **PERF > Takeoff Data**. 1)
- 2) Touch the **Origin** Tab.
- 3) If not already selected, touch the **Runway** Button and select the takeoff runway.
- 4) Touch the **Runway** Tab. The 'Runway Available' Distance is automatically populated for runways supported with PERF data.
- Touch the Runway Required Button and adjust the required takeoff distance as 5) required.

### Selecting required landing distance:

- From MFW Home, touch the **PERF** > Landing Data. 1)
- 2) Touch the **DEST** Tab (if not already selected).
- Touch the **Runway** Button and select the landing runway. 3)
- Touch the **Runway** Tab. 'The Runway Available' is automatically populated for runways 4) supported with PERF data.
- 5) Touch **Runway Required** Button and adjust the required landing distance as required.

**NOTE:** While a missing or invalid SafeTaxi Database will reduce functionality, Surface-Watch will remain operational. All SurfaceWatch alerting is based on the Navigation AFCS Database. The SurfaceWatch Information Box will show only 'On' or 'Approaching' runway information if the SafeTaxi Database is missing or invalid or if the airport does not have SafeTaxi diagrams.

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Alert	Description	itional tures
SURFACEWATCH FAIL (One or more inputs invalid)	The GPS or WAAS position could be invalid, or is insufficient due to RAIM position warning, loss of integrity, or the GPS horizontal protection level exceeds the LNAV/VNAV horizontal alert limit (556.0 meters). Heading Input could be invalid.	Abnormal Operation
SURFACEWATCH INHIBITED (SurfaceWatch inhibited)	SurfaceWatch has been inhibited by the pilot. Aural and visual alerts are inhibited. Functionality will automatically reset on a system restart.	Annun/Ale
SURFACEWATCH DISABLED (Too far north/south)	Issued when the aircraft is positioned north of N 87° latitude or south of S 87° latitude.	rts Apper

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ints	Alert	Description
Instrume		If the runway entered in PERF or other pilot entry page does not have complete position information, SurfaceWatch will display this message
	NO RUNWAY POSITION	indicating that SurfaceWatch should be inhibited by the pilot (see above
EAS	CATA (Inhibit SurfaceWatch. No runway position data.)	procedure).
		Some airports within the Navigation database do not have surveyed runway position data for all runways at the airport (e.g., soft surface runways, turf.
		gravel etc.) In these cases SurfaceWatch may either issue alerts or may not
		provide alerts, or may not be able to display complete Information Box data at that airport.

### SurfaceWatch Alerts



# ELECTRONIC CHARTS

with the guidance in AC 120-76D.

**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.

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**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

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**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<sup>®</sup> by selecting 'Aviation Database Alerts.'

of aeronautical charts is a Portable Electronic Device (PED), its use must be consistent



**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.
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#### Selecting the preferred charts source:

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- 1) From MFW Home, touch Charts > Chart Selection > Charts Options.
- 2) Ensure the desired chart source is available (indicated by a green check mark 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 as the preferred chart source. The current selection is then displayed on the **Preferred Source** Button.

#### **CHARTVIEW (OPTIONAL)**

#### Selecting charts using the 'Charts' Screen:

- 1) From MFW 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 MFW Home, touch Charts > Chart Selection.
- 2) Select the desired chart for display in the selected pane.
- **3)** Push the lower knob. The 'Charts Pan/Zoom Control' Screen is displayed on the Touchscreen Controller.
- **4)** Turn the lower knob, or use the pinch-and-zoom feature on the Touchpad to adjust the chart zoom.

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- 5) Move a finger along the Touchpad, or turn the upper knobs to pan the displayed chart.
- 6) Touch the **Rotate** buttons to rotate the chart clockwise or counter-clockwise, as indicated on the button. Each touch of the button rotates the chart 90 degrees in the designated direction.



#### Pan and Zoom Touchpad

#### Selecting airport diagrams from the 'Nearest Airports' Screen:

- 1) From MFW Home, touch **Nearest** > **Airport**.
- 2) Touch the desired airport button.
- **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.

#### Syncing charts to current phase of flight:

- 1) From MFW Home, touch Charts > Chart Selection.
- 2) From the 'Charts' Page, press the **SYNC POF** Button to cause the chart applicable to the current phase of flight to be displayed.

#### Selecting night, day, or auto view:

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

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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.

#### FLITECHARTS (OPTIONAL)

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#### Selecting charts using the 'Charts' Screen:

- 1) From MFW 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 MFW Home, touch Charts > Chart Selection.
- **2)** Select the desired chart for display in the selected pane.
- Push the lower knob on the Touchscreen Controller. The 'Charts Pan/Zoom Control' Screen is displayed.
- 5) Move a finger along the Touchpad, or turn the upper knobs to pan the displayed chart.
- **6)** Touch the **Rotate** buttons to rotate the chart clockwise or counter-clockwise, as indicated on the button. Each touch of the button rotates the chart 90 degrees in the designated direction.

#### Selecting airport diagrams from the 'Nearest Airports' Screen:

- 1) From MFW Home, touch **Nearest** > **Airport**.
- 2) Touch the desired airport button.

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 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.

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#### Syncing charts to current phase of flight:

- 1) From MFW Home, touch Charts > Chart Selection.
- **2)** From the 'Charts' Page, press the **SYNC POF** Button to cause the chart applicable to the current phase of flight to be displayed.

#### Selecting Night, Day, or Auto view:

- 1) From MFW Home, touch Charts > Chart Selection > Charts Options.
- 2) Touch the Light Mode Button.
- 3) Touch the Night, Day, 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 remain in Night Level will cause the display to change to Day Mode sooner.

## IFR/VFR CHARTS

#### Selecting the chart to display:

- 1) From MFW 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 MFW 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.

#### Selecting Day, Night, or Auto View:

- 1) From MFW Home, touch Map > Map Selection > VFR, IFR Low, or IFR High.
- 2) Touch the applicable settings button: VFR Settings, IFR Low Settings, or IFR High Settings.
- **3)** Touch the **Light Mode** Button.
- **4)** 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.

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  - 5) With 'Auto' selected, the **Threshold** Slider is no longer grayed out.
  - 6) Move the slider left or right to set the desired threshold. Setting the Threshold Level percentage to the same percentage shown as the Current PFD1 Backlight Level will cause the Day/Night view to switch at the current backlight setting. Adjusting the Threshold Level setting larger than the Current PFD1 Backlight Level will cause the display to remain in Night Mode longer. Adjusting the Threshold Level setting smaller than the Current PFD1 Backlight Level will cause the display to change to Day Mode sooner.

## Viewing traffic on the IFR Low, IFR High, or VFR chart:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- **2)** Touch the 'Sensor' Tab. Touch the **Traffic** Button to enable the traffic overlay. A green annunciator indicates the feature is enabled.

## Configuring traffic overlay settings:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) Touch the 'Sensor' Tab. Touch the Traffic Settings Button, then touch the Map Settings Button.
- Touch the Symbols Button. Choose the range at which traffic symbols will be displayed and below (e.g., 100 pm and below)

100 nm and below).

- **4)** Touch the Labels Button to enable the feature.
- **5)** Touch the **Labels** Button with the nautical mile range below. Choose the range at which traffic labels will be displayed and below (e.g., 100 nm and below).

## Viewing weather on the IFR Low, IFR High, or VFR chart:

- 1) From MFW Home, touch Map > Map Selection > Map Settings.
- 2) Touch the 'Sensor' Tab. Touch the Graphical METARs Button, the NEXRAD Button, the Datalink Lightning Button, the Stormscope Lightning Button, or the TFR Button.
  The W/X Source Button is used to calcut the source of worth with formation.

The WX Source Button is used to select the source of weather information: SiriusXM, Connext, or FIS-B Weather.

## SATELLITE TELEPHONE & 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.

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CONNEXT REGISTRATION

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## Registering the system for datalink services:

- 1) From MFW 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 MFW Home, touch Services > Connext Setup >, then touch the REG Tab.
- 6) Press the **Register** Button.
- 7) Enter the access code.
- 8) Touch the Enter Button.

## **BLUETOOTH ENHANCEMENTS**

When the GMA 36B Audio Controller is installed, the system supports a Bluetooth link for audio to a Portable Electronic Device (PED) (e.g., a personal cell phone, Garmin VIRB<sup>®</sup>, etc.). See the Connext Section in Additional Features for PED pairing instructions. This link enables a two-way telephone call between the system and the PED. This arrangement allows the flight crew to talk on a PED cell phone call through the aviation headset. The system also supports exchange of telephone related data and control commands between the PED and the Garmin Integrated Flight Deck (GIFD). These controls allow the flight crew to manage incoming and outgoing cell phone calls without requiring access to the PED based menu.

When a PED Bluetooth link is connected to the system, the system provides the following capability through the Touchscreen controller based user interface. This menu is located on the 'Services' Page. With a Bluetooth audio connection you can:

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- Answer, ignore, hold, or end a call.
- View a calling number and name as reported by the connected PED.
- Initiate a call from the Touchscreen Controller using avionics contacts, Bluetooth contacts, or the dial pad
- See the signal strength graphic for the connected cell phone.
- Isolate the call to the pilot/copilot (using the **Isolate** Button).

The flight crew can manually add contacts to the contacts list ('Stored' Contacts). Alternately, the system can import contacts directly from the PED ('Pilot Bluetooth' Contacts). The flight crew can browse these imported contacts and initiate a cell phone call. The system automatically syncs PED contacts after the Bluetooth connection is made.

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**NOTE:** For Android devices, you must allow your device to share your contacts when the connection is established. For Apple devices, you must first establish the Bluetooth connection. Then on your PED, go into Bluetooth settings for the connected device and allow contacts to sync.

#### **CONTACTS**

#### Creating a new stored contact:

- 1) From MFW Home, touch **Services** > **Contacts**. Touch the **Stored** Tab if not already selected.
- 2) The 'Contacts' Screen is displayed.
- 3) Touch the Create New Button.
- 4) Touch the Name Button. The 'Contact Name' Entry 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 'Phone Number' Entry Screen is displayed.
- 9) Enter the telephone number of the new contact.
- **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.
- **13)** Touch the **Enter** Button.
- **14)** Touch the **Create** Button. The new contact is created and appears in the list of contacts. If the contact was selected as a 'Favorite,' a star symbol will display on the right side of the contact button to indicate this selection.

#### Viewing contacts from a Bluetooth connected PED:

- 1) From MFW Home, touch Services > Contacts.
- 2) Touch the **Pilot Bluetooth** Tab. Once a PED is connected to the system, contacts in this tab will automatically populate.

#### Editing a contact:

- 1) From MFW Home, touch **Services** > **Contacts**. Touch the **Stored** Tab if not already selected.
- 2) Touch the contact you desire to edit.
- 3) Touch the information field that you would like to edit.
- 4) When changes are complete, touch the **Save** Button.



#### Deleting a contact:

- 1) From MFW Home, touch **Services** > **Contacts**.
- 2) Touch the contact you desire to delete.
- 3) Touch Delete.
- 4) Touch OK.

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#### Deleting all contacts:

- 1) From MFW Home, touch Services > Contacts.
- 2) Touch Options.
- 3) Touch Delete All Contacts.
- 4) Touch OK.

#### **TELEPHONE COMMUNICATION**

#### Viewing the 'Telephone' Screen:

- 1) From MFW Home, touch Services > Satellite Phone.
- 2) The 'Satellite Phone' Screen is displayed.

4	Internal Phone	External Phone	Description
al AFCS	Table Idle	Idle	Phone is Idle
Addition Feature	Ringing	Ringing	Phone is ringing
Abnormal Operation	Connected	Connected	Phone has a dial tone (off hook) or connected to another phone
Annun/Alerts	(C) <sup>x</sup>		Phone dialed is busy
pendix	Dialing	۲ 📑 🗐 ۲ Dialing	Phone is dialing another phone
x A <sub>t</sub>			Phone has failed



Internal Phone	External Phone	Description	Flight Instrumen
$\otimes$	$\bigotimes$	Phone status not known	ts EA
	= <b>=</b> = Disabled	Phone is disabled	S Aud
		Phone is reserved for data transmission	io and Flight INS Manageme
		Calling other phone or incoming call from other phone	<b></b>
		Other phone is on hold	Hazard
		Phones are connected	6

#### **Telephone Symbols**

#### Enabling/disabling the Iridium Telephone System:

- 1) From MFW Home, touch Services > Satellite Phone.
- Touch the Iridium #1 Button to display the 'Satellite Phone Iridium #1 Transceiver' Screen.
- **3)** Touch the **Disable Iridium Transmission** Button to disable the transceiver. A green annunciator indicates Iridium transmission is disabled. Touch the button again to enable the transceiver. A gray annunciator indicates Iridium transmission is enabled.

#### Answering a call:

- 1) Touch the flashing PHONE 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.

#### Making an external call using a telephone number:

- 1) From MFW Home, touch Services > Satellite Phone.
- 2) Touch the Cockpit Phone Button. The 'Satellite Phone Cockpit' Screen is displayed.
- 3) Touch the **Dial** Button. The phone number entry screen is displayed.
- 4) Using the number keys, enter the phone number.

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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 **Send** Button. The system now begins establishing a connection. The system indicates a completed connection when the telephone is answered.

#### Making an external call by selecting a contact:

- 1) From MFW Home, touch **Services > Contacts**. Touch the **Stored** Tab (if not already selected).
- 2) Touch the button corresponding to the desired contact. The selected contact is displayed.
- 3) Touch the Call or Send Text Button. A selection screen is displayed.
  - 4) Touch the Make Satellite Phone Call Button.

#### Or:

Touch the **Make Bluetooth Phone Call** Button. The system initiates the call. The system indicates a completed connection when the telephone is answered.

#### Making a call using a contact from a Bluetooth connected PED:

- 1) From MFW Home, touch Services > Contacts. Touch the Pilot Bluetooth Tab.
- 2) Touch the button corresponding to the desired contact. The selected contact is displayed. Touch the Copy To Stored Contacts Button to save the contact in the Stored Tab on the Touchscreen Controller.
- 3) Touch the Call or Send Text Button. A selection screen is displayed.
- 4) Touch the Make Bluetooth Phone Call Button. The system initiates the call using the connected PED. The system indicates a completed connection when the telephone is answered.

#### Entering numbers during an Iridium call:

- 1) From MFW Home, touch Services > Satellite Phone.
- 2) With a call already connected, touch the **Cockpit** Phone Button. The 'Satellite Phone Cockpit' Screen is displayed.

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- 3) Touch the Open Keypad Button. The 'Phone Keypad' Screen is displayed.
- 4) Utilize the keypad as necessary.

If a call is connected and a third party attempts a call, the 'Notifications' Screen will display a 'Call Waiting' Message.

#### Placing a call on hold:

From the **Phone** Tab on the 'Notification's Screen, press the **Hold Active Call And Answer** Button.

Or:

Press the Ignore Button.

#### Or:

When a call is connected over Bluetooth, touch the Hold Active Call Button.

#### Ending a call:

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

#### Enabling/disabling telephone audio and adjusting volume:

- 1) After a call is connected, from MFW Home, touch Services > Satellite Phone.
- 2) Touch the Cockpit Phone Button. The 'Satellite Phone Cockpit' Screen is displayed.
- 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 the 'SMS Text Messaging' Screen:

From MFW Home, touch **Services** > **Satellite SMS Text**.

#### Sending a text message:

- 1) From MFW Home, touch Services > Satellite SMS Text.
- 2) Touch the Draft New Button. The '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 an SMS compatible telephone, touch the Phone Button. If the message is to be sent to an email address, touch the Email Button.

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- **4)** Enter the telephone number or email address. The number or address may be obtained from stored Contacts by touching the **Find** Button.
- **5)** If a phone number or address was entered manually, touch the **Enter** Button. The number or address is now displayed.
- 6) Touch the Message Window. The alphanumeric buttons are displayed.
- **7)** Enter the message text. The large upper knob on the Touchscreen Controller may be used to move the cursor within the message text in order to select the location for adding new text, or delete existing text.
- 8) Touch the Enter Button. The message text is displayed in the Message Window.
  - 9) Touch the Send Button.

#### Sending a new text message to a saved contact:

- 1) From MFW Home, touch Services > Contacts.
- **2)** Scroll down as required to find a contact. Touch the contact's name on the Touchscreen Controller.
- 3) Touch the Call or Send Text Button.

#### Viewing a text message when received:

- 1) Touch the flashing **SMS** Button on the Touchscreen Controller. The **SMS Text Inbox** Tab is automatically selected and the newly received text message is shown at the top of the Notifications 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 MFW Home, touch Services > Satellite SMS Text.
- 2) If necessary, scroll to the desired message. Touch the desired text message in the Inbox list. The text message is displayed.
- 3) Touch the **Reply** Button. The 'Opened Satellite SMS Text Message' Screen is displayed.
- 4) Touch the **Message** Window to display the alphanumeric buttons.
- 6) Touch the Enter Button. The reply message is displayed.
- 7) Touch the Send Button. The 'Satellite SMS Text Message Replied To' Screen is displayed.
- 8) If desired, touch the Reply Again Button to send another reply.

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- Touch the **Delete** Button to delete the message from the list. 9)
- 10) Touching the Save Contact Button saves the contact information in the system contact list.

#### Viewing Inbox messages:

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

#### Viewing Draft messages:

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

#### Viewing Outbox messages:

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

Message Symbol	Description	AFC
$\succ$	Received text message that has not been opened	ι S
$\bigotimes$	Received text message that has been opened	Features
	A reply has been sent for this text message	Operat
7	Saved text message, draft not sent	tion
Ţ	System is sending text message	Annun/Alerts
Ţ	Text message has been sent	Appe
$\langle \! \times \! \rangle$	System failed to send text message	ndix

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- Viewing messages sorted by message date/time:
- From MFW Home, touch Services > Satellite SMS Text. 1)
- Touch the **Options** Button. The 'Sort Messages By' selections are displayed. 2)
- Touch the Time Button. A green annunciator indicates an active selection. 3)
- Touch the **Back** Button to return to the previously selected message box. 4)

### Viewing messages sorted by address:

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

### Marking all messages as read:

- From MFW Home, touch Services > Satellite SMS Text. 1)
- Touch the **Options** Button. The selection buttons are displayed. 2)
- 3) Touch the Mark All Read Button. All messages in the Inbox now indicate they have been opened.
- Touch the **Back** Button to return to the Inbox. 4)

### **Deleting all messages:**

- 1) From MFW Home, touch Services > Satellite 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.

### Or:

Touch the **Cancel** Button to return to the Inbox.

### Abnormal Operation POSITION REPORTING (OPTIONAL)



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**NOTE:** An account must be established with Garmin Connext to make full use of the Position Reporting feature.

## Enabling/disabling position reporting:

- 1) From MFW Home, touch **Services** > **Position Reports**.
- 2) Touch the Automatic Reporting Button to enable or disable automatic transmission of position reports. A green annunciator indicates automatic reporting is enabled.

## Setting up automatic position reporting:

- From MFW Home, touch **Services** > **Position Reports**. 1)
- Touch the Automatic Reporting Button to enable automatic transmission of position 2) reports. A green annunciator indicates automatic reporting is enabled.

- 3) Touch the Interval Button. The 'Interval Entry' Screen is shown.
- **4)** Use the keypad to enter the time (2 60 minutes) between automatic reports, and touch the **Enter** Button to return to the 'Connext Position Reports' Screen.
- **5)** Touch the **Passengers Onboard** Button to indicate passengers are or are not on the aircraft. A green annunciator indicates passengers are on the aircraft.

#### Sending a position report manually:

- 1) From MFW Home, touch Services > Position Reports.
- 2) Touch the Send Report Button to send a report as soon as the link is available.

## CONNEXT (OPTIONAL)

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## WIRELESS TRANSCEIVER/PED COMPATIBILITY

The Wireless Transceiver (Flight Stream 510) is compatible with the following PEDs, operating system (OS) versions, and Apps:

- $\,$  iPhone  $^{\circledast}$  5 and newer, running iOS version 8.1 and above
- $\,$  iPad  $^{\circledast}$  3 and newer, running iOS version 8.1 and above
- iPad Air® and newer, running iOS version 8.1 and above
- <code>iPad mini $^{\ensuremath{\$}}$  with Retina Display and newer, running iOS version 8.1 and above</code>
- <code>iPad Pro®</code> and newer, running iOS version 8.1 and above
- Google Nexus™, running Android OS version 4.4 (KitKat) and above
- Samsung Galaxy™, running Android OS version 4.4 (KitKat) and above
- Garmin Pilot for iPhone/iPad version 8.4 and above, running on a supported iPhone/iPad model listed above
- Garmin Pilot for Android version 5.4 and above, running on a supported Android OS device listed above
- ForeFlight<sup>®</sup> Mobile version 7.3 and above, running on a supported iPhone/iPad model listed above
- FltPlan<sup>®</sup> Go version 4.6.4 and above, running on a supported iPhone/iPad model listed above



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**NOTE:** If the 'Wireless Settings' Screen displays the Flight Stream 510 as 'offline,' ensure the Flight Stream 510 is inserted into the lower slot of either GDU and cycle the power to the system.

**NOTE:** For the Flight Stream 510, only one Wi-Fi device can be connected at a time, and only one protocol (e.g., Bluetooth or Wi-Fi) is connected at a time.



#### Viewing the 'Networks & Pairing' Screen:

From MFW Home, touch Services > Networks & Pairing.

#### Changing Bluetooth device name:

- 1) From the 'Networks & Pairing' Screen, touch the Bluetooth Settings Button.
- 2) Touch the **Bluetooth Device Name** Button. This is the name of the Bluetooth device you will connect to from your PED.
- **3)** If desired, change the name of the Bluetooth Device by entering a new name using the alpha-numeric keypad on the 'BT Name' Screen.
- 4) Touch the Enter Button when complete.

#### Connecting a PED to the aircraft's Bluetooth System:

**1)** After obtaining the system's Bluetooth Name from the previous procedure, on your PED, initiate a Bluetooth connection to this device. Connect to this device on your PED.



**NOTE:** The flight crew shall reject a Bluetooth pairing request if the PINs on the PED and Garmin display are not identical or the request originates from any unknown or suspicious device.

- 2) The system will prompt with a message: "Accept Bluetooth pairing with device "<PED Name>"? Passkey: <######>."
- **3)** After verifying the passkey provided by the system matches that on your PED, touch the **Yes** Button to pair the device. Also complete any pairing steps on your PED.
- **4)** From the 'Internal Network Settings' Screen, touch the **Devices** Tab. Your device is now 'Connected' to the system over Bluetooth.

#### Viewing the 'Connext Settings' Screen:

From MFW Home, touch **Services** > **Connext Setup**. The **Settings** Tab is displayed by default.

#### Selecting crew position for Garmin Pilot control of Connext Bluetooth volume:

- From the 'Connext Setup' Page and with the Settings Tab selected, touch the PED Volume Settings Button.
- 2) Touch the Pilot, Copilot, or Pass Button (indicated by a green annunciator) to enable SiriusXM remote volume control on a mobile device running Garmin Pilot. A mobile device running Garmin Pilot can now control the passenger's SiriusXM volume.

#### Enabling/disabling Flight Plan Importing from Garmin Pilot:



**NOTE:** Before activating a flight plan that has been transferred/uploaded from outside the avionics system, the flight crew shall validate the flight plan is correct.

- 1) From MFW Home, touch Services > Connext Setup.
- 2) On the Settings Tab, a green annunciator below the PED Flight Plan Imports Button indicates PED flight plan importing is enabled. Pressing the PED Flight Plan Imports Button cycles this function either 'on' or 'off.'

#### Enabling/Disabling Wi-Fi Database Importing from Garmin Pilot:

- 1) From MFW Home, touch Services > Connext Setup.
- 2) On the Settings Tab, a green annunciator below the Database Imports Button indicates Wi-Fi Database Importing is enabled. Pressing the Database Imports Button cycles this function either 'on' or 'off.'

### Removing a specific paired device from the list of paired devices:

- 1) From MFW Home, touch Services > Networks & Pairing.
- 2) Touch the Bluetooth **Settings** Button.
- 3) While viewing the 'Internal Network Settings' Screen, touch **Devices** Tab.
- **4)** Touch the Bluetooth device name to be removed.
- 5) A confirmation screen is displayed asking to remove the paired Bluetooth device.
- 6) Touch **OK** to remove the device from the list of paired devices.

## **RECORDING MODE**

**NOTE:** For monitored audio to be recorded, the device must be connected to GMA-1 over a Bluetooth connection.

### Enabling a Bluetooth Device as a recording device:

- 1) From MFW Home, touch Services > Networks & Pairing.
- 2) While viewing the 'Networks & Pairing' Screen, touch the Bluetooth Settings Button.
- **3)** On the 'Internal Network Settings' Page, touch the **Select Device** Button.
- **4)** From the 'Device Selection List' touch the **GMA 1** Button.
- 5) With GMA 1 selected, touch **Devices** Tab on the 'Internal Network Settings' Page.
- **6)** Follow the 'Connecting a PED to the aircraft's Bluetooth System' Procedure and connect the PED to GMA 1.
- 7) Toggle the Recording Device Enable Button next to the device in the 'Bluetooth Device Name and Status' List to allow headset audio to be recorded over the GMA-1 Bluetooth connection to the PED.
- 8) A green annunciator indicates the device has been enabled for recording.

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#### SIRIUSXM SATELLITE RADIO (OPTIONAL) 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.

Contact the installer if the radio ID cannot be located.

#### Establishing a SiriusXM Satellite Radio account:

- 1) From MFW Home, touch Utilities > Setup > SiriusXM Info.
- 2) Note the Data Radio ID and the Audio Radio ID.
- **3)** Contact SiriusXM Satellite Radio. Follow the instructions provided by SiriusXM Satellite Radio services.

#### Activating SiriusXM satellite services:

- **1)** Position the aircraft so the GDL 69A SXM antenna has an unobstructed view of the sky, away from buildings.
- 2) Connect aircraft to external power source if available.
- 3) Power on the avionics and allow the system to start in normal mode.
- 4) For the GDL 69A SXM, service activation is performed automatically by the system.
- To verify the correct subscription package, from MFW Home, touch Utilities > Setup > SiriusXM Info.
- **6)** On the 'SiriusXM Info' Screen, verify the correct subscription package is displayed in the 'Service Class' Window.
- 7) In the 'Weather Products' Window, available weather products appear as white text (data has not been received); A green check indicates the weather product data has been received and is available for use, unavailable weather products appear in subdued (gray) text.



**NOTE:** It may take 45 - 60 minutes before activation is complete and all subscribed-to weather products become available.

### USING SIRIUSXM RADIO

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#### Viewing the 'Music' Screen:

From MFW Home, touch **Services > Music**.

Or:

From NAV / COM Home, touch the Pilot Music 1 Button.

#### Selecting a channel from the channel list:

- 1) From MFW Home, touch **Services > Music** to access the 'Music' Screen.
- 2) Touch the desired channel in the channel list. The selected channel is now shown in the 'Now Playing' Field.

#### Selecting a channel directly:

- 1) From MFW 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 MFW Home, touch Services > Music > Category.
- 2) The list of categories is displayed.
- **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 MFW Home, touch **Services > Music** to access the 'Music' Screen.
- 2) Select a desired channel. It will be shown 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 MFW 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.

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Or:

Turn the **Volume** Knob on the Touchscreen Controller.

#### Muting or unmuting the volume:

Adjusting SiriusXM pilot volume:

**2)** The **Volume** Slider is displayed.

1) From MFW Home, touch **Services > Music > Volume**.

From MFW Home, touch **Services > Music > Volume**.

increases volume. Dragging to the left to decrease the 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 and drag the slider to the right or left to adjust the volume. Dragging to the right

3) Touch the **Back** Button to return to the 'Music' Screen. When the volume is muted, 'Muted' is displayed in the 'Music Volume' Field.

#### Or:

- 1) From NAV / COM Home, touch the Audio & Radios Button, then touch the Pilot, Copilot, or Pass Tab.
- 2) Scroll down and press the Music Button. A gray annunciation under the Music Button indicates SiriusXM volume is muted.

#### Enabling/disabling soft mute settings:

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

## ELECTRONIC CHECKLISTS



**NOTE:** Garmin is not responsible for the content of checklists. Checklists are created by the aircraft manufacturer. Modifications or updates to the checklists are coordinated through the aircraft manufacturer.

#### Utilizing a nominated checklist:

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- 1) After the flight crew has been alerted to a CAS Message that is linked to a checklist, from MFW Home, touch **Checklist.**
- 2) Touch the 'CAS' Tab to view the checklist linked to that specific CAS message.
- 3) Touch the nominated checklist to view the checklist on the MFW/PFW.

#### Accessing and navigating checklists:

- 1) From MFW 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 lower knob on the Touchscreen Controller or the Checklist Advance Button to check the selected checklist item. The line item turns green and a check mark is placed in the associated box. The next line item is automatically selected for checking. Turn the lower knob on the Touchscreen Controller to scroll through the checklist and select the desired checklist item.

Selecting a checked item and pressing the lower knob on the Touchscreen Controller or the **Checklist Advance** Button will return the item to the unchecked state.

Or:

Press the dedicated checklist button. The line item turns green and a check mark is placed in the associated box. The next line item is automatically selected for checking.

- 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 before 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 lower knob on the Touchscreen Controller.

Or:

Press the **Checklist Advance** Button to display the next checklist in the group.

Or:

Choose another Checklist by touching the desired checklist on the Touchscreen Controller.

#### Resetting a specific checklist:

- 1) From MFW Home, touch Checklist.
- 2) Touch the desired checklist to reset.
- **3)** Touch the **Checklist Options** Button.
- 4) Touch the Reset Checklist Button.

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#### Resetting all checklists:

- From MFW Home, touch the **Checklist** Button. 1)
- 2) Touch the **Checklist Options** Button.
- Touch the Reset All Checklists Button.

## ELECTRONIC DOCUMENTS

#### Selecting a document:

- From MFW Home, touch Utilities > Documents. The 'Document Viewer' Screen is now 1) displayed.
- Touch the **Selected Document** Button. 2)
- 3) Touch the **Installed** or **User** Tab to select the desired document source. In the above example, the User Tab is selected. Documents must be installed by the manufacturer for them to show in the 'Installed' Tab.
- Touch the desired document button. The selected document name is displayed in the 4) Selected Document Button. The document is displayed in the selected pane.

#### **Changing Document Viewer options:**

- From MFW Home, touch **Utilities > Documents > Options.** The 'Document Viewer 1) Options' Screen is displayed.
- Touch the **Document Info** Button to view information pertaining to the document, such 2) as the document name, the file size, and the creation date.
- After touching the Back Button, touch the Fit Page Button to view the complete page in 3) the selected pane.
- 4) Touch the **Fit Width** Button to enlarge the displayed page to fill the width of the selected pane.
- Touching the Rotate Page buttons will turn the displayed page 90 degrees to the right 5) or left within the selected pane. Each subsequent touch will turn the page another 90 degrees.
- Touch the **Brightness** Slider to adjust the brightness of the displayed page. 6)

#### 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:

- After selecting the desired document, touch the **PREV Page** and **Next Page** buttons to 1) increment and decrement one page with each touch.
- The Page Select Button shows the number of pages contained in the document and the 2) page currently being displayed. Touch the Page Select Button to jump to a specific page number. The 'Enter Page Number' Screen is displayed.

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- **3)** From the 'Document Viewer' Screen, touch the **Find** Button to display the 'Document Viewer Find' Screen.
- 4) If necessary, touch the Table of Contents Tab.
- 5) Touch the [+] Button to expand a topic. Touch the [-] Button to return to the collapsed view of the topic.
- **6)** Touch the desired topic to jump to that portion of the document. In this example, the Flight Plan Section is selected.

## Zooming in and out on a document page:

- With the document displayed, push the lower knob. 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 lower knob, or use the pinch-and-zoom feature on the Touchpad to zoom in or zoom out on the document page display.
- **3)** Turn the upper knobs, 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 of the document page.

#### Navigating links within the document:

- With the document displayed, push the lower knob. 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 upper knobs, 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, push the upper knob, or press the lower knob 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 'Document Viewer Find' Screen.
- 2) Touch the **Bookmark** Tab.
- **3)** Touch the **Bookmark Current Page** Button. The 'Enter Bookmark Name' Screen is displayed.
- 4) After naming the bookmark, touch the Enter Button. A confirmation screen is displayed.
- 5) Touch the **OK** Button. The newly created bookmark is displayed.





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#### 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.
- 3) Touch the X Button next to the bookmark to be deleted.
- **4)** Touch the **OK** Button on the confirmation screen.
- 5) To acknowledge deletion of the bookmark, touch the **OK** Button.

## AUXILIARY VIDEO (EVS)

**NOTE:** Auxiliary Video can only be displayed on the MFD.

#### Displaying auxiliary video:

From MFW Home, touch **Aircraft Systems > Video**. The 'Video Settings' Screen is displayed on the Touchscreen Controller and Auxiliary Video is displayed on the selected display pane.

#### Switching between full-screen and split-screen:

- 1) From MFW Home, touch Aircraft Systems > Video.
- 2) On the Touchscreen controller, touch the Half or Full Button on the Button Bar.

#### Zooming in and out:

- 1) From MFW Home, touch Aircraft Systems > Video.
- 2) Turn the lower right knob on the Touchscreen Controller to zoom in and out. Note the 'ZOOM: 4x' or

'ZOOM: 1x' notification on the 'Video' Screen after zooming in or out.

#### Adjusting video settings:

- 1) From MFW Home, touch Aircraft Systems > Video.
- To adjust the brightness, contrast, or saturation, touch and slide the applicable slider.
   Or:

Touch the + pointer to increase or the - pointer to decrease the setting.

3) Touch the Default Settings Button to return the video settings to the factory settings.

## STABILIZED APPROACH

#### Inhibiting all stabilized approach alerts:

- 1) From MFW 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. A green annunciation in the button indicates Stabilized Approach Alerts are inhibited.

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#### Configuring Stabilized Approach settings:

- 1) From MFW Home, touch Utilities > Setup > Avionics Settings.
- 2) Touch the Alerts Tab.

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- Scroll down to view the Stabilized APPR Inhibit Button and touch the adjacent Settings Button.
- 4) Touch the Flap Override Button to override the 'Flaps Not in Landing Configuration' Alert.

#### Or:

Touch the **Wind Inhibit** Button to prevent the Crosswind Alert and the Tailwind Alert from being displayed.

Or:

Touch the **GS/GP Inhibit** Button inhibit the Vertical Deviation Alerts.

## ELECTRONIC STABILITY & PROTECTION (ESP) (OPTIONAL)

The pilot can interrupt ESP by pressing and holding the Autopilot Disconnect (**AP DISC**) Switch. Upon releasing the **AP DISC** Switch, ESP force will again be applied, provided aircraft attitude, angle of attack and/or airspeed are within their respective engagement limits. ESP can also be overridden by overpowering the servo's mechanical torque limit.

### Enabling/disabling ESP:

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

ESP is automatically enabled when power is applied to the system.

## 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.



**NOTE:** To improve database security, the following databases are digitally signed and must pass digital signature verification before the system will accept an upload through an SD card or through the Wireless Transceiver (Flight Stream 510): Airport Directories, Basemap, Navigation, Obstacles, SafeTaxi, Terrain, ChartView, FliteCharts, and IFR/VFR.

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**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.



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



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**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<sup>®</sup> by selecting 'Database Exclusions List.'

#### Viewing database information:

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

com<sup>®</sup> and select 'Aviation Data Error Report.'

- 2) Touch the **Database** Tab.
- 3) Touch the button corresponding to the display (MFD1, PFD1, GTC1, or GTC2) for which the database information will be viewed.
- Scroll to display the appropriate database information.

#### Or:

From MFW Home, touch Utilities > Setup > Database Status.

## SCHEDULED MESSAGES

#### Entering a scheduled message:

- From MFW Home, touch **Utilities** > **Scheduled Messages**. 1)
- 2) Touch the Add Message Button.
- 3) Touch the **Message** Button.
- The keypad is displayed. Enter the message name using the keypad or large and small 4) upper knobs
- Touch the **Enter** Button. The message name is displayed on the **Message** Button. 5)

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6) Touch the **Frequency** Button.

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- 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 MFW Home, touch Utilities > Scheduled Messages.
- 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 one-time or periodic message:

- 1) From MFW 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 MFW 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**

#### Add a new crew profile:

- 1) From MFW Home, touch Utilities > Crew Profile.
- 2) Scroll if necessary, and touch the Add Profile Button.
- **3)** Input the name to assign to the crew profile using the keypad or the large and small upper knobs. 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 upper knob.



#### Activate a crew profile:

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

#### Copy an existing crew profile:

- From MFW Home, touch **Utilities > Crew Profile**. 1)
- Scroll if necessary, and touch the button for the crew profile to be copied. 2)
- 3) Touch the Copy Button.
- Input the name to assign to the copied crew profile using the keypad or the large and 4) small upper 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 upper knob. The 'Crew Profile' Screen displays the name of the copied profile in the list.

#### Rename an existing Crew Profile:

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

#### Delete a crew profile:

- 1) From MFW Home, touch **Utilities > Crew Profile**.
- 2) Scroll if necessary, and touch the button for the crew profile to be deleted.
- Touch the **Delete** Button 3)
- 4) Touch the **OK** Button to confirm and delete the crew profile, or touch the **Cancel** Button if it is not desired to delete the crew profile.



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

#### Import a crew profile from an SD card:

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

Flight Instruments

EAS

Audio and CNS

Flight Management

Hazard Avoidance

AFCS

## GARMIN



**NOTE:** The system may not be able to import a crew profile that was created/saved using a previous software version.

#### Export 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 MFW Home, touch Utilities > Crew Profile.
- **3)** Scroll if necessary, and touch the button for the crew profile to be exported from the list.
- 4) Touch the **Export** Button.

Flight nstrument

EAS





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Blank Page



## 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.

If either the PFD or MFD fails or is off-line, the system automatically shows a display Reversionary Mode. This mode combines a PFW display, an EIS display, and a Display Pane on the operating display in a condensed format. If the system is unable to detect a failed PFD or MFD, the pilot can manually activate display Reversionary Mode by pressing the red **DISPLAY BACKUP** Button mounted between the PFD and MFD.

If the PFD fails or is off-line, GTC1 shows the Standby Flight Display, using attitude and air data from the standby sensors. The Standby Flight Display includes an Airspeed Indicator, Attitude Indicator, Altimeter and Altimeter Setting. Softkeys and knobs on GTC1 control the Standby Flight Display; refer to the Flight Instruments Section for more information about these controls. GTC2 provides the PFW or MFW Screens, and NAV/Com control modes on the MFD operating in Reversionary Mode. Other conditions besides a PFD failure may cause the Standby Flight Display to appear; refer to the AHRS Operation discussion for more information on these conditions.

If the MFD fails or is off-line, GTC1 continues to operate as a Touchscreen Controller (i.e., no Standby Flight Display), and allows the selection of PFD Mode or NAV/Com Mode.

If both the PFD and MFD fail, GTC1 shows the Standby Flight Display. Since the PFD and MFD are not available to control, the 'PFW Home' Screen and 'MFW Home' Screen on any remaining Touchscreen Controller displays a large amber 'X' on the controller when PFD or MFD control mode is selected.

## TOUCHSCREEN CONTROLLER FAILURE

If GTC2 fails or is off-line, GTC1 continue to provide the same control modes as were previously available (PFW, MFW, NAV/COM). The Standby Flight Display is not available if GTC1 encounters a complete failure (for example, if GTC1 is not receiving any power.)

If both Touchscreen Controllers fail or are off-line, the PFD and MFD continue to operate in Normal Mode, however, controls for the PFW, MFW, and NAV/COM tuning will be unavailable. Refer to the Audio and CNS Section for more information on NAV/COM failure modes.

## ABNORMAL GPS CONDITIONS

The annunciations listed in the following table can appear on or near the HSI when abnormal GPS conditions occur.

Flight

EAS

Audio and CNS

Flight Manager

Hazard

AFC

### **Abnormal Operation**

GΑ	R	M	N。

ht rents	Annunciation	Location	Description
Flig Instrun	GPS LOI	Left of HSI	Loss of Integrity Monitoring – GPS integrity is insufficient for the current phase of flight
EAS	UNABLE RNP	Left of HSI and System Messages	The estimated GPS position error exceeds RNP limits. Check GPS signal.
Audio and CNS	GPS INTEG OK	Left of HSI	GPS integrity has been restored to within normal limits (annunciation displayed for 5 seconds)
Flight agement	DR	Lower left of aircraft symbol	Dead Reckoning – System is using projected position rather than GPS 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 (when GPS is the selected navigation source; the CDI is removed after 20 minutes).
- Flight Phase.

AFCS

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- Current Track Bug.
- 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<sup>M</sup> 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.
- Terrain SVT or TAWS function is not available, in test mode, or failed.

## UNUSUAL ATTITUDES

30

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 or blue colored bar at the top or bottom of the screen to represent earth or sky. This is intended to prevent losing sight of the horizon during extreme pitch attitudes.



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#### **Pitch Attitude Warnings**

40

The blue colored bar is also displayed when terrain gradient is great enough to completely fill the display.

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#### **Abnormal Operation**

GARMIN

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 when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Flight Director Command Bars
- Inset Map

Audio and CNS

**VFCS** 

Additional Features

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- True Airspeed
- Groundspeed
- Wind Data
- System Time
- Minimum Descent Altitude/Decision Height display

## SVT UNUSUAL ATTITUDES

During extreme pitch attitudes, the display shows either a brown or blue colored bar at the top or bottom of the screen to represent earth or sky. The blue colored bar 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

## STANDBY FLIGHT DISPLAY

#### Selecting the Altimeter Barometric Pressure Setting on the Standby Flight Display:

Turn the lower knob on Touchscreen Controller to select the desired setting.

- Vertical Deviation, Glideslope, and Glidepath Indicators
  - Altimeter Barometric Setting
  - Selected Altitude
  - VNAV Target Altitude
  - Selected Heading
  - Selected Course or Desired Track



#### Changing Altimeter Barometric Pressure Setting Units on the Standby Flight Display:

Press the bottom softkey on the Touchscreen Controller to select either Inches (IN) or Hectopascals (HPA).

#### Enabling/Disabling Metric Overlays on the Standby Flight Display:

Press the top softkey on Touchscreen Controller to select the metric altitude overlay.

#### Selecting Standard Barometric Pressure:

Push the lower knob to select standard pressure; 'STD BARO' is displayed in the Barometric Setting. Stuck Microphone

## ABNORMAL CNS OPERATION

If a push-to-talk (PTT) Key becomes stuck, the COM transmitter stops transmitting after 35 seconds of continuous operation. An 'L MIC STUCK ON' (pilot side) or an 'R MIC STUCK ON' (copilot side) CAS message will appear to advise the crew of a stuck microphone.

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

#### COM FAILURE

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

#### COM TUNING DISCREPANCY

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

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







PFD

#### **NAV Tuning Failure Indications**

Abnorma





## 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.

## TOUCHSCREEN CONTROLLER FAILURE

In case of a Touchscreen Controller failure, the operational controller will control the pilot, copilot, and passenger audio and radios.

#### TRANSPONDER FAILURE

If the active transponder fails, green indications turn to yellow and the word FAIL is displayed on the Transponder Code/Mode Button.



#### Transponder Fail Indication

### **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 PFW. Also, a system message concerning the loss of GPS 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 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 map displays. The CDI deviation bar will be displayed in amber, and the "UNABLE RNP" annunciation will also be displayed on the

EAS

Audio and CNS

Annun/Alerts

ndex


Flight Instruments

EAS

Audi

PFW. 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 forward looking terrain alerting functions are disabled.

Weather Request Status Message	Description	IS
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.	Flight Management
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.	Hazard Avoidance
Connext Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.	AFO
Connext Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GIA is off-line.	S
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.	Addition Feature
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.	Abnormal Operation
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. Contact Garmin Aviation Product Support using the information at flygarmin.com.	Annun/Alert
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.	A
Connext Server Inop	The Garmin Connext weather data server will be out of service for at least 30 minutes.	pendix
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.	Index

#### **CONNEXT WEATHER ABNORMAL OPERATIONS**

Weather Request Status Message	Description
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. Contact Garmin Aviation Product Support using the information at flygarmin.com.
Reduce Request Area	The weather data request area exceeds size limits. Reduce weather coverage area and re-send data request.
Request Canceled	The user has canceled 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

## AFCS ABNORMAL OPERATIONS ELECTRONIC STABILITY & PROTECTION

Underspeed Protection is available when the optional Electronic Stability and Protection (ESP) system is installed and the autopilot is on. It is designed to discourage aircraft operation below minimum established airspeeds.

When the aircraft reaches a predetermined airspeed (see pertinent flight manual for airspeeds which are dependent upon flap setting, and anti-ice system on-board), a flashing amber 'MINSPD' annunciation will appear above the airspeed indicator.

When the airspeed trend vector reaches the predetermined airspeed, a single aural "AIR-SPEED" will sound, alerting the pilot to the impending underspeed condition.

## OVERSPEED PROTECTION

While Pitch Hold, Vertical Speed, Flight Level Change, Vertical Path Tracking, or an altitude capture mode is active, airspeed is monitored by the flight director. Pitch commands are not changed until overspeed protection becomes active. Overspeed protection is provided in situations where the flight director cannot acquire and maintain the mode reference for the selected vertical mode without exceeding Vne.

When an autopilot overspeed condition occurs, the Airspeed Reference appears in a box above the Airspeed Indicator, flashing a yellow 'MAXSPD' annunciation. Engine power should be reduced and/or the pitch reference adjusted to slow the aircraft. The annunciation disappears when the overspeed condition is resolved.

## SUSPECTED AUTOPILOT MALFUNCTION



**NOTE:** Consult the aircraft documentation for the location of circuit breakers as well as specifics that may supplement or amplify this procedure.

EAS

Audio and CNS

Hazard

Flight Instruments

EAS

Audio and CNS

Flight Managem

Hazard Avoidance

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#### If an autopilot failure or trim failure is suspected to have occurred, perform the following steps:

**1)** Firmly grasp the control stick.

GARMIN

- 2) Press and hold the AP DISC Switch. The autopilot will disconnect and power is removed from the trim motor. Power is also removed from all primary servo motors and engaged solenoids. Note the visual and aural alerting indicating autopilot disconnect.
- 3) Reconfigure the aircraft as needed. Substantial trim adjustment may be needed.
- **4)** Pull the appropriate circuit breaker(s) to electrically isolate the servo and solenoid components.
- 5) Release the **AP DISC** Switch.

## **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 trim 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 autopilot's automatic trim 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.

#### Checking autopilot servos during the preflight check:

- 1) Check for proper autopilot operation and ensure the autopilot can be overpowered.
- 2) Note the forces required to overpower the autopilot servos.

## DATALINK TROUBLESHOOTING

For troubleshooting purposes, check the LRU Information Box on the 'Avionics Status' Page for Iridium Receiver (GSR 56) (optional) or the SiriusXM Datalink Receiver (GDL 69A) (optional) status, serial number, and software version number. If a failure has been detected in the GDL 69A the status is marked with a red 'X'.

#### Viewing the 'Avionics Status' Screen:

- 1) From MFW Home, touch Utilities > Setup > Avionics Status.
- 2) Touch the LRU Info Tab.
- **3)** Scroll to display the appropriate database information.
- 4) Touch an LRU to view further information.
- » 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

### **Abnormal Operation**

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» If a failure still exists, the following messages may provide insight as to the possible problem:

**GARMIN**.

=	Message	Message Location	Description
EAS	CHECK ANTENNA	'XM Information' Screen (Touchscreen Controller)	Datalink Receiver antenna error; service required
p	UPDATING	'XM Information' Screen (Touchscreen Controller)	Datalink Receiver updating encryption code
t Audio an ment CNS	NO SIGNAL	'XM Information' Screen (Touchscreen Controller) Weather Datalink Display (selected display pane)	Loss of signal; signal strength too low for receiver
Fligh Manage	LOADING	'Music' Screen (Touchscreen Controller)	Acquiring channel audio or information
azard vidance	OFF AIR	'Music' Screen (Touchscreen Controller)	Channel not in service
Ave		'Music' Screen (Touchscreen Controller)	Missing channel information
I AFCS	ACTIVATION REQUIRED	'XM Information' Screen (Touchscreen Controller) Weather Datalink Display (selected display pane)	SiriusXM subscription is not activated
Additiona Features	Sirius	XM Datalink Receiver M	essages

#### SiriusXM Datalink Receiver Messages

Flight Instrument

ludio and

# **ANNUNCIATIONS AND ALERTS**

## SYSTEM ANNUNCIATIONS

GARMIN

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When an LRU or an LRU function fails, a large red or amber 'X' (depending on the LRU) is typically displayed on items associated with the failed data. The following table depicts various system annunciations. Refer to the current version of the pertinent flight manual for additional information regarding pilot responses to these annunciations.

**NOTE:** Upon initially powering the system, certain windows remain invalid as the equipment begins to initialize. All windows should be operational within one minute from initial power application. If any window continues to remain invalid, the system should be serviced by a Garmin-authorized repair facility.

should be serviced by a Garmin-authorized repair facility.		Fligh Manage
System Annunciation	Comment	nt ment
AHRS ALIGN: Keep Wings Level	ADAHRS is aligning.	Hazard Avoidance
		AFCS
	Display system is not receiving attitude information from the ADAHR (GRS unit).	Additional Features
$ \land $		Abnorma Operation
CALIBRATE AHRS/MAG	ADAHRS calibration incomplete or configuration module failure.	Annun/Alerts
360°	GPS information is either not present or is invalid for navigation	Appendix
$= \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	ADAHRS operation may be degraded if GPS signals are not present (see the current version of the flight manual).	Index



ght nents	System Annunciation	Comment
Flig Instrur	ୖଽ	Display system is not receiving valid groundspeed information.
EAS		Display system is not receiving airspeed input from the air data
Audio and CNS		computer.
Flight Management		Display system is not receiving vertical speed input from the air data computer.
Hazard Avoidance	$\not \downarrow \setminus$	
y,		Display system is not receiving valid heading input from the ADAHRS or magnetometer.
AFC		
Additional Features		Display system is not receiving altitude input from the ADAHRS or magnetometer.
Abnormal Operation	OAT 🔀	Display system is not receiving valid OAT information from the air data computer.
n/Alerts	Other Various Red/Amber X Indications	A red or amber 'X' through any other display field (such as engine instrumentation fields) indicates the field is not receiving valid data.
Annu		

## **CREW PROFILE IMPORT/EXPORT MESSAGES**

In some circumstances, some messages may appear in a pop-up window 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.

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Crew Profile Import/ Export Results	Description	Flight Instrumen
'Overwrite existing profile?'	Displayed if the profile name matches the name of existing profile.	ts
'Profile name invalid. Enter a different profile name.'	Displayed if the profile name is invalid.	EAS
'All available crew profiles in use. Delete a profile before importing another.'	Displayed if the maximum number for crew profiles has been reached.	Audio and CNS
'Crew profile import failed.'	Displayed if the importing operation fails for any other reason.	2
'Crew profile import succeeded.'	Displayed if the importing operation succeeds.	Flight /anagement
'Overwrite existing file?'	Displayed if the filename matches the name of an existing file on the SD card.	Avo
'Crew profile export failed.'	Displayed if the export operation fails.	idance
'Crew profile export succeeded.'	Displayed if the export operation succeeds.	P.
_		ä

#### 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 a amber background. If one or both of the sensed values are unavailable, the comparator annunciation is black text on a white background. The following is a list of the possible annunciations:

Comparator	Condition	-	3 =
Annunciation	Condition		Ann
ALT	Difference in altitude sensors is $\geq$ 200 ft.		un/Ale
	If both airspeed sensors detect < 35 knots, this is inhibited.	_	<u>r</u>
IAS	If either airspeed sensor detects $\geq$ 35 knots, and the difference in sensors is $\geq$ 10 knots.		Append
	If either airspeed sensor detects $\geq$ 80 knots, and the difference in sensors is $\geq$ 7 knots.		lix
HDG	Difference in heading sensors is $> 6$ degrees.		Ind
PIT	Difference in pitch sensors is $> 5$ degrees.		ex



Istruments	Comparator Annunciation	Condition
	ROL	Difference in roll sensors is $> 6$ degrees.
	VDI	Difference in temperature compensated altitudes is $> 50$ ft.
EAS	ALT	No data from one or both altitude sensors.
	IAS	No data from one or both airspeed sensors.
	HDG	No data from one or both heading sensors.
S	PIT	No data from one or both pitch sensors.
	ROL	No data from one or both roll sensors.
I	VDI	No temperature compensated altitude data available.

#### **Comparator Annunciations**

#### **REVERSIONARY SENSOR ANNUNCIATIONS**

Reversionary sensor selection for the AHRS and ADC is annunciated above the roll scale on the PFD. Reversionary sensor selection for the GPS is annunciated to the right of the HSI. These annunciations reflect reversionary sensors selected on the PFD. Pressing the PFD Opt Softkey accesses the Sensors Softkey. Pressing the Sensors Softkey accesses the ADC and 2 AHRS softkeys. These softkeys allow switching of the sensors being viewed on the PFD. With certain types of sensor failures, the system may make some sensor selections automatically. The GPS sensor cannot be switched manually.

Features	Reversionary Sensor Window Text	Condition
	USING ADC2	PFD1 is displaying data from the #2 Air Data Computer.
peration	USING AHRS2	PFD1 is displaying data from the #2 AHRS.

#### **Reversionary Sensor Annunciations**

## AIRSPACES

Message	Comments
<b>INSIDE ARSPC</b> – 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.
<b>ARSPC NEAR</b> – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.

Additional

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EAS

Message	Comments	Instru
<b>ARSPC NEAR</b> – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.	uments
Airspace Alert Messages		

## VERTICAL SITUATION DISPLAY MESSAGES

Under certain conditions, some messages may appear in conjunction with others:

Message	Description	Audio	
'Loading'	VSD is loading data due to a range change, full/half switch, or first being selected for display.	and S	
'Flight Plan Not Available'	Flight Plan mode is selected and there is not a flight plan loaded with at least one leg.	Flight Managem	
'Flight Plan mode unavailable because aircraft off	All of the following are true:	ent	
course and active leg over 200 NM'	<ul> <li>Flight Plan mode is selected</li> <li>The active leg is greater than 200 nm</li> <li>The aircraft is outside the swath</li> </ul>		
'VSD Not Available'	At least one of the following is true:		
	<ul> <li>Valid terrain database not available</li> <li>Current barometric altitude not available</li> </ul>	AFCS	
	<ul> <li>Current heading is not available</li> </ul>		
	<ul> <li>– GPS position not available</li> </ul>		
	– An invalid range error has occurred	itiona tures	

#### VSD Messages

## IMPORTING AND EXPORTING FLIGHT PLAN MESSAGES

Abnormal Operation 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	Annun/Ale
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.	rts A
'File contained user waypoints only. User waypoints	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the	ppendix
imported successfully. No	system user waypoints. No flight plans stored in the system	
stored flight plan data was modified.'	have been modified.	Index



Flight struments	Flight Plan Import/Export Results	Description
5	'No flight plan files found to import.'	The SD card contains no flight plan data.
EAS	'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
Audio and CNS	'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.
Flight lanagement	'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.
Hazard voidance N	'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.
AFCS AI	'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.
Additional Features	'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
on ormal beration		not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
Alerts Or	'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.
Annun	'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
Appendix	'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.
	CI	ight Dian Import/Export Maccagae

Flight Plan Import/Export Messages

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## TAKEOFF AND LANDING ASSISTANT (TOLA)

## TAKEOFF DATA

The 'Configuration Monitor' Box on the 'Takeoff Data' Pane will display an amber message (example: 'FPL APT MISMATCH') for each item that is currently set differently than its planned takeoff setting.

Message	Condition	
FLAPS MISMATCH	When in the takeoff phase, the flaps setting selected in TOLA for takeoff differs from the current flaps setting as detected by the flight deck.	
FPL APT MISMATCH	The departure airport in the active flight plan is not the same as the departure airport on the <b>Origin</b> Tab.	
FPL RWY MISMATCH	The departure runway in the active flight plan is not the same as the departure runway on the <b>Origin</b> Tab.	anayement

#### Takeoff Configuration Monitor Messages

## LANDING DATA

The 'Configuration Monitor' Box on the 'Landing Data' Pane will display an amber message (example: 'FPL RWY MISMATCH') for each item that is currently set differently than its planned landing setting.

plained land	ing setting.	AFC
Message	Condition	S.
FLAPS MISMATCH	When in the landing phase, the actual flaps setting is not the same as the flaps setting on the <b>Landing Config</b> Tab.	Feat
FPL APT MISMATCH	The destination airport in the active flight plan is not the same as the destination airport on the <b>DEST</b> Tab.	ures
FPL RWY MISMATCH	The destination runway in the active flight plan is not the same as the destination runway on the $\ensuremath{\text{DEST}}$ Tab.	Operatio

#### Landing Configuration Monitor Messages

## **FIS-B WEATHER ANNUNCIATIONS**

FIS-B Weather Status Banner Annunciation	Description	
FIS-B WEATHER UNAVAILABLE	Current aircraft position is outside the FIS-B Coverage area.	M
NOT RECEIVING WEATHER DATA	GTX <sup>™</sup> 345R is currently off-line or not receiving FIS-B Weather data from the antenna.	VINIAC

#### **FIS-B** Weather Status Annunciation

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Flight Instruments

EAS

Audio and

Hazard Avoidanc

Additional

ants

Hazard



## **TERRAIN AND OBSTACLE ANNUNCIATIONS**

Instrun	Unlighted	l Obstacle	Lighted Obstacle		
S	< 1000' AGL	> 1000' AGL	< 1000' AGL	> 1000' AGL	Obstacle Location
EA	٨	¥		業	Red obstacle is above or within 100 ft below the aircraft altitude.
t CNS	۸	¥		淡	Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
Fiight Managemen	٨	Y	*	淡	White obstacle is more than 1000 ft below aircraft altitude.

#### Terrain SVT Relative Point Obstacle Symbols and Colors

	Wire Obstacle	Wire Obstacle Location
AFCS		Red wire obstacle is at or above the aircraft altitude.
<b>-</b>		Yellow wire obstacle is between the aircraft altitude to within 250 feet below the aircraft altitude.
Addition		White wire obstacle is more than 250 ft below the aircraft altitude.

#### **Relative Wire Obstacles and Colors**

ormal			
Abn lerts Ope	Unlighted Wind Turbine Obstacle	Lighted Wind Turbine Obstacle	Wind Turbine Obstacle Location
Annun/P	<b>1</b>	半	Red obstacle is above or within 100 ft below the aircraft altitude.
Appendix	<b>1</b>	শ	Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
Index	$\uparrow$	শ	White obstacle is more than 1000 ft below aircraft altitude.

#### Wind Turbine Obstacles and Colors



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Potential Impact Area Examples	Alert Type	Example Annunciation	Flight Instrument
		TAWS-B Warning	S
	Warning		EA
		S	
		IERRAIN	
	Caution	TERRAIN	
or 💛			F Mana
Terrain-SVT and TAWS-B Potential Impact Area with Annunciations			light agement

#### Terrain-SVT and TAWS-B Potential Impact Area with Annunciations

#### **TERRAIN ANNUNCIATIONS**

Alert Type	PFD/'Map - Terrain- SVT' Page Alert	Touchscreen Controller Pop-Up Alert	Voice Alert	voidance
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING - TERRAIN	"Warning; Terrain, Terrain"	AFCS
Reduced Required Line Clearance (RLC) Warning	TERRAIN	WARNING - WIRE	"Warning; Wire, Wire"	F A
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING - TERRAIN	"Warning; Terrain, Terrain"	eatures
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING - OBSTACLE	"Warning; Ob- stacle, Obstacle"	Operation
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING - OBSTACLE	"Warning; Ob- stacle, Obstacle"	Ann
Imminent Line Impact Warning (ILI)	TERRAIN	WARNING - WIRE	"Warning; Wire, Wire"	un/Alerts
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	"Caution; Terrain, Terrain"	Appe
Imminent Line Impact Caution (ILI)	TERRAIN	CAUTION - WIRE	"Caution; Wire, Wire"	ndix
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION - TERRAIN	"Caution; Terrain, Terrain"	Index

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Flight Instruments	Alert Type	PFD/'Map - Terrain- SVT' Page Alert	Touchscreen Controller Pop-Up Alert	Voice Alert
EAS	Reduced Required Line Clearance Caution (RLC)	TERRAIN	CAUTION - WIRE	"Caution; Wire, Wire"
pu	Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	"Caution; Ob- stacle, Obstacle"
Audio a CNS	Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION - OBSTACLE	"Caution; Ob- stacle, Obstacle"
ight gement		Terrain S	WT Alerts Summary	
Hazard Fl voidance Mana	Alert Type	PFD/'Map - TAWS-B' Page Alert Annunciation	Touchscreen Controller Pop- Up Alert	Voice Alert
A	Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	"Pull Up"
AFCS	Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up"
Additional Features	Imminent Line Impact Warning (ILI)	PULL UP	WIRE AHEAD - PULL-UP	"Wire Ahead; Pull Up, Pull Up"
normal eration	Reduced Required Line Clearance Warning (RLC)	PULL UP	WARNING - WIRE	"Wire, Wire; Pull Up, Pull Up"
Ab lerts Op	Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD - PULL-UP	"Terrain Ahead, Pull Up; Terrain Ahead, Pull Up"
Annun/	Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Appendix	Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD - PULL-UP	"Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Index	Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	"Caution, Terrain; Caution, Terrain"

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## **Annunciations & Alerts**

Alert Type	PFD/'Map - TAWS-B' Page Alert Annunciation	Touchscreen Controller Pop- Up Alert	Voice Alert	Flight Instruments
Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN - AHEAD	"Terrain Ahead; Terrain Ahead"	EAS
Required Reduced Line Clearance Impact Caution (RLC)	TERRAIN	CAUTION - WIRE	"Caution, Wire; Caution, Wire"	Audio a CNS
Imminent Line Clearance Impact Caution (ILI)	TERRAIN	WIRE AHEAD	"Wire Ahead; Wire Ahead"	nd Fli Mana
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	"Caution, Obstacle; Caution, Obstacle"	ight Haza gement Avoid
Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD	"Obstacle Ahead; Obstacle Ahead"	ance
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"	AFCS
Touchdown Callout (VCO) "500"	None	None	"Five-Hundred"	Fe
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"	ditional Batures
Negative Climb Rate Caution (NCR)	TERRAIN	DONT SINK	"Don't Sink"	Abnorma Operatio

#### **TAWS-B Alerts Summary**

Alert Type	PFD/Terrain SVT Display Annunciation	Terrain SVT Display Center Banner Annunciation	Voice Alert	Annun/Alerts
System Test in Progress.	TER TEST	TERRAIN TEST	None	Appe
System Test Pass.	None	None	"Terrain System Test OK"	ndix
Terrain Alerting Inhibited.	TER INH	None	None	Inde
No GPS position.	TER N/A	NO GPS POSITION	"Terrain System Not Available" 1	*

AFCS



Flight Instruments	Alert Type	PFD/Terrain SVT Display Annunciation	Terrain SVT Display Center Banner Annunciation	Voice Alert
EAS	Excessively degraded GPS signal; or Out of database coverage area.	TER N/A	None	"Terrain System Not Available" <sup>1</sup>
t Audio and ment CNS	Terrain System Test Fail; Terrain or Obstacle database unavailable or invalid; Invalid software configuration; or System audio fault.	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
Hazard Fligh Avoidance Manage	MFD Terrain or Obstacle database unavailable or invalid, and Terrain SVT operating with PFD Terrain or Obstacle databases.	None	TERRAIN DATABASE FAILURE	None

<sup>1</sup> "Terrain System Available" will be heard when sufficient GPS signal is received, or terrain database coverage area re-entered.

#### Terrain SVT System Status Annunciations

Additional Features	Alert Type	'TAWS' Pane Annunciation	'TAWS' Pane Center Banner Annunciation	Voice Alert
onormal oeration	TAWS System Fail.	TAWS FAIL		"TAWS System Failure"
Ab Annun/Alerts Op	TAWS Not Available.	TAWS N/A	(if GPS position lost)	"TAWS Not Available"
	TAWS Available.	None	None	"TAWS Available"
dix	System Test in progress.	TAWS TEST		None
Appe	TAWS System Test pass.	None	None	"TAWS System Test OK"
Index	TAWS PDA/FLTA Alerting Inhibited.	TAWS INH	None	None

#### **TAWS-B System Test Status Annunciations**



Alert Cause	'TAWS' Pane Annunciation(s)	TAWS Alert Types Not Available	Hight Instruments
TAWS System Test Fail; Terrain, Airport Terrain or Obstacle database unavailable or invalid on all displays; software mismatch among displays; TAWS audio	TAWS FAIL and TAWS FAIL	FLTA, PDA	EAS
fault. MFW Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases.			Audio and CNS P
No GPS position.	TAWS N/A and NO GPS POSITION	FLTA, PDA, VCO	Flight H Nanagement Avc
Excessively degraded GPS signal, or out of database coverage area.	TAWS N/A	FLTA, PDA	azard vidance

#### **TAWS-B Abnormal Status Alerts**

## **TRAFFIC ANNUNCIATIONS**

Traffic System Mode	Traffic Map Mode Annunciation	Traffic Overlay Status Icon	Feature
Operating	TAS: OPERATING	<b>●</b> 1	ial Ap
Standby	TAS: STANDBY (also shown in white in center of 'Traffic Map' Pane)	<b>)</b>	peration Annun
Failed <sup>1</sup>	TAS: FAILED	<b>X</b>	Alerts
TAS Modes			

#### TAS Modes

'Traffic Map' Pane Center Annunciation	Description	
NO DATA	System is not receiving any data from the traffic unit.	ıdex

AFCS



Flight struments	'Traffic Map' Pane Center Annunciation	Description
EAS In	DATA FAILED	System is receiving data from the traffic unit, but the unit is reporting a failure.
	FAILED	The traffic unit is sending invalid data to the system.
_		TAS Failure Annunciations

Additional Features

Audio	Traffic Status Banner Annunciation	Description
Flight Management	TA OFF SCALE	A Traffic Advisory is outside the selected display range. <sup>1</sup> Annunciation is removed when traffic comes within the selected display range.
Hazard Avoidance	TA X.X ± XX <b>‡</b>	System cannot determine bearing of Traffic Advisory. <sup>2</sup> Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
S	TRFC FAIL	The traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data). <sup>2</sup>
AFC	NO TRFC DATA	Data is not being received from the traffic unit.

<sup>1</sup> Shown as symbol on 'Traffic Map' Pane.

<sup>2</sup> Shown in center of 'Traffic Map' Pane.

#### **TAS Traffic Status Annunciations**

Abnormal Operation	'Traffic Map' Pane Center Annunciation	Description
Annun/Alerts	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.
pendix	FAILED	Incorrect data format received from the traffic unit.

#### **Traffic Failure Annunciations**

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Traffic Status Banner Annunciation	Description	Flight Instruments
	A Traffic Advisory is outside the selected display range 1	
TA OFF SCALE	Annunciation is removed when traffic comes within the selected display range.	EAS
	System cannot determine bearing of Traffic Advisory. <sup>2</sup>	
<b>TA X.X ± XX</b> ↑	Annunciation indicates distance in nm. altitude separation in hundreds of feet, and	
····· · · · · · · · · · · · · · · · ·	altitude trend arrow (climbing/descending).	Audic
TRFC FAIL	Traffic unit has failed (unit is self-reporting a failure or sending incorrectly formatted data).	o and IS
		2
NO TRFC DATA	Data is not being received from the traffic unit.	Flight 1anagem
		ent

<sup>1</sup> Shown as symbol on 'Traffic Map' Pane

<sup>2</sup> Shown in center of 'Traffic Map' Pane.

#### **Traffic Status Annunciations**

## **AFCS ANNUNCIATIONS**

Condition	Annunciation	Description	AFCS
Pitch Failure	РТСН	Pitch axis control failure; autopilot inoperative	
Roll Failure	ROLL	Roll axis control failure; autopilot inoperative	Additi Featu
Pitch Trim Failure	DTDM	If autopilot is engaged, take control of the aircraft and disengage autopilot	onal Ires
(or stuck <b>MEPT</b> Switch)	PTRM	If autopilot is disengaged, move <b>MEPT</b> switches separately to unstick	Abnorma Operatio
Yaw Damper Failure	YAW	Yaw damper control failure	5 2
System Failure	AFCS	Autopilot and MEPT are unavailable; Flight director may still be available	Annun/Aler
Elevator Mistrim	↓ELE	Pitch servo providing sustained force in the indicated	C7
Elevator Mistrim Up	↑ELE	<ul> <li>May indicate a failure of the pitch-trim adapter or trim system</li> </ul>	Appendix
Aileron Mistrim Right	AIL→	Roll servo providing sustained force in the indicated direction	Ind
Aileron Mistrim Left	←AIL		fex

Hazard Avoidance



ht nents	Condition	Annunciation	Description
Flig Instrun	Rudder Mistrim Right	RUD→	Yaw servo providing sustained force in the indicated direction.
EAS	Rudder Mistrim Left	←RUD	<ul> <li>Aircraft rudder pilot adjustment after substantial pitch and power changes required</li> </ul>
	Preflight Test		Performing preflight system test; aural alert sounds at completion
Audio and CNS		PFT	<ul> <li>Do not press the AP DISC Switch during servo power-on and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their</li> </ul>
ght gement			power-on tests). Power must be cycled to the servos to remedy the situation.
Fli Manag		PFT	Preflight system test failed; aural alert sounds at failure
azard oidance	Hypoxia Recognition System is Activated	EDM	Activated only by the Hypoxia Recognition System

#### **AFCS Status Alerts**

## **g** SURFACEWATCH ALERTS

The SurfaceWatch alert annunciations are displayed in the central portion of the PFW. The alert annunciations are accompanied by a corresponding voice alert. Other associated information is presented in the SurfaceWatch Information Box.

tional tures	tion is presented in the SurfaceWatch Information Box.			
Addi Fea	Alert Annunciation	Associated Voice Alert	Description	
Abnormal Operation	TWY TAKEOFF TWY LANDING	"Taxiway"	Issued when the aircraft is taking off from or landing on a non-runway (e.g., a taxiway).	
Annun/Alerts			Issued when the aircraft is taking off from or landing on a runway with a length less than needed as calculated by the system.	
Appendix	RWY TOO SHORT	short"	<ul> <li>The Runway Too Short Alert may be issued for any runway from which the aircraft is taking off from, or landing on, even if the runway is not the one entered by crew.</li> </ul>	
Index	CHECK RUNWAY	"Check runway"	Issued when the aircraft is taking off from or landing on a runway different than that entered into the system.	

#### SurfaceWatch Alert Annunciations



## STABILIZED APPROACH ALERTS

				_ <b>_</b> .;
Stabilized Approach Alert Annunciation	Voice Alert	Description	Туре	ments
BARO	"Baro"	Barometric/GPS Altitude Mismatch Alert	IFR	EAS
GLIDEPATH	"Glidepath"	GPS Vertical Deviation Alert	IFR	2
GLIDESLOPE	"Glideslope"	Non-GPS Vertical Deviation Alert	IFR	CNS
COURSE	"Course"	Lateral Deviation Alert	IFR	Man
FLAPS	"Flaps"	Flaps Not in Landing Configuration Alert	IFR / VFR	agement
CROSSWIND	"Crosswind"	Crosswind Alert	IFR / VFR	Avo
TAILWIND	"Tailwind"	Tailwind Alert	IFR / VFR	bidance

Note: Alerts in this table are prioritized by criticality, in the event where more than one alert may be applicable, only the single most critical alert will be annunciated.

#### **Stabilized Approach Annunciations**

#### **CAS MESSAGES**

#### WARNING MESSAGES

**NOTE:** The ice protection system (optional) must be operated in accordance with the current version of the pertinent flight manual. This option is only available on the SR22 and SR22T models.

CAS Message Title	'Notifications' Window Text	Annun
AOA OVERHEAT <sup>2</sup>	AOA probe is overheated.	Alerts
APPROACH SPEED	Approach Speed is too high.	
AUTO DESCENT	Automatic descent to 14,000FT in 60 seconds.	App
AUTO DESCENT	Aircraft descending to 14,000FT.	endix
AUTO DESCENT	Aircraft descending to 12,500FT.	

<sup>1</sup>Optional

<sup>2</sup> TKS FIKI (optional)

<sup>3</sup> SR22T only

AFC

Additiona Features

Abnorma Operatio



ht nents	CAS Message Title	'Notifications' Window Text
Flig Instrun	AUTO DESCENT	Aircraft descended due to pilot incapacitation.
	СНТ	Cylinder head temperature is high.
	CO LVL HIGH	Carbon monoxide level is too high.
EA	<b>ESSENTIAL BUS VOLTS</b>	Check essential power bus voltage.
	FLAPS ICE <sup>2</sup>	Full flaps prohibited in icing conditions.
and S	FUEL FLOW	Check fuel flow.
Audio CN	FUEL IMBALANCE	Fuel quantity imbalance has been detected.
	FUEL LOW LEFT	Left fuel tank is nearly empty.
jht ement	FUEL LOW RIGHT	Right fuel tank is nearly empty.
Flig Manag	FUEL LOW TOTAL	Total fuel quantity is low.
	IPS CONTROL FAIL	IPS valves cannot be closed.
ard ance	<b>IPS FLUID LOW</b>	IPS fluid quantity is low.
Avoid	IPS QUANTITY FAIL	Left and right IPS fluid quantities are unknown.
	MAIN BUS 1 VOLTS	Check main power bus 1 voltage.
S	MAIN BUS 2 VOLTS	Check main power bus 2 voltage.
AF	MANIFOLD PRESSURE	Check manifold pressure.
	OIL PRESSURE	Oil pressure is out of range.
ional ures	OIL TEMP	Oil temperature is high.
Addit Feat	OXYGEN FAULT <sup>1</sup>	Oxygen system fault.
	OXYGEN QTY LOW <sup>1</sup>	Oxygen quantity is low.
ation	OXYGEN REQUIRED <sup>1</sup>	Oxygen usage is required.
Abno	RPM	Check engine RPM.
	SPIN SPIN SPIN	Spin entry detected - initiate recovery.
Alerts	STALL	Stall warning.
Annun/	STALL WARNING FAIL	Stall warning is inoperative.
	STARTER ENGAGED	Starter is engaged.
ndix	TIT <sup>3</sup>	Turbine inlet temperature is high.
Appe	<sup>1</sup> Optional <sup>2</sup> TKS FIKI (optional)	

- <sup>1</sup> Optional <sup>2</sup> TKS FIKI (optional)
- <sup>3</sup> SR22T only

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## **CAUTION MESSAGES**

CAS Message Title	'Notifications' Window Text	Flight
ALT AIR OPEN <sup>2</sup>	Alternate air door is open.	
ALTERNATOR 1 CUR- RENT	Check alternator 1 current.	
ALTERNATOR 2 CUR- RENT	heck alternator 2 current.	
AOA HEAT FAIL <sup>3</sup>	Autopilot is unavailable due to miscompare.	CNS
AP MISCOMPARE	Autopilot is unavailable due to miscompare.	<u>5</u>
<b>AP/PFD DIF ADC</b>	Autopilot and PFD are using different ADCs.	Ma
<b>AP/PFD DIF AHRS</b>	Autopilot and PFD are using different AHRSs.	Flight
<b>BATTERY 1 CURRENT</b>	Check battery 1 current.	hent
<b>BATTERY 1 FAIL</b>	Battery 1 service is required.	Þ
BATTERY 1 FAULT	Battery 1 fault detected.	Hazar woidar
<b>BATTERY 1 LOW</b>	Battery 1 state of charge is low.	nce d
СНТ	Cylinder head temperature is high.	
FLAPS AIRSPEED INHIBIT	Flaps motion inhibited.	
FLAPS DISAGREE	Flaps not in commanded position.	
FLAPS FAIL	Flaps not in commanded position.	
FLAPS SELECTOR FAIL	Flaps not in commanded position.	ures
FUEL IMBALANCE	Fuel quantity imbalance has been detected.	
FUEL LOW TOTAL	Total fuel quantity is low.	Oper
FUEL PUMP OFF	Fuel pump is turned off.	ation
FUEL QTY MISCOMP	Sensed and totalized fuel quantity disagreement.	
FUEL VALVE AUTO FAIL	Automatic fuel tank selection is unavailable.	Annu
HYPOXIA ALERT	Hypoxia caution alert.	VAlert
<b>IPS FLUID LOW<sup>3</sup></b>	IPS fluid quantity is low.	
<b>IPS IMBALANCE</b> <sup>3</sup>	IPS fluid quantity imbalance has been detected.	
<b>IPS PRESSURE HIGH<sup>3</sup></b>	IPS pressure is high.	
<b>IPS PRESSURE LOW</b> <sup>3</sup>	IPS tail pressure is low.	
<sup>1</sup> Optional <sup>2</sup> SR22T		Index

- <sup>1</sup> Optional
- <sup>2</sup> SR22T
- <sup>3</sup> TKS FIKI (optional)

Flight Istruments

EAS

Audio and CNS

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts



CAS Message Title	'Notifications' Window Text	
<b>IPS QUANTITY FAIL 3</b>	Left IPS fluid quantity is unreliable.	
<b>IPS QUANTITY FAIL 3</b>	Right IPS fluid quantity is unreliable.	
IPS SPEED HIGH <sup>3</sup>	Airspeed is too high for ice protection.	
<b>IPS SPEED LOW</b> <sup>3</sup>	Airspeed is too low for ice protection.	
<b>IPS TEMP LOW</b> <sup>3</sup>	Temperature is too low for ice protection.	
MAIN BUS 1 VOLTS	Check main power bus 1 voltage.	
MAIN BUS 2 VOLTS	Check main power bus 2 voltage.	
MANIFOLD PRESSURE	Check manifold pressure.	
NO ADC MODES	Autopilot air data modes are not available.	
NO VERT MODES	Autopilot vertical modes are not available.	
OIL PRESSURE	Oil pressure is out of range.	
OIL TEMP	Oil temperature is high.	
OXYGEN QTY LOW <sup>1</sup>	Oxygen quantity is low.	
OXYGEN REQUIRED <sup>1</sup>	Oxygen usage is required.	
PARK BRAKE	Parking break is set.	
PITOT HEAT FAIL	Pitot heat failure.	
PROBE HEAT OFF	Probe heat is required.	
SFD ALT MISCOMPARE	SFD altitude miscompare.	
SFD IAS MISCOMPARE	SFD airspeed miscompare.	
SFD PITCH MISCOM- PARE	SFD pitch miscompare.	
SFD ROLL MISCOM- PARE	SFD roll miscompare.	
STALL WARNING FAIL	AOA/stall warning input invalid.	
STARTER ENGAGED	Starter is engaged.	
TAKEOFF FLAPS	Flaps not in takeoff configuration.	

<sup>1</sup> Optional

<sup>2</sup> SR22T

<sup>3</sup> TKS FIKI (optional)

#### ALERTS MESSAGES

**NOTE:** The ice protection system (optional) must be operated in accordance with the current version of the pertinent flight manual limitations. This option is only available on SR22 and SR22T models.

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CAS Message Title	'Notifications' Window Text	Inst	
ALTITUDE SEL	Climbing away from selected altitude.	rument	
ALTITUDE SEL	Descending away from selected altitude.	~	
AOA FAIL <sup>2</sup>	Dynamic stall speed band is unavailable.		
ARE YOU ALERT?	Are you alert?	- AS	
CHECK OXYGEN <sup>1</sup>	Check oxygen system status.		
COURSE SELECT <sup>1</sup>	Current track will not intercept selected course.	CNS	
ECS RECIRC ON	ECS recirculation mode is prohibited in flight.	and	
ESP CONFIG	ESP config error. Config service req'd.	Ma	
EXIT ICING <sup>2</sup> 1	Exit icing conditions.	nagem	
FAILED PATH	An autopilot servo data path has failed.	ent	
FLAPS CLIMB	Flaps not set for enroute climb.	Av	
FUEL IMBALANCE	Fuel quantity imbalance has been detected.	oidance	
FUEL PUMP OFF	Fuel pump is turned off.		
FUEL VALVE OFF	Fuel valve is in the off position.	Þ	
HDG MODE	Heading mode active for extended period.	, N	
IPS FLUID LOW <sup>2</sup>	IPS fluid quantity is low.		
IPS PUMP BACKUP <sup>3</sup>	IPS backup pump mode has been selected.	Featu	
OXYGEN ON <sup>1</sup>	Oxygen system is left on after shutdown.	ures	
OXYGEN QTY LOW <sup>1</sup>	Oxygen quantity is low.		
ROL MODE	Roll mode is active.	Operat	
SFC WATCH FAIL	SurfaceWatch failed.	ion al	
SFC WATCH INHIB	SurfaceWatch inhibited.		
SFD NO COMPARE	SFD comparison data missing.	nun/Ale	
VNAV ALT SEL	VNAV needs lower ALT SEL to capture VPATH.		
VNAV NOT ARMED	Press VNV to arm VPATH capture.		

<sup>1</sup> Optional <sup>2</sup> TKS FIKI (optional)



## SYSTEM MESSAGES

ht nents	SYSTEM MESSAGES		
Flig	System Message	Comments	
EAS	<b>ABORT APPR</b> – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.	
-	ADC 1 COMM – Check ADC 1 and GIA1 wiring	The ADC unit is inoperative due to a loss of communication path to a GIA.	
Audio and CNS	ADC 1 COMM – Check ADC 1 and GIA2 wiring	The ADC unit is inoperative due to a loss of communication path to a GIA.	
it ment	<b>ADC 1 FAULT</b> – ADC Failure	The AFCS is unavailable due to invalid data from the ADC unit.	
Fligh Manage	<b>ADC 1 POWER</b> – ADC 1 power loss. Check power.	The ADC unit is inoperative due to a loss of communication path to a GIA.	
azard oidance	ADC 2 COMM – Check ADC 2 and GIA1 wiring	The ADC unit is inoperative due to a loss of power.	
Ave	ADC 2 COMM – Check ADC 2 and GIA2 wiring	The ADC unit is inoperative due to a loss of power.	
AFCS	<b>ADC 2 FAULT</b> – ADC Failure	The AFCS is unavailable due to invalid data from the ADC unit.	
lal s	ADC 2 POWER – ADC 2 power loss. Check power.	The ADC unit is inoperative due to a loss of power.	
Addition Feature	<b>ADC1 ALT EC</b> – ADC altitude error correction is unavailable.	ADC1 / GDC1 is reporting the altitude error correction is unavailable.	
Abnormal Operation	<b>ADC1 AS EC</b> – ADC airspeed error correction is unavailable.	ADC1 / GDC1 is reporting the airspeed error correction is unavailable.	
Annun/Alerts	<b>ADC1 SERVICE</b> – ADC needs service. Return unit for repair.	A failure has been detected in the ADC1 / GDC1. The system should be serviced.	
Appendix	<b>ADC2 ALT EC</b> – ADC altitude error correction is unavailable.	ADC2 / GDC2 is reporting the altitude error correction is unavailable.	
dex /	<b>ADC2 AS EC</b> – ADC airspeed error correction is unavailable.	ADC2 / GDC2 is reporting the airspeed error correction is unavailable.	

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System Message	Comments	Instru
<b>ADC2 SERVICE</b> – ADC needs service. Return unit for repair.	A failure has been detected in the ADC2 / GDC2. The system should be serviced.	ignt iments
AFCS [1-2] INOP: PFT FAIL – Pre-Flight Test Failure	AFCS 1 and/or 2 pre-flight test failure.	EAS
AFCS INOP: GIA1 SERVOS COMM – Check GIA1 485 bus wiring to servos	The GSA servos are inoperative due to a loss of communication path to a GIA.	Audio and CNS N
AFCS INOP: GIA2 SERVOS COMM – Check GIA2 485 bus wiring to servos	The GSA servos are inoperative due to a loss of communication path to a GIA.	Flight Aanagement A
AFCS INOP: PIT SERVO FAULT – PIT Servo failure	The GSA servo is inoperative due to an internal servo fault. The system should be serviced.	Hazard woidance
AFCS INOP: PIT SERVO PFT – AFCS [1-2] Pre-Flight Test Fail: PIT Servo	The GSA servo is inoperative due to an AFCS 1 and/or 2 pre-flight test failure. The system should be serviced.	AFCS
AFCS INOP: PIT SERVO POWER – PIT Servo power loss. Check power.	The GSA servo is inoperative due to a loss of power. The system should be serviced.	Additic Featu
AFCS INOP: PIT SERVO POWER – PIT Servo power loss. Check power.	The GSA servo is inoperative due to a loss of power. The system should be serviced.	res Op
AFCS INOP: PIT TRM SERVO – AFCS [1-2] Pre-Flight Test Fail: PIT Trim Servo.	The GSA servo is inoperative due to an AFCS 1 and/or 2 pre-flight test failure. The system should be serviced.	eration Annu
AFCS INOP: PIT TRIM SVO FAULT – PIT Trim Servo failure	The GSA servo is inoperative due to an internal servo fault. The system should be serviced.	n/Alerts
AFCS INOP: ROL SERVO FAULT – ROL Servo failure	The GSA servo is inoperative due to an internal servo fault. The system should be serviced.	Appendix
AFCS INOP: ROL SERVO PFT – AFCS [1-2] Pre-Flight Test Fail: ROL Servo	The GSA servo is inoperative due to an AFCS 1 and/or 2 pre-flight test failure. The system should be serviced.	Index



ht ients	System Message	Comments
Flig Instrun	AFCS INOP: ROL SERVO POWER – ROL Servo power loss. Check power.	The GSA servo is inoperative due to a loss of power. The system should be serviced.
EAS	AFCS INOP: YAW SERVO FAULT – YAW Servo failure	The GSA servo is inoperative due to an internal servo fault. The system should be serviced.
Audio and CNS	AFCS INOP: YAW SERVO PFT – AFCS [1-2] Pre-Flight Test Fail: YAW Servo	The GSA servo is inoperative due to an AFCS 1 and/or 2 pre-flight test failure. The system should be serviced.
light igement	AFCS INOP: YAW SERVO POWER – YAW Servo power loss. Check power.	The GSA servo is inoperative due to a loss of power. The system should be serviced.
FI	AHRS 1 COMM – Check AHRS 1 and GIA1 wiring	The AHRS unit is inoperative due to a loss of communication path to a GIA.
Hazard Avoidance	AHRS 1 COMM – Check AHRS 1 and GIA2 wiring	The AHRS unit is inoperative due to a loss of communication path to a GIA.
	<b>AHRS 1 FAULT</b> – AHRS Failure	The AFCS is unavailable due to invalid data from the AHRS unit.
AFCS	AHRS MAG DB – AHRS magnetic model database version mismatch.	AHRS1 and AHRS2 magnetic model database versions do not match.
Additional Features	AHRS1 CAL – AHRS1 calibration version error. SRVC REQD.	AHRS1 calibration version error. The system should be serviced.
Abnormal Operation	AHRS1 CONFIG – AHRS1 config error. Config service REQD.	AHRS1 configuration settings do not match those of backup configuration memory. The system should be serviced.
nun/Alerts	AHRS1 GPS – AHRS1 not receiving any GPS information.	AHRS1 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.
endix	AHRS1 GPS – AHRS1 not receiving backup GPS information.	AHRS1 is not receiving backup GPS information. The system should be serviced.
Appe	AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	AHRS1 is operating exclusively in no-GPS mode. The system should be serviced.
Index	AHRS1 GPS – AHRS1 using backup GPS source.	AHRS1 is using the backup GPS path. Primary GPS path has failed. The system should be serviced when practical.



System Message	Comments	Instru
<b>AHRS 1 POWER</b> – AHRS 1 power loss. Check power.	The AHRS unit is inoperative due to a loss of power.	ight Iments
<b>AHRS1 SERVICE</b> – AHRS1 needs service. Return unit for repair.	A failure has been detected in AHRS1. The system should be serviced.	EAS
AHRS 2 COMM – Check AHRS 2 and GIA1 wiring	The AHRS unit is inoperative due to a loss of communication path to a GIA.	Aud
AHRS 2 COMM – Check AHRS 2 and GIA2 wiring	The AHRS unit is inoperative due to a loss of communication path to a GIA.	o and NS
AHRS 2 POWER – AHRS 2 power loss. Check power.	The AHRS unit is inoperative due to a loss of power.	Fligh: Managen
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	AHRS1 earth magnetic field model is out of date. Update magnetic field model when practical.	nent Avoi
<b>AHRS1 TAS</b> – AHRS1 not receiving valid airspeed.	AHRS1 is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.	idance
AHRS2 CAL – AHRS2 calibration version error. SRVC REQD.	AHRS2 calibration version error. The system should be serviced.	AFCS
AHRS2 CONFIG – AHRS2 config error. Config service REQD.	AHRS2 configuration settings do not match those of backup configuration memory. The system should be serviced.	Additional Features
<b>AHRS 2 FAULT</b> – AHRS Failure	The AFCS is unavailable due to invalid data from the AHRS unit.	Abnor Opera
<b>AHRS2 GPS</b> – AHRS2 not receiving any GPS information.	AHRS2 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.	mal tion Ann
AHRS2 GPS – AHRS2 not receiving backup GPS information.	AHRS2 is not receiving backup GPS information. The system should be serviced.	un/Alerts
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	AHRS2 is operating exclusively in no-GPS mode. The system should be serviced.	Appendix
AHRS2 GPS – AHRS2 using backup GPS source.	AHRS2 is using the backup GPS path. Primary GPS path has failed. The system should be serviced when practical.	Index



ht ients	System Message	Comments
Flig Instrum	AHRS2 SERVICE – AHRS2 needs service. Return unit for repair.	A failure has been detected in AHRS2. The system should be serviced.
EAS	AHRS2 SRVC – AHRS2 Magnetic-field model needs update.	AHRS2 earth magnetic field model is out of date. Update magnetic field model when practical.
Audio and CNS	<b>AHRS2 TAS</b> – AHRS2 not receiving valid airspeed.	AHRS2 is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
ight gement	AP DISC: AP ENGAGE TIMEOUT	Failed to engage AP due to activation timeout of required resources.
Fli	AP DISC: GFC POWER LOSS	Abnormal AP disconnect due to loss of GFC power.
Hazard woidance	AP DISC: GIA REVERSION	Abnormal AP disconnect while switching to alternate GIA.
Ā	AP DISC: HSDB CONNECTIVITY	Abnormal AP disconnect due to loss of data bus connectivity.
AFCS	AP DISC: INVALID DATA – PIT servo	Abnormal AP disconnect due to invalid data in pitch servo.
ional ures	AP DISC: INVALID DATA – ROL servo	Abnormal AP disconnect due to invalid data in roll servo.
Additi Featu	<b>AP DISC: INVALID DATA</b> – Servo PFT	Abnormal AP disconnect due to failed servo pre-flight test.
ormal	<b>AP DISC: INVALID DATA</b> – PFD	Abnormal AP disconnect due to loss of primary flight display.
Ab Op	AP DISC: INVALID DATA - ADC	Abnormal AP disconnect due to servo receiving invalid ADC data.
Annun/Alert	AP DISC: INVALID DATA - SWPS	Abnormal AP disconnect due to stall warning activated.
Appendix	<b>AP DISC: INVALID DATA</b> - AHRS	Abnormal AP disconnect due to invalid AHRS data.
	<b>AP DISC: INVALID DATA</b> – Cross-side GIA	Abnormal AP disconnect due to cross-side GIA commanding an AP disconnect.
idex	<b>AP DISC: INVALID DATA</b> – Flight Director parameters	Abnormal AP disconnect due to flight director receiving invalid required parameter.
5	<b>AP DISC: INVALID DATA</b> – Servo comm failure	Abnormal AP disconnect due to loss of servo communication.



System Message	Comments	Instru
AP DISC: MET ACTIVE	Abnormal AP disconnect due to use of manual electric trim.	ight
<b>AP DISC: PRIMARY TRIM</b> – Primary Trim not Selected.	Abnormal AP disconnect due to incorrect trim card selection	
AP DISC: SENSOR MISCOMPARE – ADC	Abnormal AP disconnect due to miscompared ADC sensor readings.	EAS
AP DISC: SENSOR MISCOMPARE – AHRS	Abnormal AP disconnect due to miscompared AHRS sensor readings.	Audio
AP DISC: SOFTWARE	Abnormal AP disconnect due to software fault.	and
AP DISC: X-SIDE DISCONNECT – Cross-side disconnect	Abnormal AP disconnect due to cross-side GIA commanding an AP disconnect.	Flight Manageme
AP DISC: YD NOT AVAILABLE	Abnormal AP disconnect due to loss of yaw damper.	ent A
<b>APPR ADVISORY</b> – SBAS VNAV not available. Using Baro VNAV.	SBAS not available. The system is calculating the VNAV profile using BARO VNAV.	Hazard woidance
<b>APPR ADVISORY</b> – GPS VNAV not available. Using Baro VNAV.	GPS not available. The system is calculating the VNAV profile using BARO VNAV.	AFCS
APPR DOWNGRADED – <approach downgraded=""></approach>	Vertical guidance generated by SBAS is unavailable. Use Baro LNAV/VNAV or LNAV minimums.	Additi Featu
<b>APR INACTV</b> – Approach is not active.	The system notifies the pilot the loaded approach is not active. Activate approach when required.	ional ures
ARSPC AHEAD – Airspace ahead - less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.	Abnormal Operation
<b>ARSPC NEAR</b> – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.	Annun/
<b>ARSPC NEAR</b> – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.	Alerts
ARM VNAV DESCENT – Reset altitude preselect to arm descent.	Adjust altitude preselect value to enable VNAV descent.	Appendix
AUDIO MANIFEST – Audio software mismatch, communication halted.	The GIA has incorrect software installed. The system should be serviced.	Index



ht nents	System Message	Comments
Flig Instrun	<b>CHECK CRS</b> – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
EAS	<b>CHECK CRS</b> – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
udio and CNS	<b>CHECK NAV</b> – Approach ID mismatch / <loc></loc>	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
ight <i>A</i> gement	<b>CHECKLIST DATABASE</b> <b>ERROR</b> – See GTC1's database page for details.	The GTC database has an error.
d FI hce Mana	<b>CHECKLIST DATABASE</b> <b>ERROR</b> – See GTC2's database page for details.	The GTC database has an error.
Hazar	<b>CNFG MODULE</b> – PFD1 configuration module is inoperative.	The specified GDU configuration module backup memory has failed. The system should be serviced.
AFCS	COM #1 INOP: CAL – Factory COM Calibration Lost or Corrupted.	COM 1 calibration version error. Check COM calibration.
ditional atures	COM #1 INOP: CRNT – Check COM Current.	COM 1 current is low. Check COM current.
Fe	COM #1 INOP: INTRL – COM Internal Fault.	COM 1 has an internal fault.
Abnormal Operation	<b>COM #1 INOP - SYNTH</b> – COM Synthesizer Lock Fault.	COM 1 has a synthesizer lock fault.
erts	COM #1 INOP - VOLT – Check COM Voltage.	COM 1 has low voltage.
Annun/A	COM #2 INOP: CAL – Factory COM Calibration Lost or Corrupted.	COM 2 calibration version error. Check COM calibration.
Appendix	COM #1 REDUCED TX POWER – Reduced COM transmit power.	COM 1 has a reduced transmission power.
Index	COM #2 INOP: CRNT – Check COM Current.	COM 2 current is low. Check COM current.
	<b>COM #2 INOP: INTRL</b> – COM Internal Fault.	COM 2 has an internal fault.



System Message	Comments	Instru
<b>COM #2 INOP: SYNTH</b> – COM Synthesizer Lock Fault.	COM 2 has a synthesizer lock fault.	ight iments
COM #2 INOP: VOLT – Check COM Voltage.	COM 2 has low voltage.	EAS
COM #2 REDUCED TX POWER – Reduced COM transmit power.	COM 2 has a reduced transmission power.	Aud
<b>COM1 PTT</b> – 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.	NS Ma
<b>COM1 RMT XFR</b> – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.	Flight anagement
<b>COM2 PTT</b> – 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.	Hazard Avoidance
<b>COM2 RMT XFR</b> – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.	AFCS
COPILOT PTT STUCK – GMA 1 Copilot Push-to-Talk is Stuck	The GMA 1 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.	Additiona Features
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFDs with preferred settings, if desired.	Abnorn Operati
<b>DATABASE CHANGE</b> – 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.	on Annun/Al
<b>DATABASE CHANGE</b> – 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.	erts Appendix
DATABASES DOWNLOADING – See databases page for more information.	Databases are downloading to the system. Go to the 'Database Status' Screen to monitor status.	Index



nt rents	System Message	Comments
Flig Instrum	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.
EAS	DATABASES MISMATCHED – Restart displays to correct	The GDUs have different database versions or regions. Restart the system to move the standby databases to active status.
Audio and CNS	<b>DB ERR</b> – Database error exists.	Database verification error. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
Flight e Management	<b>DB MISMATCH</b> – Navigation database mismatch. Xtalk is off.	The GDUs have different navigation database versions or regions installed. Crossfill is off. Check the 'Avionics Status' Screen to ascertain 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.
AFCS Avoidanc	<b>DB MISMATCH</b> – Obstacle database mismatch.	The GDUs have different obstacle database versions or regions installed. Check the 'Avionics Status' Screen to ascertain 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.
Additional Features	<b>DB MISMATCH</b> – Terrain database mismatch.	The GDUs have different terrain database versions or regions installed. Check the 'Avionics Status' Screen to ascertain 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.
Abnormal Operation	<b>DB UPDATE IN</b> <b>PROGRESS</b> – See Database Page for more information.	Databases are updating. See the "Database Status' Screen on the Touchscreen Controller.
Annun/Alerts	DIG GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
Appendix	<b>DISABLE GP TO ARM</b> <b>CLIMB</b> – Press NAV to enable VNAV track change.	Disable AFCS APPR mode to enable VNAV.
Index	<b>DISABLE GS TO ARM</b> <b>CLIMB</b> – Press NAV to enable VNAV track change.	Disable AFCS APPR mode to enable VNAV.



System Message	Comments	Instru
<b>DOC VIEWER MISMATCH</b> – See Document Viewer Page for detailed info.	The documents on the database cards do not match. Ensure the aircraft manufacturer installed documents on the bottom card of each display match.	ight Jments
FAILED PATH - [xxxx].	A data path connected to the GDU or the GIA has failed.	EAS
<b>FLIGHT PLAN CATALOG</b> – Last plan in catalog was overwritten by an import.	Flight plan storage full. Last plan in the flight plan storage was overwritten by an imported flight plan.	Aud
<b>FPL TRUNC</b> – 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.	io and Flig NS Manage
<b>FPL WPT LOCK</b> – 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	ht Hazard ement Avoidance
<b>FPL WPT MOVE</b> – 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.	AFCS
<b>FS 510 MANIFEST</b> – FS 510 software mismatch.	Incorrect software version. The system should be serviced.	Additional Features
GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The GDC1 has incorrect software installed. The system should be serviced.	Abnorm Operatio
GDC2 MANIFEST – GDC2 software mismatch, communication halted.	The GDC2 has incorrect software installed. The system should be serviced.	al Annun
<b>GDL69 CONFIG</b> – 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.	VAlerts
<b>GDL69 FAIL</b> – GDL 69 has failed.	A failure has been detected in the 69A SXM. The receiver is unavailable. The system should be serviced.	Appendix
GDL69 MANIFEST – GDL69 software mismatch, communication halted.	The 69A SXM has incorrect software installed. The system should be serviced.	Index



ht ients	System Message	Comments
Flig Instrum	<b>GEA # 1 INOP: CNFG</b> – Check GEA software and configuration.	There is a problem with the GEA 1 software configuration. Check the configuration. If the problem persists, the system should be serviced.
EAS	<b>GEA # 1 INOP: INTRL</b> – GEA internal fault.	GEA 1 has an internal fault. The system should be serviced.
Audio and nt CNS	GEA # 1 INOP: POWER – Check GEA power.	GEA 1 power is low. Check GEA power. If the problem persists, the system should be serviced.
	GEA # 1 INOP: SENS CNFG – Check GEA software and configuration.	There is an error in the GEA 1 software and configuration. Check the software and configuration. If the problem persists, the system should be serviced.
Flight Manageme	GEA # 1 INOP: TEMP – Check GEA cooling arrangement.	GEA 1 has insufficient cooling. If the problem persists, the system should be serviced.
Hazard woidance	GEA # 1 INOP: VOLT – Check GEA voltages.	GEA 1 voltage is low. Check GEA voltages.
FCS A	GEA # 1 INOP: VOLT EXCIT – Check GEA Transducer Power Outputs.	GEA 1 transducer power is low. Check GEA transducer power.
aal Al	<b>GEA1 CONFIG</b> – GEA1 config error. Config service REQ'D.	The #1 GEA configuration settings do not match those of backup configuration memory. The system should be serviced.
Additio	GEA1 MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA has incorrect software installed. The system should be serviced.
Abnormal Operation	<b>GEO LIMITS</b> – AHRS1 too far north/south, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is annunciated as invalid.
Annun/Alerts	GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
Appendix	<b>GFC MANIFEST</b> – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
dex	GIA #1 FAN FAIL – Fan fault, check GIA temperature.	GIA #1 fan failure. Monitor GIA #1 temperature.
Ξ	GIA #1 INOP - CRNT – Check GIA Current.	GIA 1 current is low. The current should be checked.




System Message	Comments	Instru
GIA #1 INOP: SERL – Internal GIA Serial Communication Fault.	GIA 1 serial communication fault. Check GIA serial communication.	ght Iments
<b>GIA #1 INOP: VOLT</b> – Check GIA Voltage.	GIA 1 low voltage. Check voltage.	EAS
GIA #1 OVER TEMP – Check GIA Temperature.	GIA 1 is reporting an over-temperature condition.	Audi
GIA #2 FAN FAIL – Fan fault, check GIA temperature.	GIA #2 fan failure. Monitor GIA #2 temperature.	o and NS Ma
GIA #2 INOP - CRNT – Check GIA Current.	GIA 2 current is low. The current should be checked.	Flight anagement
<b>GIA #2 INOP: SERL</b> – Internal GIA Serial Communication Fault.	GIA 2 serial communication fault. Check GIA serial communication.	Hazard Avoidanc
<b>GIA #2 INOP: VOLT</b> – Check GIA Voltage.	GIA 2 low voltage. Check voltage.	
GIA #2 OVER TEMP – Check GIA Temperature.	GIA 2 is reporting an over-temperature condition.	AFCS
GLIDE/ASSIST RING ASSIST – Unavailable above [#].	Glide assist / glide ring unavailable above specified altitude.	Additiona Features
GLIDESLOPE #1 INOP: INTRL – Glideslope Internal Fault	The Glideslope sub-system of the GIA is inoperative due to an internal fault.	d Abnoi Opera
GLIDESLOPE #2 INOP: INTRL – Glideslope Internal Fault	The Glideslope sub-system of the GIA is inoperative due to an internal fault.	rmal tion Ann
<b>GMA 1 INOP: COMM</b> – GMA Communication Fault.	There is a problem with the GMA 1 config module connection. Check the connection.	un/Alerts
<b>GMA 1 INOP: INTRL</b> – GMA Internal Fault.	GMA 1 has an internal fault. The system should be serviced.	Appen
<b>GMA 1 INOP: SOFTWARE</b> – GMA CRC Fault.	The GMA is inoperative due to a CRC fault.	ldix
<b>GMA 1 INOP: VOLTAGE</b> – Voltage outside standard range.	The GMA is inoperative due to a voltage fault.	Index



ht ients	System Message	Comments
Flig Instrum	<b>GMA 1 STUCK KEY</b> – Front Panel Key is Stuck	The Front Panel key for the GMA is stuck.
EAS	<b>GMA1 FAIL</b> – GMA1 is inoperative.	The audio controller has detected a failure. The audio controller is unavailable. The system should be serviced.
and S	GMA1 INSPECTION REQUIRED – Redundant power supply is not present.	GMA1 backup power source is not connected. The system should be serviced.
nt Audio CN	<b>GMA1 MANIFEST</b> – DIG GMA 1 software mismatch, communication halted.	The audio controller has incorrect software installed. The system should be serviced.
Flight Manageme	<b>GMA1 SERVICE</b> – 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.
Hazard Avoidance	<b>GMC1 CONFIG</b> – GMC Config error. Config service REQ'D.	Error in the configuration of GMC1.
FCS	<b>GMC1 FAIL</b> – GMC is inoperative.	A failure has been detected in GMC1. GMC1 is unavailable.
nal es A	<b>GMC1 KEYSTK</b> – GMC [key name] key is stuck.	A key is stuck on the GMC1 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
Additio Featur	<b>GMC1 MANIFEST</b> – GMC software mismatch. Communication halted.	GMC1 has incorrect software installed. The system should be serviced.
Abnormal Operation	<b>GPS #1 INOP - CAL</b> – Factory GPS Calibration Lost Or Corrupted.	GPS 1 factory calibration lost or corrupted. Check GPS calibration. Check GPS calibration.
Annun/Alerts	GPS #1 BATT LOW - GPS 1 Batt Check Recommended.	GPS 1 Battery is low. The battery should be checked.
Appendix	GPS #2 INOP - CAL – Factory GPS Calibration Lost Or Corrupted.	GPS 2 factory calibration lost or corrupted. Check GPS calibration. Check GPS calibration.
ndex	GPS #1 BATT LOW – GPS 2 Batt Check Recommended.	GPS 2 Battery is low. The battery should be checked.





System Message	Comments	Instru
<b>GPS NAV LOST</b> – Loss of GPS navigation. Enable GPS sensors.	Loss of GPS navigation due to GPS being disabled	ight uments
<b>GPS NAV LOST</b> – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.	EAS
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.	Audio and CNS
<b>GPS1 CHECK POSITION</b> – Position difference. Check position sensors.	Check GPS1. From the 'Sensors' Screen on the Touchscreen Controller, disable then enable GPS1 to clear the alert. If the alert persists, the system should be serviced.	l Flig Manage
<b>GPS2 CHECK POSITION</b> – Position difference. Check position sensors.	Check GPS2. From the 'Sensors' Screen on the Touchscreen Controller, disable then enable GPS2 to clear the alert. If the alert persists, the system should be serviced.	ment Av
GRS-GMU1 RS232 COMM FAIL – GMU Software Loading Inoperable	The RS-232 communication path between the GRS and GMU has failed. The system should be serviced.	oidance A
GRS-GMU2 RS232 COMM FAIL – GMU Software Loading Inoperable	The RS-232 communication path between the GRS and GMU has failed. The system should be serviced.	FCS Featu
GRS1 MANIFEST – GRS1 software mismatch, communication halted.	AHRS1 has incorrect software installed. The system should be serviced.	ional Ab Jres Op
GRS2 MANIFEST – GRS2 software mismatch, communication halted.	AHRS2 has incorrect software installed. The system should be serviced.	vnormal veration
<b>GSR1 FAIL</b> – GSR1 has failed.	A failure has been detected in GSR1. The system should be serviced.	Annun/Alerts
<b>GTC1 CARD1 ERR</b> – GTC1 card 1 is invalid.	The internal SD card in the Touchscreen Controller contains invalid data. The system should be serviced.	Ap
GTC1 CARD1 REM – GTC1 card 1 was removed. Reinsert card.	The internal SD card in the Touchscreen Controller was removed. The system should be serviced.	pendix
GTC1 CHK REQD: FAN FAIL – Monitor GTC Temperature	GTC1 fan failure. Monitor GTC temperature.	Index



ht nents	System Message	Comments
Flig Instrun	<b>GTC1 CONFIG</b> – GTC1 config error. Config service REQ'D.	Touchscreen Controller configuration settings do not match those of backup configuration memory. The system should be serviced.
EAS	<b>GTC1 DB ERR</b> – GTC1 [XXXX] database errors exist.	The Touchscreen Controller detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
Audio and CNS	GTC1 INOP: OVERTEMP – Temperature outside operational range	GTC1 is outside of operational temperature range. The system should be serviced.
Flight Aanagement	GTC1 INOP: VOLTAGE – Voltage outside standard range	GTC1 is outside of operational temperature range. The system should be serviced.
lazard oidance N	GTC1 MANIFEST – GTC1 software mismatch, communication halted.	The Touchscreen Controller has incorrect software installed. The system should be serviced.
AFCS Av	GTC1 MEM ERROR – Internal Memory Error	The GTC is inoperative due to an internal memory fault. If problem persists, remove and replace the GTC per Line Maintenance Manual procedures. If problem has been resolved, return the aircraft to normal operations.
itional tures	GTC1 KEYSTK – GTC1 [key name] key is stuck.	A knob or key 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.
Add Fea	GTC1 OVERTEMP – Reduced Backlight Level	Reduced backlight level.
Abnormal Operation	<b>GTC1 RESET</b> – Corrective Reset Performed	The GTC1 performed a corrective restart to repair an Single Event Upset. There is no maintenance action required. The GTC1 is capable of resuming normal operation after the corrective restart.
n/Alerts	<b>GTC2 CARD1 ERR</b> – GTC2 card 1 is invalid.	The internal SD card in the Touchscreen Controller contains invalid data. The system should be serviced.
Ann	GTC2 CARD1 REM – GTC2 card 1 was removed.	The internal SD card in the Touchscreen Controller was removed. The system should be serviced.
Appendix	GTC2 CHK REQD: FAN FAIL – Monitor GTC	GTC1 fan failure. Monitor GTC temperature.
Index	Temperature	
	<b>GTC2 CONFIG</b> – GTC2 config error. Config service REQ'D.	Touchscreen Controller configuration settings do not match those of backup configuration memory. The system should be serviced.



System Message	Comments	Instri
GTC2 DB ERR – GTC2 [XXXX] database errors exist.	The Touchscreen Controller detected a failure in one or more databases. Ensure the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.	ight Iments
GTC 2 MEM ERROR – Internal Memory Error	The GTC is inoperative due to an internal memory fault. If problem persists, remove and replace the GTC per Line Maintenance Manual procedures. If problem has been resolved, return the aircraft to normal	EAS
GTC2 INOP: OVERTEMP – Temperature outside operational range	GTC2 is outside of operational temperature range. The system should be serviced.	Audio and CNS P
GTC2 INOP: VOLTAGE – Voltage outside standard range	GTC2 is outside of operational temperature range. The system should be serviced.	Flight Vlanagement
<b>GTC2 KEYSTK</b> – GTC2 [key name] key is stuck.	A knob or key 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.	Hazard Avoidance
GTC2 MANIFEST – GTC2 software mismatch, communication halted.	The Touchscreen Controller has incorrect software installed. The system should be serviced.	AFCS
GTC2 OVERTEMP – Reduced Backlight Level	Reduced backlight level.	_ >
<b>GTC2 RESET</b> – Corrective Reset Performed	The GTC2 performed a corrective restart to repair an Single Event Upset. There is no maintenance action required. The GTC2 is capable of resuming normal operation after the corrective restart.	dditional Features
<b>GTS CONFIG</b> – 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.	Abnorma Operatio
<b>GTS MANIFEST</b> – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.	n Annun/
GTX 3X5 1 MANIFEST – GTX software mismatch.	The GTX has incorrect software installed. The system should be serviced.	Alerts
GTX 3X5 1 ADS-B 1090 – Datalink: ADS-B 1090 receiver has failed.	A failure has been detected in the 1090 receiver.	Appendix
GTX 3X5 1 ADS-B IN – Datalink: ADS-B in has failed.	The transponder is unable to receive ADS-B IN information.	Index



ht nents	System Message	Comments
Flig Instrum	GTX 3X5 1 ADS-B NO POS – GTX not receiving ADS-B position data	The transponder is not able to receive position information.
EAS	<b>GTX 3X5 1 ADS-B NO TX</b> – 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.
vudio and CNS	<b>GTX 3X5 1 ADS-B TRFC</b> – Datalink: Traffic failed.	The Transponder is incapable of processing traffic information.
ight A gement	<b>GTX 3X5 1 ADS-B UAT</b> – Datalink: ADS-B in UAT receiver has failed.	A failure has been detected in the UAT receiver.
d Fl nce Mana	GTX 3X5 1 CONFIG – GTX config error. Config service REQ'D.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
Hazarı Avoidar	<b>GTX 3X5 1 FAIL</b> – GTX is inoperative.	There is no communication with the #1 transponder.
AFCS	GTX 3X5 1 FIS-B WX – Datalink: FIS-B Weather has failed.	The transponder is unable to receive FIS-B weather information.
lditional eatures	GTX 3X5 1 GND TEST – <xpdr 1="" dlk="" or="">: Ground test mode active.</xpdr>	Transponder / datalink ground test active.
rmal Ad	<b>GTX 3X5 1 OVER TEMP</b> - <xpdr 1="" dlk="" or="">: Over temperature.</xpdr>	The system has detected an over temperature condition in GTX 1 / datalink 1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
dbnoi Cpera	GTX 3X5 1 PRES ALT – GTX not receiving ADS-B press alt data	Unable to provide pressure altitude information.
Annun/Ale	<b>GTX 3X5 1 SERVICE</b> – GTX needs service. Return unit for repair.	GTX 1 should be serviced when possible.
Appendix	GTX 3X5 1 TEST MODE – Transponder: Test mode active.	Transponder test mode active.
Index	GTX 3X5 1 UNDER TEMP - <xpdr 1="" dlk="" or="">: Under temperature.</xpdr>	The system has detected an under temperature condition in GTX 1 / datalink. The transmitter operates at reduced power. If the problem persists, the system should be serviced.



System Message	Comments	Instr
<b>HDG FAULT</b> – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.	ight uments
<b>HDG FAULT</b> – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.	EAS
HOLD EXPIRED – Holding EFC time expired.	Expect Further Clearance (EFC) time has expired for the User Defined Hold.	Audio an CNS
<b>INSIDE ARSPC</b> – Inside airspace.	The aircraft is inside the airspace.	d Ma
<b>LOI</b> – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.	Flight inagement
LOSS OF GPS NAVIGATION – Insufficient Satellite Reception.	Loss of GPS navigation due to insufficient satellite reception.	Hazard Avoidance
<b>LOW BANK ACTIVE</b> – Disengage for approach.	Low Bank mode is active. Disengage to continue approach.	AFC
LOW BANK ACTIVE – Disengage for RNP less than 1.0.	Low Bank mode active, disengage Low Bank Mode to continue the approach.	s Ac
<b>LRG MAG VAR</b> – Verify all course angles.	The GDU internal model cannot ascertain the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.	lditional eatures
<b>LRU REPLACEMENT</b> – [LRU name].	The system has detected an LRU replacement. Perform LRU replacement software or full configuration loading procedure.	Abnormal Operation
MANIFEST – Software mismatch, communication halted.	The GSR1 has incorrect software installed. The system should be serviced.	Annun/Al
<b>MFD FAN FAIL</b> – The cooling fan for the PFD is inoperative.	The cooing fan in the MFD has failed. The system should be serviced.	erts App
MFD1 CARD 1 ERR – MFD1 card 1 is invalid.	The SD card in the top card slot of the MFD contains invalid data.	endix
MFD1 CARD 1 REM – MFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the MFD. The SD card needs to be reinserted.	Index



ht nents	System Message	Comments
Flig Instrum	MFD1 CARD 2 ERR – MFD1 card 2 is invalid.	The SD card in the bottom card slot of the MFD contains invalid data.
EAS	MFD1 CARD 2 REM – MFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the MFD. The SD card needs to be reinserted.
and S	MFD1 CHK REQD: BTM SD – Bottom SD card error.	The GDU bottom SD card is inoperative.
Audio CN	MFD1 CHK REQD: INT SD – Internal SD card error.	The GDU internal SD card is inoperative.
Flight nagement	MFD1 CHK REQD: TOP SD – Top SD card error.	The GDU top SD card is inoperative.
ard ance Mai	<b>MFD1 CMC INOP: Config</b> – CMC system inop due to invalid config.	The CMC system logging capability is inoperative due to file invalid configuration.
Avoid	MFD1 CMC INOP: Corrupt – CMC INOP due to file system corruption.	The CMC system logging capability is inoperative due to file system corruption.
AFCS	MFD1 CMC INOP: MEM Full – Internal SD card full.	The CMC system logging capability is inoperative due to insufficient memory.
Additional Features	<b>MFD1 CONFIG</b> – MFD1 config error. Config service REQ'D.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
ormal	MFD1 DB ERR – MFD 1 [XXXX] database errors exist.	The MFD detected database errors. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
Abn Ope	MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
Annun/Alerts	<b>MFD1 DB ERR</b> – MFD1 terrain database error exists.	The MFD detected a failure in the terrain database. Ensure that data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
Appendix	<b>MFD1 HEAT TIME EXTD</b> – Heater taking extended time to warm up.	The specified GDU heater is taking an extended time to warm up. The system should be serviced.
Index	MFD1 INOP: DISABLE DSPL – Check Disable Display Input Wiring	The specified GDU has insufficient voltage. The system should be serviced.



System Message	Comments	Fli
MFD1 INOP: LED FAULT – Reduced backlight level: needs renair	The specified GDU has reduced backlight levels. The system should be serviced.	ight Iments
<b>MFD1 KEYSTK</b> – MFD1 [key name] is stuck.	A key is stuck on the MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.	EAS
<b>MFD1 MANIFEST</b> – MFD1 software mismatch.	The MFD has incorrect software installed. The system should be serviced.	Aud
MFD1 MEM ERROR – Internal Memory Error	The MFD is inoperative due to an internal memory error. If problem persists, remove and replace the MFD per Line Maintenance Manual procedures. If problem has been resolved, return the aircraft to normal persistence.	io and F INS Man
<b>MFD1 OVER TEMP</b> – Check MFD1 temperature.	The specified GDU is over-temperature. The system should be serviced.	light agement
<b>MFD1 RESET</b> – Corrective Reset Performed	The GDU performed a corrective restart to repair a Single Event Upset. There is no maintenance action required. The GDU is capable of resuming normal operation after the corrective restart.	Hazard Avoidance
<b>MFD1 SERVICE</b> – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.	AFCS
MFD1 TERRAIN DSP – MFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the MFD is missing or invalid.	Additio Featur
MODEL MISMATCH – Model mismatch for GDU or GTC. Service required.	The GTC or GDU modes are not compatible. The system should be serviced.	nal Abn es Ope
NAV #1 INOP: CAL – Factory NAV Calibration Lost or Corrupted.	NAV 1 calibration version error. Check COM calibration.	ormal ration <mark>A</mark>
NAV #1 INOP: CONFIG – Check NAV Software and Config.	There is a problem with the NAV 1 software configuration. Check the configuration. If the problem persists, the system should be serviced.	mun/Alerts
NAV #1 INOP: INTRL – NAV Internal Fault.	NAV 1 has an internal fault.	Appendix
NAV #1 INOP: SERL – Internal NAV Serial Communication Fault.	NAV 1 serial communication fault. Check NAV serial communication.	Inde
NAV #1 INOP: SYNTH – NAV Synthesizer Lock Fault.	NAV 1 has a synthesizer lock fault.	×



ht nents	System Message	Comments
Flig Instrun	NAV #2 INOP: CAL – Factory NAV Calibration Lost or Corrupted.	NAV 2 calibration version error. Check COM calibration.
EAS	NAV #2 INOP: CONFIG – Check NAV software and config.	There is a problem with the NAV 2 software configuration. Check the configuration. If the problem persists, the system should be serviced.
Nudio and CNS	NAV #2 INOP: INTRL – NAV Internal Fault.	NAV 2 has an internal fault.
ight / gement	<b>NAV #2 INOP: SERL</b> – Internal NAV Serial Communication Fault.	NAV 2 serial communication fault. Check NAV serial communication.
FI Mana	<b>NAV #2 INOP: SYNTH</b> – NAV Synthesizer Lock Fault.	NAV 2 has a synthesizer lock fault.
Hazard Avoidance	<b>NAV1 RMT XFR</b> – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
AFCS	<b>NAV2 RMT XFR</b> – NAV1 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
Additional Features	<b>NO RUNWAY POSITION</b> <b>DATA</b> – Inhibit SurfaceWatch. No runway position data.	Inhibit SurfaceWatch.
Abnormal Operation	<b>NON-MAGNETIC UNITS</b> – Non-MAG NAV angle display units are active.	Navigation angle is not set to Non-MAG NAV at power-on.
Annun/Alerts	<b>NON WGS84 WPT</b> – 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.
ppendix	<b>PFD FAN FAIL</b> – The cooling fan for the PFD is inoperative.	The cooing fan in the PFD has failed. The system should be serviced.
Index A	<b>PFD POSITIONS</b> <b>DIFFERENT</b> – 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.



PFD1 ANNUNC INOP - PFD Annunciation FailurePFD 1 annunciations are inoperative due to an internal error. PFD Annunciation FailurePFD 1 annunciations are inoperative due to an internal error. PFD 1 CARD 1 ERR - PFD1 CARD 1 ERM - PFD1 CARD 1 WAS removed.The SD card in the top card slot of the PFD contains invalid data. PFD1 CARD 1 WAS removed. Reinsert card.The SD card was removed from the top card slot of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card needs to be reinserted.Image: Control of the PFD. The SD card read reads to be reinserted.Image: Control of the PFD. The SD card read reads to be reinserted.Image: Control of the PFD. The SD card read reads to be reinserted.Image: Control of the PFD. The SD card read reads to be reinserted.Image: Control of the PFD. The SD card read reads to be reinserted.Image: Control of the PFD. The SD card was removed from the bottom card slot of the PFD. The SD card error.Image: Control of the CARD 1 REM - read reads to be reinserted.Image: Control of the CARD 1 REM - read reads to be reinserted.Image: Control of the CARD 1 REM - read reads to be reinserted.Image: Control of the CARD 1 REM - read reads to be reinserted.Image: Control of the PFD. The SD Card was removed from the bottom card slot of the PFD. The SD Card was removed from the SD card in reads to specified I CNC INOP: Control of the CMC INOP: Control of the CMC system logging capa	System Message	Comments	Fli
PFD1 CARD 1 ERR - PFD1 Card 1 is invalid.The SD card in the top card slot of the PFD contains invalid data.PfD1 Card 1 is invalid.The SD card was removed from the top card slot of the PFD. The SD card needs to be reinserted. Reinsert card.The SD card in the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card in the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card in the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card in the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.The SD card in the bottom SD card is inoperative.The SD Card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.The GDU internal SD card is inoperative.The GDU internal SD card is inoperative.The GDU internal SD card for SD card is inoperative.The GDU internal SD card for SD card error.The CMC system logging capability is inoperative due to file invalid configuration.The CMC system logging capability is inoperative due to insufficient memory.The CMC System logging capability is inoperative due to insufficient memory.The CMC System logging capability is inoperative due to insufficient memory.The PFD configuration settings do not match backup configuration memory.The PFD ConFiguration for SPFD Configuration memory.The PFD configuration s	<b>PFD1 ANNUNC INOP</b> – PFD Annunciation Failure	PFD 1 annunciations are inoperative due to an internal error.	ght Iments
PFD1 CARD 1 REM – PFD1 card 1 was removed. Reinsert card.    The SD card was removed from the top card slot of the PFD. The SD card needs to be reinserted.    Image: Comparison of the PFD contains invalid data.    Image: Comparison of the PFD contains invalid conting error.    Image: Comparison of the PFD comparison of the PFD comparison of the PFD comparison of the PFD comparison	<b>PFD1 CARD 1 ERR</b> – PFD1 card 1 is invalid.	The SD card in the top card slot of the PFD contains invalid data.	EAS
PFD1 CARD 2 ERR – PFD1 card 2 is invalid.The SD card in the bottom card slot of the PFD contains invalid data.Ifter the problem card slot of the PFD contains invalid data.Ifter the problem card slot of the PFD. The SD card was removed from the bottom card slot of the PFD. The SD card was removed. card needs to be reinserted. Reinsert card.The SD card was removed from the bottom card slot of the PFD. The SD card was removed. removed from the bottom SD card is inoperative.Ifter the GDU bottom SD card is inoperative. PFD1 CHK REQD: INT SD card error.The GDU internal SD card is inoperative. PFD1 CHK REQD: TOP SD card error.The GDU top SD card is inoperative. Internal SD card error.Ifter GDU top SD card is inoperative. Internal SD card error.Ifter GDU top SD card is inoperative. Internal SD card error.Ifter GDU top SD card is inoperative. Internal SD card error.Ifter GDU top SD card is inoperative. Internal SD card error.Ifter GDU top SD card is inoperative. Inte CMC system logging capability is inoperative due to file invalid 	<b>PFD1 CARD 1 REM</b> – PFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the PFD. The SD card needs to be reinserted.	Audi
PFD1 CARD 2 REM - PFD1 card 2 was removed. Reinsert card.The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted. Reinsert card.PfD1 CARD 2 REM - card needs to be reinserted. card needs to be reinserted.PfD1 CARD 2 Was removed. 	<b>PFD1 CARD 2 ERR</b> – PFD1 card 2 is invalid.	The SD card in the bottom card slot of the PFD contains invalid data.	io and NS
PFD1 CHK REQD: BTM SD – Bottom SD card error.The GDU bottom SD card is inoperative.Ime GDU internal SD card is inoperative.Ime GDU internal SD card is inoperative.PFD1 CHK REQD: INT SD – Internal SD card error.The GDU top SD card is inoperative.Ime GDU top SD card is inoperative.Ime GDU top SD card is inoperative.PFD1 CMC INOP: Config – CMC system inop due to 	PFD1 CARD 2 REM – PFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the PFD. The SD card needs to be reinserted.	Flight Management
PFD1 CHK REQD: INT SD – Internal SD card error.The GDU internal SD card is inoperative. Top SD card error.The GDU top SD card is inoperative. FD1 CMC INOP: Config – CMC system inop due to invalid config.The CMC system logging capability is inoperative due to file invalid configuration.The CMC system logging capability is inoperative due to file invalid configuration.The CMC system logging capability is inoperative due to file system corrupt – CMC INOP: Corrupt – CMC INOP MEM 	<b>PFD1 CHK REQD: BTM</b> <b>SD</b> – Bottom SD card error.	The GDU bottom SD card is inoperative.	Ha Avoi
PFD1 CHK REQD: TOP SD – Top SD card error.The GDU top SD card is inoperative. In e GDU top SD card is inoperative.Image: Comparison of Compari	<b>PFD1 CHK REQD: INT SD</b> – Internal SD card error.	The GDU internal SD card is inoperative.	zard dance
PFD1 CMC INOP: Config - CMC system iop due to invalid config.The CMC system logging capability is inoperative due to file invalid configuration.Image: Configuration configurationImage: ConfigurationImage: ConfigurationImage: Configuration configurationImage:	<b>PFD1 CHK REQD: TOP SD</b> – Top SD card error.	The GDU top SD card is inoperative.	AFCS
PFD1 CMC INOP: Corrupt – CMC INOP due to file system corruption.The CMC system logging capability is inoperative due to file system corruption.Image: Corruption of the system corruption of the system corruption.Image: Corruption of the system corruption of the system corruption.Image: Corruption of the system corruption of the system corruption of the system corruption.Image: Corruption of the system corruption.Image: Corruption of the system should be serviced.Image: Corruption of the system corruption of the system should be serviced.Image: Corruption of the system corruption of the syst	<b>PFD1 CMC INOP: Config</b> – CMC system inop due to invalid config.	The CMC system logging capability is inoperative due to file invalid configuration.	Add
PFD1 CMC INOP: MEM Full – Internal SD card full.The CMC system logging capability is inoperative due to insufficient memory.PfD1 CONFIG – PFD1 The PFD configuration settings do not match backup configuration memory. The system should be serviced.PfD1 DB ERR – PFD1 The PFD detected a failure in more than one database. Reload databases with new data card. If problem persists, delete databases and reload with 	<b>PFD1 CMC INOP:</b> <b>Corrupt</b> – CMC INOP due to file system corruption.	The CMC system logging capability is inoperative due to file system corruption.	itional /
PFD1 CONFIG – PFD1 config error. Config service REQ'D.The PFD configuration settings do not match backup configuration memory. The system should be serviced.Image: Configuration settings do not match backup configuration 	PFD1 CMC INOP: MEM Full – Internal SD card full.	The CMC system logging capability is inoperative due to insufficient memory.	Abnormal
PFD1 DB ERR – PFD1    The PFD detected a failure in more than one database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.    Image: Comparison of the problem persists, delete databases and reload with a new card.      PFD1 DB ERR – PFD1    The obstacle database is present on another LRU, but is missing on the specified LRU.    Image: Comparison of the specified LRU.      PFD1 DB ERR – PFD1    The terrain database is present on another LRU, but is missing on the specified LRU.    Image: Comparison of the specified LRU.	<b>PFD1 CONFIG</b> – PFD1 config error. Config service REQ'D.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.	Annun/Aler
PFD1 DB ERR – PFD1    The obstacle database is present on another LRU, but is missing on the specified LRU.      PFD1 DB ERR – PFD1    The terrain database is present on another LRU, but is missing on the specified LRU.      PFD1 DB ERR – PFD1    The terrain database is present on another LRU, but is missing on the specified LRU.	<b>PFD1 DB ERR</b> – PFD1 [XXXX] database errors exist.	The PFD detected a failure in more than one database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.	ts Appen
<b>PFD1 DB ERR</b> – PFD1The terrain database is present on another LRU, but is missing on the specified LRU.	<b>PFD1 DB ERR</b> – PFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.	ıdix
	<b>PFD1 DB ERR</b> – PFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.	Index



ht nents	System Message	Comments
Flig Instrum	<b>PFD1 HEAT TIME EXTD</b> – Heater taking extended time to warm up.	The specified GDU heater is taking an extended time to warm up. The system should be serviced.
EAS	PFD1 INOP: DISABLE DSPL – Check Disable Display Input Wiring	The specified GDU has insufficient voltage. The system should be serviced.
Audio and CNS	PFD1 INOP: LED FAULT – Reduced backlight level: needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
light igement	<b>PFD1 KEYSTK</b> – PFD1 [key name] is stuck.	A key is stuck on the PFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
d F nce Mana	PFD1 MEM ERROR – Internal Memory Error	The PFD is inoperative due to an internal memory error. If problem persists, remove and replace the MFD per Line Maintenance Manual procedures. If problem has been resolved, return the aircraft to normal operations.
Hazar Avoidar	<b>PFD1 MANIFEST</b> – PFD1 software mismatch.	The PFD has incorrect software installed. The system should be serviced.
S	<b>PFD1 OVER TEMP</b> – Check PFD1 temperature.	The specified GDU is over-temperature. The system should be serviced.
aal A	<b>PFD1 RESET</b> – Corrective Reset Performed	The GDU performed a corrective restart to repair a Single Event Upset. There is no maintenance action required. The GDU is capable of resuming normal operation after the corrective restart.
Additio Featur	<b>PFD1 SERVICE</b> – PFD1 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
Abnormal Operation	PFD1 TERRAIN DSP – PFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the PFD is missing or invalid.
Annun/Alerts	<b>PILOT PTT STUCK</b> – GMA 1 Pilot Push-to-Talk is Stuck	The GMA 1 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.
Appendix	PIT SERVO COMM – Check PIT servo wiring to GIA1	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.
Index	PIT SERVO COMM – Check PIT servo wiring to GIA2	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.



System Message	Comments	Instru
<b>PIT TRIM INOP</b> – Data Miscompare	The system has detected conflicting sensor readings from the trim monitors.	iments
PIT TRIM INOP – Uncommanded Movement	The system has detected uncommanded trim surface movement and stopped operation.	EAS
<b>PIT TRIM INOP</b> — Runaway Trim	The system has detected a runaway trim situation and stopped operation.	
<b>PIT TRIM INOP</b> – Wrong direction detected	The system has determined the trim is moving in the wrong direction compared to what was commanded.	CNS
<b>PIT TRIM INOP</b> – Servo Fault	The system has detected a trim servo fault.	Man
<b>PIT TRIM INOP</b> – Flap configuration trim inoperative	The system has detected that the flap configuration trim is inoperative.	agement
<b>PIT TRIM INOP</b> – Primary trim failure	The system has detected a failure of the primary trim system.	Avoidance
<b>PIT TRIM INOP</b> – Manual electric trim fault	The system has detected a fault in the manual electric trim system	
<b>PIT TRIM INOP</b> – Trim response fault	The system has detected an improper response to trim commands.	AFCS
<b>REGISTER CONNEXT</b> – Data services inop, register w/ Connext.	The system is not registered with Garmin Connext, or its current registration data has failed authentication.	Features
ROL SERVO COMM – Check ROL servo wiring to GIA1	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.	Operati
ROL SERVO COMM – Check ROL servo wiring to GIA2	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.	on Annu
SCHEDULER [#] – <message>.</message>	Message criteria entered by the user.	n/Alerts
<b>SLCT ARR RWY</b> – Select appropriate runway for arrival procedure.	The system notifies the pilot to load the appropriate approach runway for the arrival procedure.	Appendix
<b>SLCT FREQ</b> – 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.	Index



ht ients	System Message	Comments
Flig Instrun	<b>SLCT MAG</b> – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to Magnetic.
EAS	<b>SLCT NAV</b> – 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.
Audio and CNS	<b>SLCT NON-MAG</b> – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to True.
Flight // /lanagement	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.
d Dce	<b>STEEP TURN</b> – Steep turn ahead.	The computed bank angle needed to execute the turn ahead may exceed the current bank angle limit.
Hazar Avoidar	<b>STRMSCP FAIL</b> – Stormscope has failed.	Stormscope has failed. The system should be serviced.
AFCS	SURFACEWATCH DISABLED – Too far north/ south.	The SurfaceWatch system has been disabled.
nal es	SURFACEWATCH FAIL – Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.
Additio Featur	SURFACEWATCH FAIL – Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.
ormal ration	SURFACEWATCH FAIL – One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.
Abn erts Ope	SURFACEWATCH INHIBITED – SurfaceWatch inhibited.	The SurfaceWatch system has been inhibited.
Annun/Al	<b>SVT DISABLED</b> – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
endix	<b>SVT DISABLED</b> – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
с Арр	<b>SYSTEM INOP: AIRCRAFT</b> <b>ID</b> – Aircraft-specific config lost / corrupted.	The system configuration has changed unexpectedly. The system should be serviced.
Index	<b>SYSTEM INOP: FLEET ID</b> – System configuration lost or corrupted.	The system configuration has changed unexpectedly. The system should be serviced.





System Message	Comments	Fli
TCAS FAIL – TCAS system is inoperative.	The TCAS system has failed. The system should be serviced.	ght Iments
<b>TEMP COMP</b> – APPR ALT Constraint above Transition Level	Temperature compensated approach altitude is higher than the Transition Level.	EAS
<b>TIMER EXPIRD</b> – Timer has expired.	The system notifies the pilot the timer has expired.	Audi
<b>TRAFFIC FAIL</b> – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.	o and NS
<b>TERRAIN AUD CFG</b> – Trn Awareness audio config error. Service REQD.	TAWS is disabled because the audio configuration is invalid. The system should be serviced.	Flight Management
<b>TRN AUD FAIL</b> – Trn Awareness audio source unavailable.	TAWS is disabled because an aural alert audio source is unavailable.	Hazard Avoidanc
<b>UNABLE RNP</b> – Estimated position error exceeds RNP.	The estimated GPS position error exceeds the RNP limits. Check GPS signal.	D
<b>UNABLE RNP APR</b> – GPS integrity lost. Check GPS sensors.	The GPS integrity level is insufficient for the RNP AR approach	AFCS
<b>UNABLE VNAV ALTITUDE</b> – Cannot meet VNAV altitude constraint.	The current vertical speed is insufficient to make the active flight plan altitude constraint before crossing the waypoint.	Additional Features
VNV UNAVAILABLE – Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.	Abnoi Opera
<b>VNV UNAVAILABLE</b> – Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.	mal
VNV UNAVAILABLE – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.	Annun/Ale
VNV UNAVAILABLE – Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.	Apper
VNAV DISCONTINUITY AHEAD – Discontinuity after [waypoint].	A vertical discontinuity exists ahead of the aircraft in the flight plan.	ndix
VNAV CONFIG – VNAV config error Config service REQD.	VNAV configuration error. The system should be serviced.	ndex

System Message

**VOR1 APPR DEV NOT** 



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	<b>AVAIL</b> – APPR NAVAID deviation not available.	
	<b>VOR2 APPR DEV NOT</b> <b>AVAIL</b> – APPR NAVAID deviation not available.	VOR-based deviation is not available.
	WPT ARRIVAL – Arriving at waypoint - [xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
	<b>XTALK ERROR</b> – Flight display crosstalk error has occurred.	The GDUs and/or GTCs are not communicating with each other. The system should be serviced.
	YAW SERVO COMM – Check YAW servo wiring to GIA1	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.
	YAW SERVO COMM – Check YAW servo wiring to GIA2	The GSA servo is inoperative due to a loss of communication path to a GIA. The system should be serviced.

VOR-based deviation is not available.

Comments

#### **AIRFRAME SYSTEM MESSAGES** FCS

Message Title	Window Text
AOA SENSOR FAIL	The AOA 2 signal is out of range.
ECS RECIRC ON	ECS recirculation mode is prohibited in flight.
ESP CONFIG	ESP config error. Config service req'd.
ESP DEGRADE	ESP IAS mode is inoperative.
ESP FAIL	ESP is inoperative.
ESP OFF	ESP selected off.
MIXTURE POSITION SERVICE REQD	Mixture position sensor requires service.
THROTTLE POSITION SERVICE REQD	Throttle position sensor requires service.

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# **APPENDICES**

### DATABASE MANAGEMENT

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Two options are available for updating databases:

- Garmin Pilot<sup>™</sup> in combination with a Portable Electronic Device (PED) which transfers databases to the system through the FS 510 Wireless Transceiver
- A 32 GB Supplemental Data (SD) card (or FS 510 card as a storage device) and an SD Card reader to download databases from a personal computer

See descriptions and procedures in this Appendix for more information.

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.

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.

**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:** Loading a database in the system prior to its effective date will result in the expiration date on the Power-on Display and the effective date on the 'Database Status' Screen being displayed in amber.

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

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

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





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# DATABASES AND CYCLES

### STANDBY DATABASE CATALOG

The Standby Database Catalog supports multiple regions for the same database, allowing the crew to quickly change regions while on ground. A system power cycle is required to change database regions. The Standby Database Catalog can store standby and active databases for the internally stored display (GDU<sup>™</sup>) databases, SD Card databases, and databases on a connected PED. Databases in the Standby Database Catalog can be active databases from a region that is not currently selected, or standby databases stored until reaching the activation date. When an SD card is inserted in the bottom slot of the MFD, it will take priority over any other databases recognized by the system.

#### Changing the Database Region:

- 1) From MFW Home, touch Utilities > Setup > Database Status.
- Scroll if necessary and select the button(s) for the desired database(s) in the 'Standby' Column.
- **3)** Select the button for the desired database(s) on the 'Standby Database Catalog' Screen. The selected database(s) will sync to 'Standby'.
- 4) To monitor the database(s) transfer:
  - a) From MFW Home, touch Utilities > Setup > Database Status.
  - **b)** Scroll if necessary and select the button for the desired database in the 'Standby' Column.
  - c) The database update status will appear in the status window at the top of the screen. Monitor the database transfer. Synchronization is complete when 'Databases Transfer Complete' is displayed in the progress window.
- 5) Databases selected to load will be indicated by a cyan single-arrow. For any new databases not selected to load with a cyan arrow, touch the arrow in the 'Load' Column next to the specific database. The arrow will change to cyan in color.
- 6) From MFW Home, touch Utilities > Setup > Database Status > Database Options > Restart Displays.

Or:

From MFW Home, touch Utilities > Initialization > Database Status > Database Options > Restart Displays.

- 7) Press the right-most softkey on the MFD to acknowledge the power-on screen.
- 8) From MFW Home, touch Utilities > Initialization > Database Status.Or:

From MFW Home, touch Utilities > Setup > Database Status.

9) Verify the standby databases transferred and are now in the 'Active' Column.

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# DATABASE AUTO SWAP

When an expired, active database has a standby database that is ready to become effective, a cyan 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. The auto swap process may be inhibited if desired by touching the **Inhibit Auto Swap** Button.

#### Inhibiting / Enabling database auto swap:

From MFW Home, touch Utilities > Initialization > Database Status.
 Or:

#### From MFW Home, touch Utilities > Setup > Database Status.

#### 2) Scroll down and touch Database Options > Inhibit Auto Swap.

A 32 GB SD (or FS 510 card as a storage device) card can be used 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, 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, 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.

All databases can be updated through a single SD card in the bottom slot of the MFD. 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.
- Updated databases obtained from the Garmin website.
- Garmin or OEM provided 32 GB SD card

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# **SEAMLESS DATABASE ACTIVATION**

When new databases are available on an SD card inserted in the bottom slot of the MFD, the Seamless Database Activation process allows any new Navigation, Obstacle, Airport Directory, and SafeTaxi databases to be synchronized and activated across the avionics system at poweron. FliteCharts, ChartView, and IFR/VFR Charts databases will be synchronized and activated in the background after power-on. All aforementioned databases will be activated and displayed in the 'Active' Column of the 'Database Status' Screen; no restart of system is required. However, when new Basemap and Terrain databases are available, a restart of the system will be necessary for those databases to be activated.

#### Monitoring Seamless Database Activation:

- 1) Download and install the databases on the SD card.
- 2) Insert an SD card in the bottom slot of the MFD.
- 3) Apply power to the system.
- **4)** The Touchscreen Controllers and Display Units will display update status for any new databases available. The system will complete the power-on process when the updates are complete.
- 5) After the system is powered on, the Navigation, Obstacle, Airport Directory, and SafeTaxi will display in the Active column if updates were available for those databases. FliteCharts, ChartView, and IFR/VFR Charts will begin synchronizing. The synchronization can be monitored in the 'Database Status' Screen progress window. Touch Utilities > Setup > Database Status. A cyan 'Delayed Access' Symbol will appear in the 'Load' Column for any database that is synchronizing. Associated charts will not be available for use on the system when the symbol is present.
- 6) To cancel the charts update, touch Utilities > Setup > Database Status > Database Options > Cancel Chart DB Update.
- 7) The 'Delayed Access' Symbol will display on any 'MFW Home' Screen Buttons, the Database Status Button and on the 'Initialization' Screen to show the affected screens are not accessible.
- 8) When there are new Basemap and Terrain databases to be activated, the system will display the message 'Activate databases with on ground restart' in the progress window. Cyan arrows will appear in the 'Load" Column beside the Basemap and Terrain databases.
- 9) From MFW Home, touch Utilities > Setup > Database Status > Database Options > Restart Displays.

0r:

From MFW Home, touch Utilities > Initialization > Database Status > Database Options > Restart Displays.

- **10)** Press the right most softkey on the MFD to acknowledge the power-on screen.
- **11)** From Home, touch Utilities > Initialization > Database Status.

#### Or:

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Abnormal Operation From Home, touch **Utilities > Setup > Database Status.** 

**12)** Verify the standby Basemap and Terrain databases transferred and are now in the 'Active' Column.

# UPDATING DATABASES WHEN THE SYSTEM IS POWERED ON

The following instructions cover updating databases after system power-on for using an SD Card. (For instructions to update databases after system power-on using Garmin Pilot and a PED, see 'Updating Databases Using Garmin Pilot'). Databases will update automatically after power-on when enabled on the system. Databases will begin to update automatically when an SD card is inserted in the bottom slot of the MFD after system power-on

#### Updating databases using an SD card:

- **1)** When using databases from an SD card:
  - **a)** Download and install the databases on the SD card.
  - **b)** Insert an SD card in the bottom slot of the MFD.
- 2) From MFW Home, touch Utilities > Initialization > Database Status. Or:

From MFW Home, touch Utilities > Setup > Database Status.

- **3)** Monitor the Sync Status on the 'Database Status' Screen. Wait for the databases to complete syncing, indicated by 'Sync Complete' being displayed briefly.
- **4)** The database update status will appear in the status window at the top of the screen. Synchronization is complete when 'Databases Ready' is displayed in the progress window.
- 5) Databases selected to load will be indicated by a cyan single-arrow. For any new databases not selected to load with a cyan arrow (or if Inhibit Automatic Swap is selected), touch the arrow in the 'Load' Column next to the specific database. The arrow will change to cyan in color.
- 6) From MFW Home, touch Utilities > Setup > Database Status > Database Options > Restart Displays.

0r:

From MFW Home, touch Utilities > Initialization > Database Status > Database Options > Restart Displays.

- 7) Remove the SD card from the applicable display if desired.
- 8) Press the right most softkey on the MFD to acknowledge the power-on screen.
- 9) From MFW Home, touch Utilities > Initialization > Database Status.Or:

#### From MFW Home, touch Utilities > Setup > Database Status.

**10)** Verify the standby databases transferred and are now in the 'Active' Column.

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Databases can be updated using a PED with Garmin Pilot in combination with the Wireless Transceiver. A PED with Garmin Pilot™ must be paired with the Wireless Transceiver over Bluetooth. The system preferred PED 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 PED is made, Garmin Pilot™ makes available databases that can be transferred with Wi-Fi 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 Wi-Fi connection if new databases have been detected for download on Garmin Pilot<sup>™</sup> via a valid Bluetooth connection. If there are no database updates required, the system will not provide a Wi-Fi signal.



**NOTE:** If the PED has previously connected to the Wireless Transceiver, and is not connected to another Wi-Fi source (i.e. hangar Wi-Fi), the PED should connect automatically to the Wireless Transceiver. If the PED is connected to another Wi-Fi source or has not previously connected to the Wireless Transceiver, then the Wireless Transceiver will not connect automatically.

#### Select the Preferred Device.

From MFW Home on the Touchscreen Controller, touch Utilities > Initialization > 1) Database Status.

Or:

From MFW Home on the Touchscreen Controller, touch **Utilities > Setup > Database** Status.

- Touch the Select Preferred Device Button. 2)
- Touch the button for the desired PED from the list. 3)

#### Updating databases using Garmin Pilot:

- 1) Turn the system on.
- Press the right-most softkey on the MFD to acknowledge the power-on screen. 2)
- From MFW Home, touch Services > Connext Setup > Settings Tab. 3)
- Ensure the **Database Import** Button is selected. 4)
- From MFW Home, touch Services > Networks & Pairing > Bluetooth Settings and 5) ensure pairing mode is enabled on the 'Bluetooth Settings' Screen.

- On the PED, start Garmin Pilot<sup>TM</sup> and touch **Home** > **Connext** > **Database Concierge**. 6)
- 7) On the PED, connect with Bluetooth to the Wireless Transceiver. (Refer to the Additional Features section for more information on connecting to Bluetooth)
- From MFW Home on the Touchscreen Controller, touch Utilities > Initialization > 8) Database Status > Mobile App Databases. Or:

From MFW Home on the Touchscreen Controller, touch **Utilities > Setup > Database** Status > Mobile App Databases.

- The 'Database Status' Screen will show the databases connected to the PED in place of 9) the active databases on the system. Databases selected to load will be indicated by a cvan single-arrow. For any new databases not selected to load with a cvan arrow (or if Inhibit Automatic Swap is selected), touch the arrow in the 'Load' Column next to the specific database. The arrow will change to cyan in color.
- 10) From MFW Home, touch Utilities > Setup > Utilities > Services > Networks & **Pairing** > (Internal WiFi) **Settings**.
- 11) On the PED, connect to the indicated SSID Wi-Fi network shown on Utilities > Services > **Networks & Pairing** > (Internal WiFi) **Settings** on the Touchscreen Controller. Or:

If using a PED that has not been previously paired with the system, a password prompt will appear on the PED. Enter the password shown on connect to the indicated SSID Wi-Fi network shown on **Utilities > Services > Networks & Pairing >** (Internal WiFi) Settings on the Touchscreen Controller.

- 13) Touch the Start Transfer Button on the 'Database Status' Screen.
- 14) 'Databases Ready' and 'Transfer starting' will appear in the progress window of the 'Database Status' Screen, followed by, 'Database Transfer in Progress.' Monitor the Sync Status on the 'Database Status' Screen. Wait for all databases to complete transferring. 'Transfer Complete' will be shown briefly in the progress window and for each individual database. To cancel, touch the Cancel Transfer Button.
- **15)** Touch the **Active Databases** Button. The database update status will appear in the status window at the top of the screen. The load is complete when 'Databases Ready' and 'Activate database with on ground restart' is displayed.
- 16) From MFW Home, touch Utilities > Setup > Database Status > Database Options > **Restart Displays.**

Or:

From MFW Home, touch Utilities > Initialization > Database Status > Database Options > Restart Displays.

- 17) Press the right-most softkey on the MFD to acknowledge the power-on screen.
- 18) From MFW Home, touch Utilities > Initialization > Database Status.
  - Or:

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From MFW Home, touch **Utilities > Setup > Database Status.** 

**19)** Verify the standby databases transferred and are now in the 'Active' Column.

#### DELETING DATABASES

If databases are not properly loading or functioning, it may be necessary to delete the databases from the system. All databases may be deleted at once or individual databases may be selected for deletion.

#### Deleting Active, Standby, and / or 'All SD' databases:

From MFW Home, touch Utilities > Initialization > Database Status.
 Or:

From MFW Home, touch **Utilities > Setup > Database Status.** 

- 2) Scroll down and touch Database Options > Delete Databases.
- **3)** The following prompt will appear. Touch the **OK** Button.
- 4) To delete Active, Standby, and / or SD card databases:
  - a) Touch the Select All Button in the 'Active', 'SDBY', and / or 'All SDs', column(s) to delete all databases for one or all database sources.

Or:

Touch the desired database button in the 'Active', 'SDBY', and / or 'All SDs' column to delete specific databases.

- **b)** A message will appear to notify how many databases will be deleted during onground restart.
- c) From MFW Home, touch Utilities > Setup > Database Status > Database Options > Restart Displays.

Or:

From MFW Home, touch Utilities > Initialization > Database Status > Database Options > Restart Displays.

- d) Press the right most softkey on the MFD display to acknowledge the power-on screen.
- e) From MFW Home, touch Utilities > Initialization > Database Status.
  Or:

From MFW Home, touch **Utilities > Setup > Database Status.** 

f) Confirm that all or selected databases have been deleted from the system.

#### MAGNETIC FIELD VARIATION DATABASE UPDATE

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). When applying power, 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 ascertain the newly loaded MV DB within the navigation database is newer than that residing in each

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Audio and CNS 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.

#### Loading the Magnetic Field Variation Database update:

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

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Returns to the Home Screen



Selects split display mode on the PFD.



Returns to the previous screen



WARN

Displays the 'Notifications' Screen on Touchscreen Controller. Flashes when a new system message is issued. The button will display as 'WARN' or 'CAUT' in red or amber respectively to alert of warning and caution messages. Refer to the Appendices Section for more information about the alerting system.



CAUT

Displays the Telephone 'Notifications' Screen on Touchscreen Controller. Flashes when a new telephone call is received.



Selects half-display mode on the MFD.



Selects full-display mode when controlling the MFD. Selects full display mode when controlling the PFD.



Scrolls up in a list

# GARMIN



Displays the 'Initialization' Screen on Touchscreen Controller. Button appears on the 'MFW Home' Screen if initialization tasks have not been

During Initialization, selects the next



Scrolls down in a list

Cancels data entry and

returns to the previous

screen



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Task in the Initialization process. Next

Displays the 'SMS Text Messaging' Inbox Screen on Touchscreen Controller. Flashes when a new SMS message is received.



SMS

Displays the Connext 'Notifications' Screen on the Touchscreen Controller. Flashes when a new Connext message is received.





Accepts entered data into the system.



Opens 'Direct To' Screen on the Touchscreen Controller





**GARMIN** 

# GARMIN

Weather	Shows a 'Weather <siriusxm, connext,="" fis-b="" or="" stormscope,="">' Pane in the selected Display Pane. When the weather pane is displayed, the button becomes the <b>Weather</b> <b>Selection</b> Button. Touch the <b>Weather Selection</b> Button to access the 'Weather Selection' Screen on Touchscreen Controller</siriusxm,>	Flight Instruments
Or Weather Selection		EAS
TAWS	Shows the 'TAWS' Pane in the selected Display Pane. When the 'TAWS' Pane is displayed, the button becomes the <b>TAWS Settings</b> Button. Touch the <b>TAWS Settings</b> Button to access the 'TAWS Settings' Screen on Touchscreen Controller.	Audio and CNS
Or TAWS Settings		Flight Management
Flight Plan	Accesses 'Flight Plan Information' Screen on Touchscreen Controller.	Hazard Avoidance
Flight Plan	Accesses 'Active Flight Plan' Screen on the Touchscreen Controller.	AFCS
PROC	Accesses 'Procedures' Screen on Touchscreen Controller. Additional map displays may be shown as procedures are selected.	Additio Featur
Charts	Accesses 'Charts' Screen on Touchscreen Controller. Charts are shown on the selected Display Pane.	nal Abn es Ope
Aircraft Systems	Accesses 'Systems' Screen on Touchscreen Controller. Systems data can be selected for display on the Touchscreen Controller, and displayed on a Display Pane. Also provides access to systems controls, systems tests, and optional video controls.	ormal ration An
Checklist	Accesses the Checklists for display in the selected Display Pane.	nun/Alerts
C C C	Accesses the 'Services' Screen on Touchscreen Controller. Includes optional Iridium phone, and text messaging services, Networks and Pairing, Bluetooth Phone, Music, Position Reports, Connext Setup, and Contacts.	Appendix

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Hazard Avoidance

Additional Features AFCS

Flight Instruments	Utilities	Accesses the 'Utilities' Screen on Touchscreen Controller. Includes Trip Planning functions, Minimums, Trip Statistics, Timer, Scheduled Messages, FMS Sensors, Initialization, Electronic Documents (optional), Screen Cleaning, Crew Profile, and Setup. If SurfaceWatch option is not installed, Weight and Balance functions are also on the 'Utilities' Screen.
EAS	PERF	Accesses the 'PERF' Screen. Provides controls for entering takeoff, landing, PERF Datalink wind and temperature and weight and balance data and speed bugs.
Audio and CNS	<b>Naypoint</b>	Provides information about Airports, Intersections, VORs, NDBs, VRPs, User Waypoints. Also allows creation of User Waypoints.
Flight Management	Nearest	Provides information about the nearest Airports, Intersections, VORs, NDBs, VRPs, User Waypoints, Airspace, ARTCC facilities, Flight Service Stations, and Weather reporting stations.



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#### 'Map Selection' Screen



Touching the **Map** Button on the 'Map Selection' Screen displays the 'Navigation Map' Pane and the button name will change to **Map Settings**. Additionally, once touched, the **Map Settings** Button displays the 'Navigation Map Settings' Screen which is discussed in the Flight Management Section.

Touching the **VFR**, **IFR Low**, or **IFR High** Buttons will respectively display the 'VFR', 'IFR Low', or 'IFR High' Panes. After touching the **IFR Low** or **IFR High** Button, the button name will change to 'IFR Low Settings' or 'IFR High Settings' respectively. Touching either settings button again opens the 'IFR/VFR Charts Settings' Screen which is discussed in the Additional Features Section.

Annun/Alerts



GARMIN

Touching a button within the 'Weather Selection' Screen (shown above) will display a respective 'SiriusXM Weather', 'Connext Weather', 'Stormscope' or 'FIS-B Weather' Pane. Additionally, once touched, the button name will change to a 'Settings' syntax. Touching any of these 'settings' buttons will open a settings screen discussed in the Hazard Avoidance Section.

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#### 'Aircraft Systems' Screen



Status & Info	Shows the 'Status & Info' Pane, with synoptic information about the aircraft doors, brakes, oxygen and oil temperature. Also shows approximate values and parameters for certain performance calculations.	atures
Engine & Fuel	Shows the 'Engine & Fuel' Pane, with information about fuel quantities, flow, valve, pump states and other engine information (e.g. CHT/EGT, MAP, and MAT). When the <b>Engine &amp; Fuel</b> Button is touched, the <b>Lean Assist</b> Button will be displayed on the 'Aircraft Systems'	Operation /
		\nnun//
<del>+7-</del> Electrical Power	Shows the 'Electrical Power' Pane, with information about the batteries, alternators, and electrical buses.	Alerts
Video	Shows the 'Video' Pane in the selected Display Pane. Provides controls for adjusting EVS video on the display (brightness, contrast, saturation).	Appendix
Ice Protection	Shows the 'Ice Protection' Pane, with synoptic information about the ice protection system, OAT, and pitot and AOA heat. When the <b>Ice Protection</b> Button is touched, the <b>IPS Left</b> , <b>IPS Auto</b> , and <b>IPS Right</b> buttons will be displayed on the 'Aircraft Systems' Screen.	Index



Displays the 'System Tests' Screen. This screen provides controls for testing the following systems: ADS-B and optional TAWS.



Provides functions accessible to maintenance personnel with password.

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🕻 🞯 🦵 Services

Services

(()

Position

Reports

Bluetooth

Phone

Satellite

Phone

Contacts

Connext

Setup

Music

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Networks &

Pairing

#### 'Services' Screen







Abnormal Operation



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

Satellite SMS Text



Music

Accesses the optional 'Connext Position Reports' Screen. Provides controls for sending



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



Satellite Phone	The 'Satellite Phone' Screen (available with the Iridium voice telephone option) shows the status of the Iridium satellite telephone connection and provides telephone controls.	Flight Instruments
Networks & Pairing	Provides controls and settings for networks and for pairing of devices.	EAS
	The 'Satellite SMS Text Messaging' Screen (available with the Iridium voice telephone	1
Satellite SMS Text	option) provides management of incoming and outgoing SMS (short message service) text messages.	Audio and CNS
Bluetooth Phone	The 'Pilot Bluetooth Phone' Screen allows for adjustment of Bluetooth phone settings.	Fligh Manage
	Provides settings for automated database downloads Personal Electronic Device (PED)	men
10	Aircraft Report Intervals Connext Registration ( <b>PEC</b> Tab) and time and dates for past and	-
Connext Setup	future automated database downloads (Events Tab).	Hazard Avoidan

#### 'Utilities' Screen



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Flight Instruments	Trip Planning	Shows the 'Trip Planning' Pane in the selected Display Pane, and accesses the 'Trip Planning' Screen on the Touchscreen Controller.
EAS	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.
Audio and t CNS	Trip Stats	Accesses the 'Trip Statistics' Screen on the Touchscreen Controller. Shows information regarding Flight Time, Departure/Arrival Time, Odometer, Trip Odometer, Trip Air Odometer, Fuel Used, Average Ground Speed, Maximum Ground Speed, Average Wind Speed, Average Wind Direction, Sunrise, and Sunset. Total Time and Flight Time are displayed in the 'Trip Statistics' Window. Also provides settings for resetting trip statistics.
Flight Managemen	timer	Accesses the 'Timer' Screen on the Touchscreen Controller. Controls the timer on the PFD.
Hazard Avoidance	Scheduled Messages	Used to create custom messages to be displayed one-time or periodically. The Touchscreen Controller displays these System Messages on the 'Notifications' Screen.
AFCS	FMS Sensors	Accesses the 'Sensors' Screen to change RNP, update the aircraft position, enable/disable sensors, and check sensor status and RAIM. Displays the 'GPS1' or 'GPS2 Status' Pane.
dditional Features	<b>Initialization</b>	Displays the 'Initialization' Screen on the Touchscreen Controller. Provides controls for selecting the Crew Profile, checking Database Status, Safety Info, Initial Fuel, Weight and Balance, Flight Plan, and optional Takeoff Data.
iormal A	Documents	Shows optional controls for viewing electronic documents on the Touchscreen Controller, and displays documents in the selected Display Pane.
Abn Vlerts Ope	Screen Cleaning	Feature temporarily disables touchscreen glass input to allow for manual cleaning. Turn or press any knob or softkey on the Touchscreen Controller to exit Screen Cleaning Mode.
k Annun/A	Crew Profile	Displays 'Crew Profile' Screen, which provides controls for activating and managing crew profiles.
Appendix	Setup	Displays the 'Setup' Screen, which provides controls for avionics settings and status, SiriusXM Info, ADS-B Status and for displaying the status of avionics databases.

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#### 'Setup' Screen

SiriusXM

Setup' Screen	Flight Instruments
Home	EAS
Utilities	Audio and CNS
Setup Setup	Flight Management
Avionics Settings	Hazard Avoidance
	AFCS
Database Status	Additional Features
Provides controls for changing system avionics settings, such as, time format, units of	Abnormal Operation
Avionics Status	Annun/Alerts
Shows the 'SiriusXM Information' Screen on the Touchscreen Controller. Used to activate audio and data services from SiriusXM Satellite Radio and to verify subscriptions of SiriusXM Weather products.	Appendix
Provides access to the 'Database Status' Screen for checking database cycle information.	Index



Provides access to the optional 'ADS-B' Status Screen for information on the reception of ADS-B services.

NOTE: SurfaceWatch option required for 'PERF' Screen to be shown.

Home

PERF

PERF

Takeoff

Data

Landing

Data

Datalink WX

PERF

202 X

Speed Bugs

#### 'PERF' Screen



EAS

Abnormal Operation

Annun/Alerts

Appendix



Aircraft takeoff, landing, and performance related functions, settings, and processes for the buttons within the 'PERF' Screen are discussed in the Flight Management Section.



Flight Instruments

EAS

Audio and CNS

Flight Management

Hazard Avoidance

AFCS

#### 'Waypoint Info' Screen



Functions, settings, and processes for the buttons within the 'Waypoint Info' Screen are discussed in the Flight Management Section.

Flight Instruments

EAS

Audio and CNS

Hazard Avoidance

AFCS

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'Nearest' Screen



Home Nearest Nearest  $\odot$ 7 Airport INT VOR NDB VRP User 0  $\overline{\mathbb{X}}$ ARTCC FSS Weather Airspace

Functions, settings, and processes for the buttons within the 'Nearest' Screen are discussed in the Flight Management Section.



Flight Instruments

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## **PFW TOUCHSCREEN CONTROLLER SCREENS**

#### **PFW Home**



Home	S
PFW Home Nav Source OBS Scroll CAS GPS Up	Audio and CNS
Bearing 1 GPS GPS Down	Flight Management
Speed Bugs Timers Minimums	Hazard Avoidance
PFD Map Settings	AFCS
Nav Source         Cycles through GPS, LOC1/VOR1 and LOC2/VOR2 navigation modes on the CDI	Additiona Features
Selects OBS mode on the CDI when navigating by GPS (only available with active leg). When OBS is active the annunciator is green.	al Abnormal Operation
Selects SUSP mode on the CDI when navigating by GPS. When SUSP is active the annunciator is green.	Annun/Alerts
Bearing 1       Displays pop-up window with selection buttons for Bearing 1 Pointer selections Off, NAV1, NAV2, GPS, ADF, BEST GLIDE, and WPT.	Appendix
Bearing 2 Displays pop-up window with selection buttons for Bearing 2 Pointer selections Off, NAV1, NAV2, GPS, ADF, BEST GLIDE, and WPT.	Index

Flight Instruments	Scroll CAS	CAS messages cannot be scrolled. These buttons will remain inactive.
EAS	Down	
Audio and CNS	Speed Bugs	Accesses the 'Speed Bugs' Screen on Touchscreen Controller, where the speed bugs can be configured.
Flight Management	<b>Timers</b>	Accesses the 'Timer' Screen on the Touchscreen Controller. Controls timer on PFD.
Hazard Avoidance	Minimums	Accesses the 'Minimums' Screen on the Touchscreen Controller. Set MDA or DH.
AFCS	Traffic Map	Shows the Traffic Map on the PFD in inset format when the PFD is in Full Mode and turns the annunciator green. Shows the 'Traffic Map' Pane on the PFD when the PFD is in Split Mode, but the green/subdued annunciator is no longer displayed.
Additional Features	PFD Map Settings	Accesses the 'PFD Map Settings' Screen on the Touchscreen Controller. The Inset Map is not available when in split mode.
Abnormal Operation	» +	Accesses the 'Sensors' Screen. Allows for manual selection of ADC and AHRS sensors, and access to RNP/EPE settings and Position Sensors settings.
Annun/Alerts	PFD Settings	Accesses the 'PFD Settings' Screen to view or set PFD Mode, Flight Director Active Format, SVT, Flight Path Marker, AOA, Horizon Heading, Wind, Meters Overlay, Baro Select Units, Time Format, Time Offset, COM Channel Spacing, and Screen Cleaning function.



### **PFD Settings**



#### PFD Tab

-	Synthetic Vision Button selects Synthetic Vision Mode on the PFD.		Abnormal Operation
Synthetic Vision	Settings	• Auto: Selects SVT Auto Mode.	
Auto	(Sec.17)	• Flight: Selects SVT Flight Mode.	Annun/
		• Off: SVT is off.	Alerts
		Shows the type of Flight Director available Single Cue is	
Flight Director	Single Cue	the only available format.	
1	ា	Enables/disables display of compass heading along the	
Horizon He	ading	Zero-Pitch line. When Enabled, the annunciator is green. Button is subdued when synthetic terrain is disabled.	Index

Flight Instruments	Wind	Option 1	<ul><li>Option 1: Wind direction arrows with wind direction and speed.</li><li>Option 2: Wind direction arrows with headwind and crosswind components.</li></ul>
EAS			Selects the display mode for the Angle of Attack (AOA) indicator on the PFD.
Audio and CNS	AOA	Auto	<ul> <li>Auto: Automatically displays the Angle of Attack Indicator when the aircraft is in a landing configuration, or when normalized AOA is greater than 0.35.</li> <li>On: Displays the Angle of Attack (AOA) Indicator</li> </ul>
ght gement			on the PFD / PFW. <b>Off</b> : Removes AOA Indicator from the PFD / PFW.
łazard Fli oidance Manag	Meter	rs Overlay	Enables/disables the display of the meter overlay on the Altimeter.
AFCS Avi	BARO Selec Units	t IN	Inches (IN): Displays the BARO setting as inches of mercury. Hectopascals (HPA): Displays the BARO setting as hectopascals.

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### General Tab

onal res	General Tab	
Additic Featu	Time Format UTC	Selects the Time Format: Local 12hr, Local 24hr, or UTC.
Abnormal Operation	Time Offset	Displays the Local and UTC time offset.
Annun/Alerts	COM Channel 25.0 kHz Spacing	Selects the COM Channel Spacing: 25 kHz or 8.33 kHz.

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Flight Instruments

EAS

Audio and CNS

Flight Management

Hazard Avoidance

AFCS

#### **PFD Sensors**



#### PFD Tab

ADC 1	Accesses the 'ADC Sensor' Screen where the #1 or #2 Air Data Computer (ADC) car be manually selected.				
AHRS 1	Accesses the 'AHRS Sensor' Screen where the #1 or #2 AHRS sensors can be manually selected.	Operation			
RNP/EPE Tab	Accesses button to change RNP Setting. Displays GPS current position. Refer to content later in this section for more information.	Annu			
Position Sensors Tab	Accesses buttons to select SBAS and SBAS settings, select GPS1 and GPS2 sensors, check sensor status and RAIM. Displays the 'GPS1' or 'GPS2 Status' Pane. Refer to content later in this section for more information.	n/Alerts			



## PFD SOFTKEYS

Flig Instrum	Level 1	Level 2	Level 3	Level 4	Description
S	Map Range -				Decreases the PFD Map display range.
EA	Map Range +				Increases the PFD Map display range.
Audio and CNS	PFD Map Settings				Displays the PFD Map display settings softkeys.
		Map Layout			Displays softkeys used to select map layouts.
jht ement			Map Off		Removes the PFD Map from the display.
Flic Manag			Inset Map		Displays the Inset Map.
			HSI Map		Displays the HSI Map.
Hazard Avoidance			Inset Traffic		Overlays a dedicated traffic display on the Inset Map.
			HSI Traffic		Overlays a dedicated traffic display on the HSI.
AFCS		Detail			Selects desired amount of map detail; cycles through declutter levels (only available if HSI Map is enabled):
Additional Features					All (no declutter): All map features visible. DCLTR 1: Declutters land data.
normal eration					<b>Least</b> : Removes everything except for the active flight plan.
At nun/Alerts Or		Weather Legend			Displays or removes the name of the selected data link weather provider (SiriusXM, Connext, FIS-B) and the weather product icon and age box (for enabled weather products).
Appendix Ar		Traffic			Adds or removes the display of traffic on the PFD Map. The softkey annunciator is green when the traffic function is on. When the traffic function is off, the annunciator is gray.



Level 1	Level 2	Level 3	Level 4	Description	Instru
Storm- Adds of inform	Adds or removes the display of Stormscope information on the PFD Map (optional).	ight uments			
				The softkey annunciator is green when the function is on. When the function is off, the annunciator is gray.	EAS
	Terrain			Selects the display of terrain information	
	Settings			softkeys on the PFD Map:	Audio a CNS
		Off		Removes terrain information from the PFD	a.
				Мар.	Mana
		Absolute		Displays absolute terrain information.	light agement
		Relative		Displays relative terrain information.	Hazard Avoidanc
		Absolute +		Displays absolute and relative terrain	6
		Relative		information on the HSI Map.	Þ
	Data Link Settings			Displays data link settings softkeys based on current installation and configuration options.	FCS
		Data Link		Selects the data link source for weather data displayed on the PFD Map (optional):	Additior Feature
				<b>Connext</b> : Selects Garmin Connext as the	s <u>a</u>
				<b>SiriusXM</b> : Selects SiriusXM as the weather source.	Abnormal Operation
				FIS-B: Selects FIS-B as the weather source.	



ht nents	Level 1	Level 2	Level 3	Level 4	Description
Flig Instrun			NEXRAD		Selects type of NEXRAD coverage when FIS-B is the selected data link source:
					<b>CONUS</b> : Selects coverage for continental U.S.
EAS					<b>Regional</b> : Selects coverage for a region, which provides a higher resolution.
and S					<b>Combined</b> : Combines CONUS and regional coverages.
Audio					Or:
ut (					Selects type of NEXRAD coverage when SiriusXM is the selected data link source:
ight geme					<b>COMP</b> : Displays composite reflectivity image.
FI Mana					Base: Displays base reflectivity image.
Hazard Avoidance			Storm Cell Movement		Adds or removes the display of storm cell movement information on the PFD Map (only available when SiriusXM is selected as the data link weather source). The softkey annunciator is green when the function is on.
AFCS					When the function is off, the annunciator is subdued.
			NEXRAD		Adds or removes the display of NEXRAD
Additional Features			Animation		animation on the Inset Map (only available when SiriusXM is selected as the data link weather source). NEXRAD animation is not available for display on the HSI Map.
Abnormal Operation					The softkey annunciator is green when the function is on. When the function is off, the annunciator is subdued.

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Level 1	Level 2	Level 3	Level 4	Description	Instru
	WX Overlay			Selects the display of weather information on the PFD Map based on the installation and configuration options	gnt iments
				<b>SiriusXM</b> : Selects SiriusXM as the weather source for the display of weather data when SiriusXM is selected as the weather source	EAS
				using the <b>Data Link</b> Softkey.	Au
				<b>Connext</b> : Selects Connext as the weather source for the display of weather data when Connext is selected as the weather source	CNS
				using the <b>Data Link</b> Softkey.	Manag
				FIS-B: Selects FIS-B as the weather source for the display of weather data when FIS-B is selected as the weather source using the	gnt Jement
				Data Link Softkey.	Haza Avoida
				off: Removes weather data from the Inset or HSI Map.	Ince
	Datalink Lightning			Softkey is available when SiriusXM or Connext is selected as the weather source using the <b>Data Link</b> Softkey. Adds/	AFCS
				information on the PFD Map. The softkey annunciator is green when the lightning function is on. When the lightning function is off, the annunciator is gray.	Features
					Opera
	MEIAK			Adds of removes the display of SiriusXM, Connext, or FIS-B sourced METAR data on	tion
				the PFD Map. The softkey annunciator is green when the METAR data is enabled. When the METAR data is off, the annunciator is gray.	Annun/Alerts
Traffic Map				Replaces the PFD Map with a dedicated traffic display. The softkey annunciator is green when the dedicated traffic display is on. When the PFD Map is on, the softkey	Appendix
DEU				annunciator is gray.	Inde
Settings				איזוענ געווועז אטווגבאט.	9X



ht nents	Level 1	Level 2	Level 3	Level 4	Description
Flig Instrun		SVT Mode			Displays the Synthetic Vision Technology (SVT) settings softkeys.
EAS			Auto		Selects SVT Auto Mode. The softkey annunciator is green when the function is on.
and S			Flight		Selects SVT Flight Mode. The softkey annunciator is green when the function is on.
Audio CN			Off		SVT mode off. The softkey annunciator is green when the function is off.
Flight Management		SVT Settings			Displays SVT Settings softkeys.
zard dance			Pathways		Displays Pathway boxes on the synthetic vision display.
Ha Avoi			Runway Locator		Displays cyan chevrons and cyan mile markers which extend 10 nm from the programmed runway.
al AFC			Airport Signs		Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are included
Addition Feature					nm.
tion			Wire		Displays power lines on the synthetic vision display.
ts Opera		Attitude Instruments			Displays the softkeys for enabling or disabling Synthetic Vision Technology (SVT) features.
Annun/Alei			Horizon Heading		Displays compass heading along the Zero- Pitch Line.
Appendix		PFD Mode			Enables or disables a Display Pane to the right or left (depending on pilot-side or copilot-side) on the PFD / PFW:
					<b>FULL</b> : Display Pane is disabled. The PFD / PFW display occupies the full screen
Index					<b>Split</b> : Display Pane is enabled. The PFD / PFW screen is split between the PFD / PFW display and the Display Pane.



Level 1	Level 2	Level 3	Level 4	Description	Instru
	Bearing 1			Cycles the Bearing 1 Information Window through NAV1, NAV2, GPS, ADF1, and Off.	ght Iments
	Bearing 2			Cycles the Bearing 2 Information Window through NAV1, NAV2, GPS, ADF1, and Off.	EAS
	Other PFD Settings			Displays additional PFD / PFW settings softkeys.	
		Wind		Displays the wind option softkeys.	CNS
			→DEG KT	Total wind direction arrow with digital numeric direction and speed.	M
			↑→KT	Headwind/tailwind and crosswind arrows with numeric speed components.	Flight anagement
			Off	Wind information not displayed.	
		AOA		Selects the display mode for the Angle of Attack (AOA) Indicator on the PFD / PFW:	Hazard Avoidance
				<b>Auto:</b> Selects AOA 'Auto' mode. (See Flight Instruments section)	
				<b>On</b> : Displays AOA Indicator on the PFD / PFW.	AFCS
				<b>Off</b> : Removes AOA Indicator from the PFD / PFW.	Fea
		Altitude Units		Displays softkeys to select altitude unit parameters.	tional
			Meters	Displays altimeter meters overlay.	Op Ab
			IN	Displays the BARO setting as inches of mercury.	eration
			HPA	Displays the BARO setting as hectopascals.	Ann
OBS				Selects OBS mode on the CDI when navigating by GPS (only available with	un/Alerts
				active leg). When OBS is on, the softkey annunciator is green. 'SUSP' will replace 'OBS' when waypoint sequencing is suspended.	Appendix
Active NAV				Cycles through GPS, NAV1, and NAV2 navigation modes on the CDI.	Inde
Sensors				Displays the sensor selection softkeys.	×



ht nents	Level 1	Level 2	Level 3	Level 4	Description
Flig Instrur		ADC Settings			Displays the ADC selection softkeys.
			ADC 1		Selects the number 1 ADC. The softkey annunciator is green when selected.
EAS			ADC 2		Selects the number 2 ADC. The softkey annunciator is green when selected.
io and NS		AHRS Settings			Displays the AHRS selection softkeys.
Audi			AHRS 1		Selects the number 1 AHRS. The softkey annunciator is green when selected.
Flight anagement			AHRS 2		Selects the number 2 AHRS. The softkey annunciator is green when selected.

#### PFD / PFW Softkeys - Full Mode

When Split Mode is enabled on the PFD / PFW, an MFD / MFW Display Pane will be shown on the PFD / PFW, replacing five softkeys. The following table lists PFD / PFW softkey functions when operating the PFD / PFW in Split Mode.

ទ	Level 1	evel 1 Level 2 Level 3 Level 4 Level 5		Level 5	Description	
AF	Traffic					Displays the Traffic Map on the Display Pane on the PFD / PFW.
doitional eatures	PFD Settings					Displays the PFD / PFW settings softkeys.
ation F		Attitude Settings				Displays the softkeys for enabling or disabling Synthetic Vision Technology (SVT) features.
Oper			SVT Mode			Displays buttons for SVT mode.
Annun/Alerts				Auto		Selects SVT Auto Mode (Auto Mode is identical to Flight Mode). The softkey annunciator is green when the function is on.
Appendix				Flight		Selects SVT Flight Mode. The softkey annunciator is green when the function is on.
Index				Off		SVT mode off. The softkey annunciator is green when the function is off.
			SVT Settings			Displays additional SVT overlay softkeys (optional).



Level 1	Level 2	Level 3	Level 4	Level 5	Description	Instru
			Pathways		Displays Pathway boxes on the synthetic vision display.	iments
			Wire		Displays power lines on the synthetic vision display.	EAS
		SVT Airports			Displays Airport Signs softkey	
			Runway Locator		Displays cyan chevrons and cyan mile markers which extend 10 nm from the programmed runway.	CNS
			Airport Signs		Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are included when the airport is within approximately 9 nm.	Management Avo
		Altitude Instruments			Displays the softkeys for enabling or disabling Synthetic Vision Technology (SVT) features.	idance
			Horizon Heading		Displays Pathway boxes on the SVT display.	AFCS
	PFD Mode				Enables or disables a Display Pane to the right or left (depending on pilot-side or copilot-side) on the PFD / PFW:	Features
					<b>FULL</b> : Display Pane is disabled. The PFD / PFW display occupies the full screen.	Operation
	Split: Display PFD / PFW sc the PFD / PFV Display Pane.		PFD / PFW screen is split between the PFD / PFW display and the Display Pane.	Annun/Alerts		
	Bearing 1				Cycles the Bearing 1 Information Window through NAV1, NAV2, GPS, ADF1, and Off.	Appendi
	Bearing 2				Cycles the Bearing 2 Information Window through NAV1, NAV2, GPS, ADF1, and Off.	x



ht nents	Level 1	Level 2	Level 3	Level 4	Level 5	Description
Flig Instrun		Other PFD Settings				Displays additional PFD / PFW settings softkeys.
EAS			Wind			Displays the wind option softkeys.
_				→DEG KT		Total wind direction arrow with digital numeric direction and speed.
Audio and CNS				↑→KT		Headwind/tailwind and crosswind arrows with numeric speed components.
ht ement				Off		Wind information not displayed.
Flig Manage			AOA			Selects the display mode for the Angle of Attack (AOA) Indicator on the PFD / PFW:
Hazard Avoidance						<b>Auto:</b> Selects AOA 'Auto' mode. (See Flight Instruments section)
						<b>On</b> : Displays AOA Indicator on the PFD / PFW.
AFCS						<b>Off</b> : Removes AOA Indicator from the PFD / PFW.
ional ures			Altitude Units			Displays softkeys to select altitude unit parameters.
Addit Feat				Meters		Displays altimeter overlay in meters.
tion				IN		Displays the BARO setting as inches of mercury.
Abnor Operat				HPA		Displays the BARO setting as hectopascals.
erts			Sensors			Displays the sensor selection softkeys.
Annun/Al				ADC Settings		Displays the ADC selection softkeys.
Appendix	_				ADC 1	Selects the number 1 ADC. The softkey annunciator is green when selected.
Index					ADC 2	Selects the number 2 ADC. The softkey annunciator is green when selected.



Level 1	Level 2	Level 3	Level 4	Level 5	Description	Instr
			AHRS Settings		Displays the AHRS selection softkeys.	ight uments
				AHRS 1	Selects the number 1 AHRS. The softkey annunciator is green when selected.	EAS
				AHRS 2	Selects the number 2 AHRS. The softkey annunciator is green when selected.	Audio and CNS
OBS					Selects OBS mode on the CDI when navigating by GPS (only available with active leg). When OBS is on, the softkey annunciator is green. 'SUSP' will replace 'OBS' when waypoint sequencing is suspended.	i Flight Management A
Active NAV					Cycles through GPS, NAV1, and NAV2 navigation modes on the CDI.	Hazard voidance
PFD Map Settings					Displays HSI Map settings softkeys (the Inset Map is not available when PFD / PFW is in Split Mode).	AFCS
	HSI Map Layout				Displays softkeys used to select HSI Map layouts.	_ >
		Map Off			Removes the PFD Map from the display.	eatures
		HSI Map			Displays the HSI Map.	
		HSI Traffic			Overlays a dedicated traffic display on the HSI.	Abnormal Operation
	Map Range -				Decreases the HSI Map display range (only available if HSI Map is enabled).	Annun
	Map Range +				Increases the HSI Map display range (only available if HSI Map is enabled).	Alerts
	Map Overlays				Displays HSI Map overlay softkeys (only available if HSI Map is enabled).	Appendix
		Terrain Settings			Selects the display of terrain information on the HSI Map:	Inde



lht nents	Level 1	Level 2	Level 3	Level 4	Level 5	Description
Flig Instrur				Off		Removes terrain information from the PFD Map.
				Absolute		Displays absolute terrain information.
EAS				Relative		Displays relative terrain information.
dio and CNS				Absolute + Relative		Displays absolute and relative terrain information on the HSI Map.
nt Au			Data Link Settings			Displays Datalink softkeys.
Flight Managemei				Data Link		Selects the data link source for weather data displayed on the PFD Map (optional):
Hazard Avoidance						<b>Connext</b> : Selects Garmin Connext as the weather source. <b>SiriusXM</b> : Selects SiriusXM as the
						weather source.
AFCS						<b>FIS-B</b> : Selects FIS-B as the weather source.
tional tures				NEXRAD		Selects type of NEXRAD coverage when FIS-B is the selected data link source:
Addi Feat						<b>CONUS</b> : Selects coverage for continental U.S.
Abnormal Operation						<b>Regional</b> : Selects coverage for a region, which provides a higher resolution.
nun/Alerts						<b>Combined</b> : Combines CONUS and regional coverages. Or:
lix Ar						Selects type of NEXRAD coverage when SiriusXM is the selected data
Append						reflectivity image.
Index						<b>Base</b> : Displays base reflectivity image.



Level 1	Level 2	Level 3	Level 4	Level 5	Description	Instru
			Storm Cell Movement		Adds or removes the display of storm cell movement information on the PFD Map (only available when	uments
					SiriusXM is selected as the data link weather source). The softkey annunciator is green when the function is on. When the function is	EAS
		14/1X O			off, the annunciator is subdued.	
		WX Overlay			information on the PFD Map:	
				SiriusXM: Selects SiriusXM a weather source for the displa weather data when SiriusXM	SiriusXM: Selects SiriusXM as the weather source for the display of weather data when SiriusXM is	Management
					the <b>Data Link</b> Softkey.	Avo
					<b>Connext</b> : Selects Connext as the weather source for the display of weather data when Connext is	idance
					selected as the weather source using the <b>Data Link</b> Softkey.	AFCS
					<b>FIS-B</b> : Selects FIS-B as the weather	
					data when FIS-B is selected as the weather source using the <b>Data Link</b> Softkey.	Features
					Off: Removes weather data from the Inset or HSI Map.	Operatio
		Datalink Lighting			Softkey is available when SiriusXM or Connext is selected as the weather source using the <b>Data Link</b> Softkey. Adds/removes the display of SiriusXM	on Annun/Alert
					Map. The softkey annunciator is	N I
					green when the lightning function is on. When the lightning function is off, the annunciator is gray.	Appendix
		More			Displays more map overlay softkeys.	

Index

ht nents	Level 1	Level 2	Level 3	Level 4	Level 5	Description
io and Flig NS EAS Instrum				METAR		Adds or removes the display of SiriusXM, FIS-B, or Connext METAR data (based on data link weather source selection) on the HSI Map. The softkey annunciator is green when the METAR data is on. When the METAR data is off, the annunciator is subdued.
Flight Aud lanagement C				Detail		Selects desired amount of map detail; cycles through declutter levels: <b>All</b> (no declutter): All map features visible.
Hazard Avoidance N						DCLTR 1: Declutters land data. DCLTR 2: Declutters land and SUA data. Least: Removes everything except for the active flight plan.
es AFCS				Weather Legend		Adds or removes the name of the selected data link weather provider (SiriusXM, FIS-B, Connext) and the weather product icon and age box (for enabled weather products).
Abnormal Addition Operation Feature				Traffic		Adds or removes the display of traffic on the HSI Map. The softkey annunciator is green when the traffic function is on. When the traffic function is off, the annunciator is subdued.
Annun/Alerts				Storm- scope		Adds or removes the display of Stormscope information on the HSI Map (optional). The softkey annunciator is green when the
Appendix						function is on. When the function is off, the annunciator is subdued.

## SCREEN CLEANING

**GARMIN** 

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 MFW Home, touch Utilities > Screen Cleaning.
- **2)** The Touchscreen Controller indicates the screen may be cleaned. Clean the screen as needed.
- 3) Press or turn any knob to return to the 'Utilities' Screen.

## **MAP SYMBOLS**

## PFW NAVIGATION STATUS BOX / MFW NAVIGATION DATA BAR

Symbol	Description	Symbol	Description
$\rightarrow$	Active Leg	ß	Right Holding Pattern
₽	Direct-to		Left Holding Pattern
<u> </u>	Right Procedure Turn	$\uparrow$	Right DME Arc / Radius to Fix Leg
~⊅	Left Procedure Turn	ۍ	Left DME Arc / Radius to Fix Leg
vtf	Vector to Final		

#### Navigation 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 and Wire)	See Hazard Avoidance Section	10	25
Roads		see	below



Audio and CNS

Flight Management

Hazard Avoidance

AFC

Additiona Features

Abnormal Operation



<b>Flight</b> Instruments	Land Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
EAS	- Interstate Highway (Freeway)	<b></b>	50	400
	- International Highway (Freeway)		15	150
io and INS	- US Highway (National Highway)		15	150
Aud	- State Highway (Local Highway)		10	100
light agement	- Local Road (Local Road)	N/A	4	25
Mana	- Railroad	+++++++++++++++++++++++++++++++++++++++	7.5	25
Hazard woidance	Large City (> 200,000)		100	1000
d	Medium City (> 50,000)	۲	50	400
AFCS	Small City (> 5,000)	•	25	100
	State/Province		750	1000
Additional Features	Rivers and Lakes (River/Lake)		75	100

#### Land Symbol Information

#### Abnormal Operation

## **AVIATION SYMBOLS**

The following items are configured on the Aviation Tab of the 'Map Settings' Screen.

Annun/Alerts	Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
ndix A	Low Altitude Airways (V and T Routes)	V4	50	100
Appen	High Altitude Airways (J and Q Routes)	180	50	100

Index

## GARMIN.

Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)	Flight Instruments
Class B Airspace Altitude Label (ceiling/ floor)	80 30	Label placement and ranges are variable, in order to provide the best representation and		EAS
Class C Airspace Altitude Label (ceiling/ floor)	53 5FC			
Class D Airspace Altitude Label (ceiling)	[36]	minimal clutter		Audio ar CNS
CL B/TMA/AWY	(see be	low)		đ
<ul> <li>Class B (CL B) and Terminal Maneuvering Area (TMA)<sup>1</sup></li> </ul>		50	150	Flight Management
- Airway (AWY) <sup>1</sup>				Haz Avoio
CL C/CTA	(see below)			zard dance
- Class C Airspace (CL C)		50	100	AFC
- Control Area (CTA) <sup>1</sup>		50		ß
CL A/D	(see below)			Additi Featu
<ul> <li>Terminal Radar Service Area (TRSA), Controlled Traffic Region (CTR)<sup>1</sup>, and Class A (CLA)<sup>1</sup></li> </ul>				res (
- Class D		10	100	Abnormal Operation
- Aerodrome Traffic Zone (ATZ) <sup>1</sup>		10	100	Annun/Alerts
- Traffic Information Zone (TIZ) <sup>1</sup>				App
Restricted and Prohibited Areas (Restricted)		50	100	endix
Military Operations Areas (MOA (Military))		50	250	Index

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Flight Instruments	Aviation Symbols Symbol		Default Range (nm)	Maximum Range (nm)
	Other	(see below)		
EAS	- ADIZ			
Audio and CNS	- Alert			
hent	- Class E <sup>1</sup>		50	250
Flight Managerr	- Class G <sup>1</sup>		00	200
Hazard Avoidance	- Temporary <sup>1</sup>			
	<ul> <li>Danger, Warning, Unknown, Special Rules<sup>1</sup>, and Training<sup>1</sup></li> </ul>			
AFCS	Large Airport (Longest Runway $\ge$ 8100 ft)		100	1000
litional atures	Medium Airport (8100 ft > Longest Runway $\ge$ 5000 ft, or Longest Runway < 5000 ft with control tower)		50	400
Add Fee	Small Airport (Longest Runway < 5000 ft without control tower)		25	150
Abnormal Operation	Heliport	H	25	150
lerts	VOR Waypoint	<b>@ 0</b> • <b>@</b> @	50	250
Annun/A	- VOR Compass Rose On/Off	SRJ	N/A	N/A
endix	INT Waypoint		10	40
App	NDB Waypoint	Ó	25	50
ex	VRP Waypoint		25	40

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Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)	Flight Instruments
User Waypoint	(Route) (Airport)	1000	1000	EAS
SafeTaxi®	See Additional Features	1.5	5	
Runway Extension		7.5	150	Audio and CNS
Missed Approach Preview On/Off		N/A	N/A	Flight Management
Altitude/Speed Constraints		1000	1000	Hazard Avoidanc

<sup>1</sup> 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	Ť	Features
Map Pointer	Displayed when panning (see Using Map Displays in Flight Management)		Opera
Measuring Pointer	Displayed when measuring bearing and distance		tion Annu
No heading aircraft icon	Replaces the normal aircraft icon when aircraft GPS location is valid, but the heading is invalid	$\odot$	In/Alerts
Dead reckoning aircraft icon	'DR' text displayed over the aircraft icon when the GPS solution is invalid	DR	Appendix

#### **Miscellaneous Map Symbols**

AFCS



ht nents	FLIGHT PLANNING		
Flig Instrum	Symbol Name	Description	Symbol
AS		Course leg currently flown	
		A future course leg in the current phase of flight	
Audio and CNS	Course Leg	A course leg in either a previously flown course leg, or a future course leg not in the current phase of flight	
t nent		Heading leg currently flown	
Fligh Managei	Heading Leg	Future heading leg	* * *
٩		Turning path currently flown	
Hazard Avoidanc	Roll Steering	Turning path for the next flight plan leg	
		Turning path beyond the next flight plan leg	•••••
AFCS	Turn Anticipation Arc	Displayed when sequencing to the next flight plan leg through a fly-by waypoint, a lead turn is created, adjusting for groundspeed	$\frown$
Additional Features	Fly-Over Waypoint; Along Track Waypoint	Displayed as a fly-over waypoint; Displayed when an along track offset waypoint is created.	) (flyover); 🔲 (along track)
Abnormal Operation	Fixes	Fixes intersect the flight plan. The symbol represents either just a fix or when the fix is made into a flight plan fix waypoint.	
Annun/Alerts	Flight Path Fix	A fix that terminates: manually, at a specified altitude, or at a specified distance or radial when flying a heading	> > • • • • • • • • • • • • • • • • • •
ex Appendix	Top of Descent (TOD) and Bottom of Descent (BOD)	When vertically navigating, the system will display where the aircraft will begin complete the descent.	<sup>©</sup> TOD ∕ <sup>®</sup> BOD

Б

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Appendix

Symbol Name	Description	Symbol	Hight
Parallel Offset Waypoint	Displayed when the parallel offset course leg is abeam the original flight plan waypoints, and will appear as a Flight Path Fix, Along Track Waypoint, or Fly-Over Waypoint.	VERRA-D.	ts EAS

<sup>1</sup> Roll Steering Path transitions between two disconnected legs (i.e. holding), some procedure turn segments, parallel offset segments, or after some fly-over waypoints.

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