GARMIN

CIRRUS PERSPECTIVE+

Cockpit Reference Guide

Cirrus SR2x

System Software Version 2647.N2 or later

FLIGHT INSTRUMENTS

ENGINE INDICATION SYSTEM (EIS)

NAV/COM/TRANSPONDER/AUDIO PANEL

FLIGHT MANAGEMENT SYSTEM

HAZARD AVOIDANCE

AFCS

ADDITIONAL FEATURES

ABNORMAL OPERATIONS

ANNUNCIATIONS & ALERTS

APPENDIX

INDEX

This manual reflects the operation of System Software Version 2647.N2 or later for the Cirrus SR2x aircraft. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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

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

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

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

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

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

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

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 operate this equipment without first obtaining qualified instruction.*

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

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

WARNING: *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 use TAWS information for primary terrain or obstacle avoidance. TAWS is intended only to enhance situational awareness.*

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.*

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.*

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.*

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

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

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

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

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

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

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

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

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

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

- *It is the pilot's responsibility to remain familiar with all FAA regulatory and advisory guidance and information related to the use of databases in the National Airspace System.*
- *Garmin equipment will only recognize and use databases that are obtained from Garmin or Jeppesen. Databases obtained from Garmin or Jeppesen 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 http://fly.garmin.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 AFM(S) and regulatory guidance or limitations as applicable to the pilot, the aircraft, and installed equipment.*

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

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

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

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

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

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

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

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

NOTE: *Operate Cirrus Perspective+ 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.*

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.*

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Part Number	Rev.	Date	Page Range	Description
190-02184-00	A	December, 2016	All	Production release at GDU 20.03
190-02184-01	A	December 2017	All	Production release at GDU 20.70 - Added Bluetooth - Added WireAware - Added other GDU 20.70 parameters
190-02184-02	A	January 2019	All	Production release at GDU 21.16 - Updated Takeoff Mode - Flexibility added to Along Track Waypoint placement - Added VNAV Guidance for Non-precision NAVAID-based Approaches - Added Enhanced Descent Only VNAV - Added Glide Range Ring - Further defined Quick Select Box and Insertion Point Indicator - Redefined Procedures for Flight Planning and Instrument Procedures - Added GMA 350H/350Hc - Added CAS messages - Added System messages - Updated Database Management - Updated Warnings/Cautions/ Advisories - Made clerical changes

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FLIGHT INSTRUMENTS 1

FLIGHT INSTRUMENTS 1
- **Airspeed Indicator** 1
- **Altimeter** 2
- **Horizontal Situation Indicator (HSI)** 3
- **Course Deviation Indicator (CDI)** 5

SUPPLEMENTAL FLIGHT DATA 5
- **Temperature Display** 5
- **Wind Data** 6
- **Angle of Attack (AOA) Indicator** 6

PFD ANNUNCIATIONS AND ALERTING FUNCTIONS 6
- **Minimum Descent Altitude/Decision Height Alerting** 6

GARMIN SVT (OPTIONAL) 7

ENGINE INDICATION SYSTEM 9

EIS DISPLAY 9

ENGINE PAGE 12
- **Fuel Calculations** 15
- **TKS Flight Into Known Icing (FIKI) Anti-Ice System** 16

LEANING ASSIST MODE 19

SYSTEM DISPLAY 20

EIS DISPLAY IN REVERSIONARY MODE 22

NAV/COM/TRANSPONDER/AUDIO PANEL 23

COM OPERATION 23

NAV OPERATION 24

MARKER BEACON RECEIVER 25

DME TUNING 25

MODE S TRANSPONDER 25

ADDITIONAL AUDIO PANEL FUNCTIONS 26
- **Intercom System (ICS) with the GMA 350/350c/350H/350Hc** 26
- **Blue-Select Mode (Telephone/Entertainment Distribution)** 28
- **Split COM Mode with the GMA 350/350c/350H/350Hc** 29
- **3D Audio** 30
- **Bluetooth® (GMA 350c/350Hc Only)** 30

AUDIO PANEL PREFLIGHT PROCEDURE 31

FLIGHT MANAGEMENT **33**

USING MAP DISPLAYS 33
Map Range 34
Map Panning 34
Measuring Bearing and Distance 35
Topography 36
Airways 38
Additional Navigation Map Items 38

WAYPOINTS 39
Airports 39
Non-Airport and User Created Waypoints 41

AIRSPACES 45
Nearest Airspace 45
Smart Airspace 46

DIRECT-TO-NAVIGATION 46

FLIGHT PLANNING 49
Flight Plan Display 49
Creating a Flight Plan 50
Flight Plan Waypoint and Airway Modifications 52
Flight Plan Operations 56
Managing Flight Plans 64

VERTICAL NAVIGATION 70
Constraints 70
Vertical Situation Display (VSD) 74
Vertical Navigation Direct To 76

PROCEDURES 77
Departures 78
Arrivals 81
Approaches 84

WEIGHT PLANNING 90
Weight and Balance Caution And Warning Conditions 92

TRIP PLANNING 92

RAIM PREDICTION 93

HAZARD AVOIDANCE **97**

DATA LINK WEATHER 97
Activating Data Link Weather Services 97
Activating Garmin Connext Weather 98

Weather Product Age 99
Displaying Data Link Weather Products 102
Connext Data Requests 105
Weather Product Overview 107
FIS-B Weather Status 115

STORMSCOPE LIGHTNING DETECTION SYSTEM 116
Using the Stormscope Page 116
Additional Stormscope Displays 117
Stormscope Abnormal Operations 117

TERRAIN DISPLAYS 118
Terrain Page 118
Vertical Situation Display (VSD) Terrain 119
Terrain-SVT and TAWS-B Alerting Displays 120

TAS TRAFFIC 120
Traffic Map Page 122
System Test 122
Operation 123

ADS-B TRAFFIC 125
Traffic Description 126
Operation 127

AUTOMATIC FLIGHT CONTROL SYSTEM 129
Activating the Flight Director 129

AFCS MODES 130
Vertical Modes 130
Lateral Modes 130
Combination Modes (VNV, APR, NAV, BC, GA) 131

ADDITIONAL FEATURES 135

SAFETAXI 135

CHARTS 135
ChartView 136
FliteCharts 138
IFR/VFR Charts 140

SATELLITE PHONE AND SMS MESSAGING 140
Registering with Garmin Connext 140
Disable/Enable Iridium Transceiver 141
Telephone Communication 141
Text Messaging (SMS) 145

SURFACEWATCH 150

WIFI CONNECTIONS 151

CONNEXT SETUP 153

POSITION REPORTING 154

SIRIUSXM RADIO ENTERTAINMENT 155
- **Activating SiriusXM Satellite Radio Services** 155
- **Using SiriusXM Radio** 155
- **Refer to the Audio Panel Controls for SiruisXM muting instructions.** 157

ELECTRONIC CHECKLISTS 157

AUXILIARY VIDEO (OPTIONAL) 159
- **Video Setup** 159

SCHEDULER 159
- **Pilot Profiles** 161

ELECTRONIC STABILITY & PROTECTION (ESP™) 164
- **Roll Engagement** 165
- **Pitch Engagement** 165
- **Low Airspeed Protection** 166
- **High Airspeed Protection** 166

HYPOXIA RECOGNITION & AUTOMATIC DESCENT MODE 166
- **Determining Pilot Alertness** 166
- **Automatic Descent Mode** 167

ABNORMAL OPERATION **169**

REVERSIONARY MODE 169

ABNORMAL COM OPERATION 169
- **Audio Panel Fail-safe Operation** 169
- **Stuck Microphone** 169
- **COM Tuning Failure** 169

HAZARD DISPLAYS WITH LOSS OF GPS POSITION 170

UNUSUAL ATTITUDES 170
- **SVT Unusual Attitudes** 171

ABNORMAL GPS CONDITIONS 171

ABNORMAL AFCS OPERATION 171
- **Suspected Autopilot Malfunction** 171
- **Overpowering Autopilot Servos** 172

ANNUNCIATIONS & ALERTS **173**

CAS MESSAGES 173
Warning Messages 173
Caution messages 174
Advisory Messages 176
Message Advisory Alerts 177

OTHER SYSTEM ANNUNCIATIONS AND ALERTS 177
Voice Alerts 177
COMPARATOR ANNUNCIATIONS 178
REVERSIONARY SENSOR ANNUNCIATIONS 178
Garmin AFCS Status Alerts 179
Garmin AFCS Condition/Stall Alert 179
SurfaceWatch Alerts 180
GDL 69 SXM Data Link Receiver Messages 180
Flight Plan Import/Export Messages 181
Pilot Profile Import/Export Messages 182
Connext Weather Messages 182
System Message Advisories 184

TERRAIN ALERTS 206
Terrain-SVT Alerts 206
Terrain-SVT System Status Annunciations 207
TAWS-B ALERTS 207
TAWS-B System Status Annunciations 209

TRAFFIC ALERTS 209
TAS Traffic Modes 209
TAS Failure Annunciations 210
TAS Traffic Status Annunciations 210
GTS 800 Traffic Advisory System Voice Alerts 210
Garmin Descriptive TAS Voice Alerts 211
ADS-B Traffic Modes 211
ADS-B Traffic Failure Annunciations 212
ADS-B Traffic Status Annunciations 212
'Aux-ADS-B Status' Page Messages 213
'Aux - ADS-B Status' Page Messages for FIS-B Weather 214

APPENDIX **215**

SOFTKEYS 215
PFD Softkeys 215
MFD Softkeys 219

LOADING UPDATED DATABASES 221
Update Databases Using a Supplemental Data Card 222
Updating Databases Using the Wireless Transceiver 223
Database Deletion Feature 228

MAGNETIC FIELD VARIATION DATABASE UPDATE 229

MAP SYMBOLS 230
Land Symbols 230
Aviation Symbols 231
Airspace Symbols 231
Airway Symbols 232

INDEX **Index-1**

FLIGHT INSTRUMENTS

WARNING: *If the airspeed, attitude, altitude, or heading indications become unusable, refer to the backup instruments.*

FLIGHT INSTRUMENTS

AIRSPEED INDICATOR

NOTE: *Refer to the current version of the pertinent flight manual for speed criteria and Vspeed values.*

Changing Vspeeds and turning Vspeed bugs on/off:

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

Turning all Vspeed bugs on/off:

1) Press the **TMR/REF** Softkey.
2) Press the **MENU** Key.
3) To activate all Vspeed bugs, press the **ENT** Key with 'All References On' highlighted.
4) To remove all Vspeed bugs, turn the **FMS** Knob to highlight 'All References Off' and press the **ENT** Key.

Restoring all Vspeed defaults:

1) Press the **TMR/REF** Softkey.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight 'Restore Defaults' and press the **ENT** Key.

ALTIMETER

Setting the Selected Altitude:

1) Turn the **ALT SEL** Knob to set the Selected Altitude in 100-ft increments (up to the aircraft's service ceiling. When meters are displayed, Selected Altitude is adjusted in 50 meter increments. If set, the Minimum Descent Altitude/Decision Height (MDA/DH) value is also available for the Selected Altitude.
2) If desired, press the **ALT SEL** Knob to synchronize the selected altitude to the displayed altitude to the nearest 10 ft.

Displaying altitude in meters:

1) Press the **PFD OPT** Softkey to display the second-level softkeys.
2) Press the **ALT Units** Softkey.
3) Press the **Meters** Softkey to turn on metric altitude readouts.
4) Press the **Back** Softkey twice to return to the top-level softkeys.

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 QHN altimeter setting for the height above mean sea level, or the standard pressure setting, as applicable.*

Selecting the altimeter barometric pressure setting:

Turn the **BARO** Knob to select the desired setting.

Selecting standard barometric pressure:

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

Or:

1) Press the **PFD** Softkey to display the second-level softkeys.
2) Press the **STD BARO** Softkey; STD BARO is displayed in the Barometric Setting box.

Changing altimeter barometric pressure setting units:

1) Press the **PFD OPT** Softkey to display the second-level softkeys.
2) Press the **ALT Units** Softkey.
3) Press the **IN** Softkey to display the barometric pressure setting in inches of mercury (in Hg).

Or:

Press the **HPA** Softkey to display the barometric pressure setting in hectopascals (hPa).

4) Press the **Back** Softkey twice to return to the top-level softkeys.

Setting the Baro Transition Alert:

1) Use the **FMS** Knob to select the 'AUX - System Setup 1' Page on the MFD.

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

3) To enable/disable the Baro Transition Alert based on altitude, turn the large **FMS** Knob to highlight the 'On' or 'Off' Field for the BARO Transition Alert Altitude in the 'BARO Transition Alert' Box.

4) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Altitude 'On' or 'Off'.

5) Turn the large **FMS** Knob to highlight the 'Altitude' Field.

6) Use the **FMS** Knobs to change the altitude and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.

7) Turn the large **FMS** Knob to highlight the 'On' or 'Off' Field for the BARO Transition Alert Level.

8) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Flight Level 'On' or 'Off'.

9) Turn the large **FMS** Knob to highlight the 'Flight Level' Field.

10) Use the **FMS** Knobs to change the Flight Level for the alert and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.

11) Push the **FMS** Knob to deactivate the cursor.

HORIZONTAL SITUATION INDICATOR (HSI)

Enabling/disabling the HSI Map on the PFD:

1) Press the **Map/HSI** Softkey.

2) Press the **Layout** Softkey.

3) Press the **HSI Map** Softkey to enable the HSI Map.

Or:

Press the **Map Off** Softkey to disable the HSI Map.

4) Press the **Back** Softkey twice to return to the top-level softkeys.

Adjusting the Selected Heading:

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

Adjusting the Selected Course:

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

Changing the navigation angle setting:

1) Use the **FMS** Knob to select the 'AUX - System Setup 1' Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight Nav Angle in the Display Units box.
4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key.
   - MAGNETIC (°)- Angles corrected to the computed magnetic variation (Mag Var)
   - TRUE (°T)- References angles to true north (T)

Selecting bearing display and changing sources:

1) Press the **PFD** Softkey.
2) Press either **Bearing 1** or **Bearing 2** Softkey to display the desired bearing pointer and information window with a NAV source.
3) Press either **Bearing 1** or **Bearing 2** Softkey again to change the bearing source to GPS.
4) Press either **Bearing 1** or **Bearing 2** Softkey a third time to change the bearing source to ADF (note: ADF radio installation is optional).
5) To remove the bearing pointer and information window, press either **Bearing 1** or **Bearing 2** Softkey again.

Displaying the DME Information Window:

1) Press the **PFD** Softkey.
2) Press the **DME** Softkey to display the DME Information Window.
3) To remove the DME Information Window, press the **DME** Softkey again.

COURSE DEVIATION INDICATOR (CDI)

Changing navigation sources:

1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. The NAV1 standby frequency in the upper left corner of the MFD is light blue.
2) Press the **CDI** Softkey again to change from VOR1 or LOC1 to VOR2 or LOC2. The NAV2 standby frequency in the upper left corner of the MFD is light blue.
3) Press the **CDI** Softkey a third time to return to GPS.

Changing the selected GPS CDI setting:

1) Use the **FMS** Knob to select the 'AUX - System Setup 1' Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight Selected in the 'GPS CDI' Box.
4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key.
5) To cancel the selection, press the **FMS** Knob or the **CLR** Key.

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

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

SUPPLEMENTAL FLIGHT DATA

TEMPERATURE DISPLAY

Changing temperature display units:

1) Select the 'AUX - System Setup' Page on the MFD using the **FMS** Knob.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the TEMP field in the Display Units box.
4) Turn the small **FMS** Knob to highlight either Celsius (°C) or Fahrenheit (°F) and press the **ENT** Key to confirm the selection.
5) To cancel the selection, press the **FMS** Knob or the **CLR** Key.

WIND DATA

Displaying wind data:

1) Press the **PFD Opt** Softkey.
2) Press the **WIND** Softkey
3) Press one of the option softkeys to change how wind data is displayed:
   - **Option 1**: Wind direction arrow with numeric True direction and speed
   - **Option 2:** Headwind/tailwind and crosswind arrows with numeric speed components
4) To remove the window, press the **Off** Softkey.

ANGLE OF ATTACK (AOA) INDICATOR

Selecting the AOA Indicator display mode:

1) Press the **PFD Opt** Softkey.
2) Press the **AOA** Softkey.
3) Press the **On, Off,** or **Auto** Softkey. Pressing the **Auto** Softkey shows the AOA Indicator when the normalized AOA is 0.2 or greater, or when the flaps are partially or fully extended.
4) Press the **Back** Softkey to return to the top-level PFD softkeys.

PFD ANNUNCIATIONS AND ALERTING FUNCTIONS

MINIMUM DESCENT ALTITUDE/DECISION HEIGHT ALERTING

Setting the barometric minimum descent altitude and bug:

1) Press the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the 'Minimums' Field.
3) Turn the small **FMS** Knob to select 'BARO' or 'TEMP COMP.' 'Off' is selected by default. Press the **ENT** Key or turn the large **FMS** Knob to highlight the next field.
4) Use the small **FMS** Knob to enter the desired altitude (from zero to 16,000 feet).
5) If TEMP COMP was selected, press the **ENT** Key or turn the large **FMS** Knob to highlight the next field and then enter the temperature (-59°C to 59°C)
6) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

GARMIN SVT (OPTIONAL)

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

Activating and deactivating SVT:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **Terrain** Softkey. The SVT display will cycle on or off with the **Terrain** Softkey.

Activating and deactivating Pathways:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **Pathways** Softkey. The Pathway feature will cycle on or off with the **Pathways** Softkey.

Activating and deactivating Horizon Headings:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **HDG LBL** Softkey. The horizon heading display will cycle on or off with the **HDG LBL** Softkey.

Activating and deactivating Airport Signs:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **APT Sign** Softkey. Display of airport signs will cycle on or off with the **APT Sign** Softkey.

Enabling/disabling Wire Obstacles on SVT:

1) Press the **PFD Opt** Softkey.
2) Press the **SVT** Softkey.
3) Press the **Wire** Softkey.

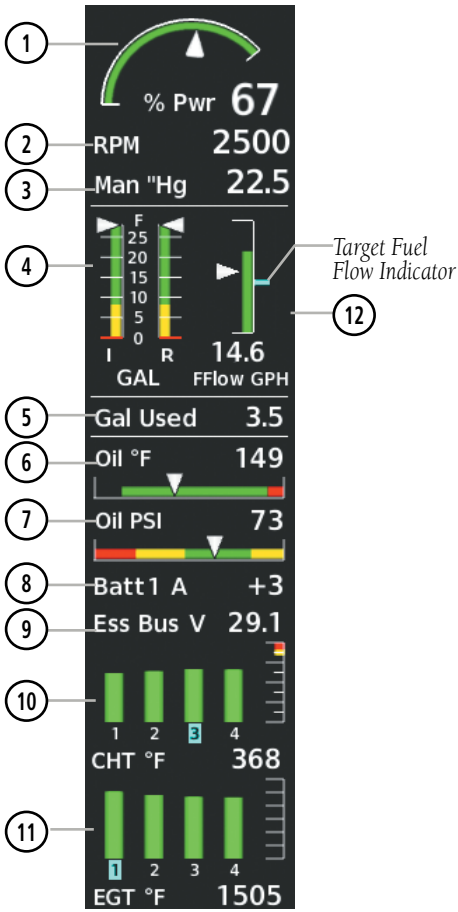
Enabling/disabling SVT Field of View on the Navigation Map Page:

1) While viewing the 'Map - Navigation Map' Page, press the **MENU** Key to display the page menu.
2) Turn the large **FMS** Knob to highlight 'Map Settings' and press the **ENT** Key.
3) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.
4) Turn the large **FMS** Knob to scroll through the 'Map' Group options to 'Field of View'.
5) Turn the small **FMS** Knob to select 'On' or 'Off'.
6) Press the **FMS** Knob to return to the 'Map - Navigation Map' page.

ENGINE INDICATION SYSTEM

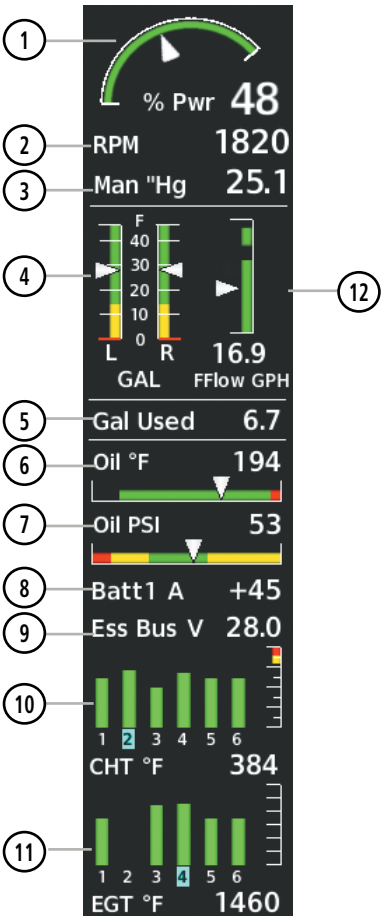
EIS DISPLAY

NOTE: *Refer to the current version of the pertinent flight manual for engine operating limitations.*

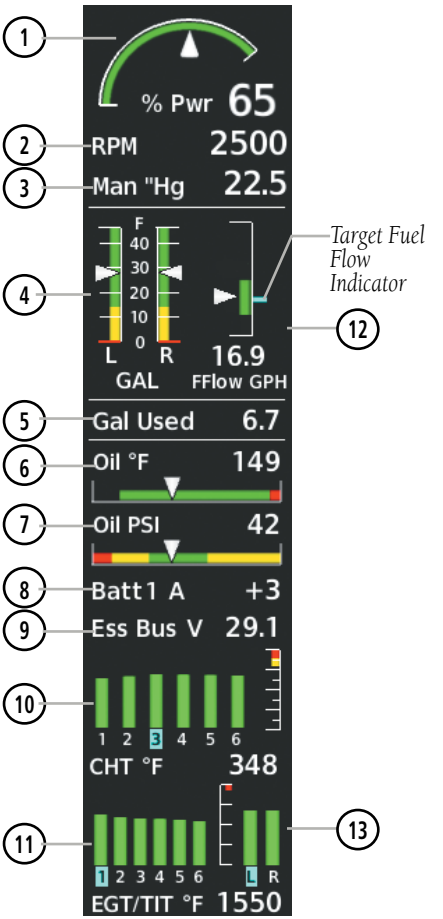


SR20

EIS Display

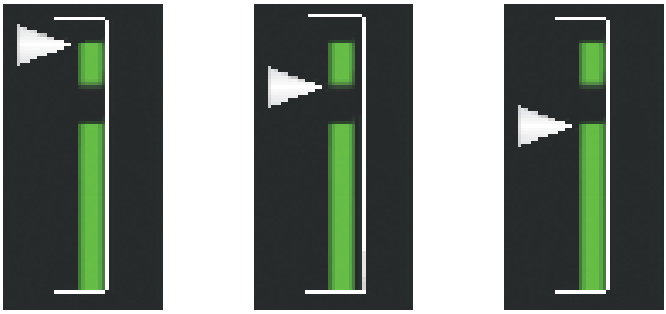


SR22
(Normally Aspirated)



SR22T

EIS Display



Max Continuous Flow *Best Power* *Best Economy*

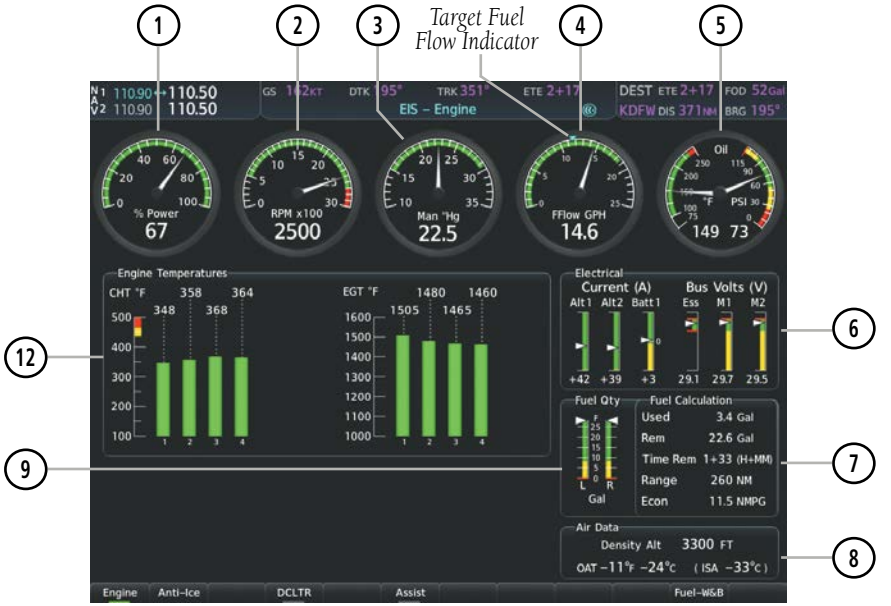
Fuel Flow Examples

(1) **Percent Power**	Displays engine power as a percentage
(2) **Tachometer**	Displays propeller speed in revolutions per minute
(3) **Engine Manifold Pressure**	Displays manifold pressure in inches of Mercury to indicate engine power
(4) **Fuel Quantity**	Displays fuel quantities, in gallons, for the left (L) and right (R) fuel tanks
(5) **Gallons Used**	Displays the fuel used in gallons
(6) **Oil Temperature**	Displays engine oil temperature in degrees Fahrenheit
(7) **Oil Pressure**	Displays pressure of oil supplied to the engine in pounds per square inch (psi)
(8) **Ammeter**	Displays the battery 1 load in amperes
(9) **Voltmeter**	Displays the essential bus voltage in volts
(10) **Cylinder Head Temperature**	Displays the head temperature of the hottest cylinder (CHT; cylinder number is shown below bar)
(11) **Exhaust Gas Temperature Indicator**	Displays the exhaust gas temperature (cylinder number is shown below bar)
(12) **Fuel Flow**	Displays fuel flow in gallons per hour Displays a cyan target fuel flow indicator for Lean of Peak to the right of the fuel flow indicator strip (SR20, SR22T) Displays black band indicator for Rich of Peak and Lean of Peak fuel flow targets. (SR22) See preceding figure for an example of Max Continuous Flow, Best Power, and Best Economy indications
(13) **Left and Right Turbine Inlet Temperature**	Displays the temperature at the left (L) and right (R) turbine inlet (*SR22T*)

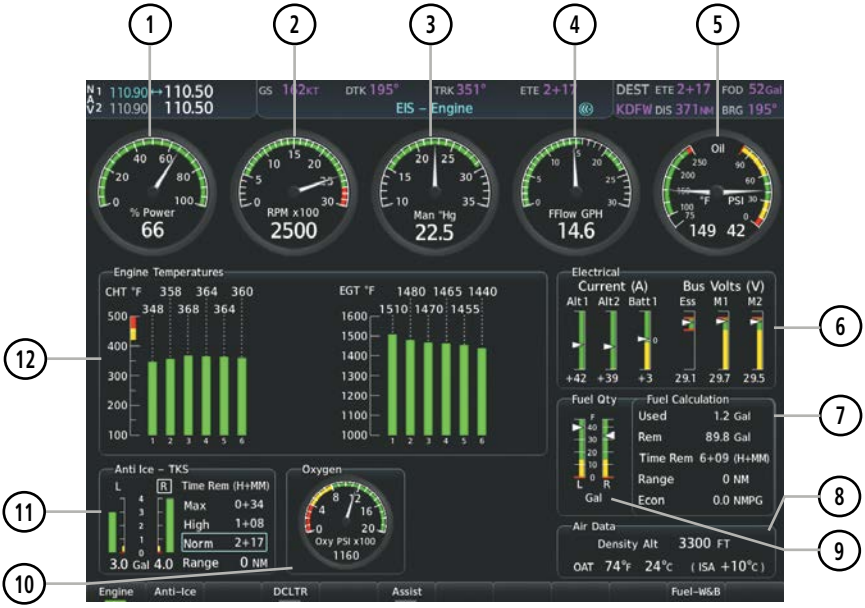
ENGINE PAGE

Pressing the **Engine** Softkey accesses the 'EIS - Engine' Page, which displays all engine, fuel, fuel calculation, electrical, air data, and optional ice protection information. Pressing the optional **Anti-Ice** Softkey and the **Fuel-W&B** access second-level softkeys.

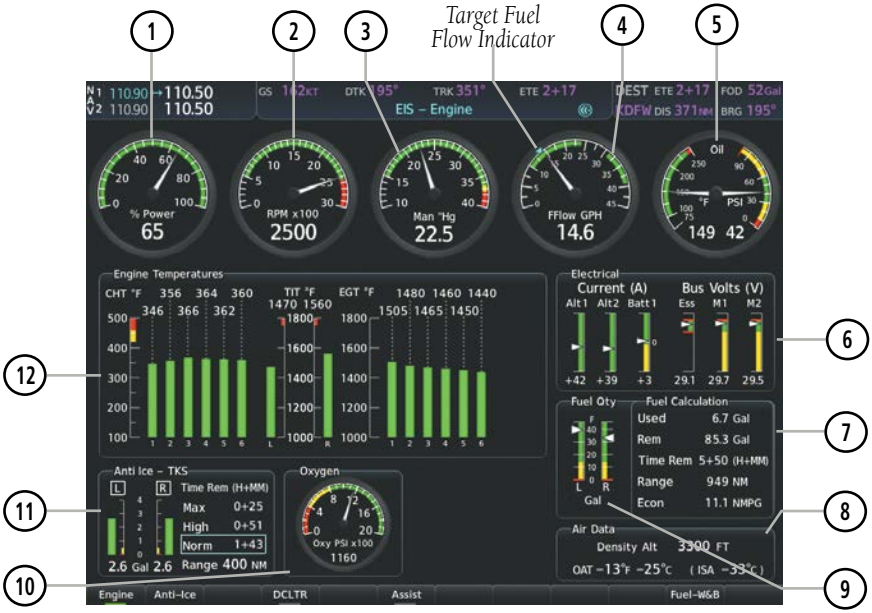
***NOTE:** The ice protection system (optional) must be operated in accordance with the limitations in the current version of the pertinent flight manual. This option is only available on SR22 and SR22T models.*



'Engine' Page (SR20)



'Engine' Page (SR22) with TKS FIKI and Oxygen



'Engine' Page (SR22T) with TKS FIKI and Oxygen

(1) **Percent Power Indicator**	Displays engine power as a percentage
(2) **Tachometer**	Displays propeller speed in revolutions per minute
(3) **Engine Manifold Pressure Indicator**	Displays manifold pressure in inches of Mercury to indicate engine power
(4) **Fuel Flow Indicator**	Displays fuel flow in gallons per hour. (SR20, SR22T Only) Displays a cyan target fuel flow indicator for Lean of Peak to the right of the fuel flow indicator strip. (SR22 Only) Displays black band indicator for Rich of Peak and Lean of Peak fuel flow targets.
(5) **Oil Temperature and Pressure Indicators**	Displays oil temperature in degrees Fahrenheit (°F) and pressure in pounds per square inch (psi)
(6) **Electrical Group**	Displays the alternator and battery current in amperes and the essential and main bus voltage
(7) **Fuel Calculation Group**	Displays calculated fuel at destination, fuel used, fuel remaining, time remaining, range (in nautical miles) and economy (in nautical miles per gallon) based on the displayed fuel remaining and the fuel flow totalizer
(8) **Air Data**	Displays density altitude, outside air temperature (OAT) in °F and °C, and international standard atmosphere (ISA) temperature deviation
(9) **Fuel Quantity Indicator**	Displays fuel quantities, in gallons, for the left (L) and right (R) fuel tanks
(10) **Oxygen Pressure Indicator**	Displays oxygen pressure in tank in pounds per square inch (*optional*)
(11) **Anti-Ice Fluid Quantity Indicator**	TKS FIKI – Displays the quantity of anti-ice fluid remaining in the left (L) and right (R) tanks in gallons (*optional – See Operational Note following*)
(12) **Engine Temperature Group**	Displays head (CHT) and exhaust gas temperatures (EGT) of all cylinders in °F (*all models*) and turbine inlet temperatures (*SR22T only*)

NOTE: *Refer to the current version of the pertinent flight manual for engine operating limitations.*

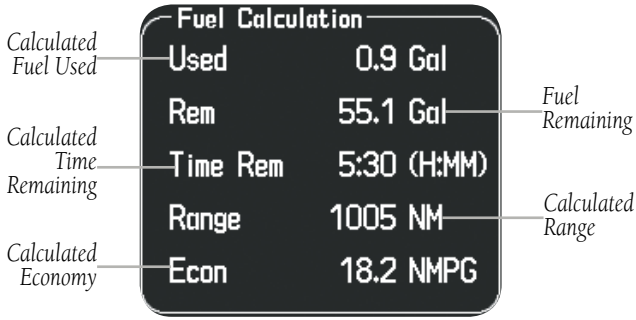
FUEL CALCULATIONS

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

Fuel used (Used), time remaining (Time Rem), range (in nautical miles, Range), and economy (Econ) are calculated based on the displayed fuel remaining (Rem) and the fuel flow totalizer. The calculated range is based upon ground speed, distance, economy and fuel remaining. See the Flight Management Section for information regarding the map feature related to the EIS Fuel Calculations.

Adjusting the fuel totalizer quantity:

1) Press the **Engine** Softkey to display the Engine Page.
2) Press the **Fuel** Softkey to access the Initial Usable Fuel Page.
3) Turn the **FMS** Knob (small knob adjusts in 1 gallon increments and large knob in 10 gallon increments) to increase or decrease the initial usable fuel displayed.



Fuel Calculations Group

Full Fuel (SR22 shown as example) Initial Usable Fuel Page

TKS FLIGHT INTO KNOWN ICING (FIKI) ANTI-ICE SYSTEM

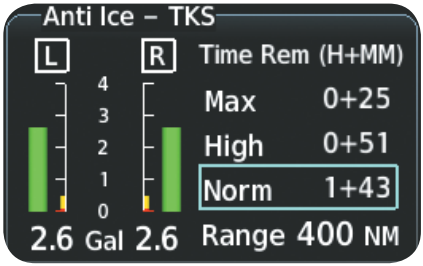
NOTE: *The ice protection system (optional) must be operated in accordance with the limitations in the current version of the pertinent flight manual. This option is only available on SR22 and SR22T models.*

Auto Tank Selection Mode

In the default tank selection mode (Auto), the system assures that the fluid levels of the two tanks are kept relatively even by periodically closing the tank with the lowest level. The system uses the anti-ice fluid tank quantities to control the tank shut-off valves. When the system is on and operating in Auto mode, the shut-off valves close under the following conditions:

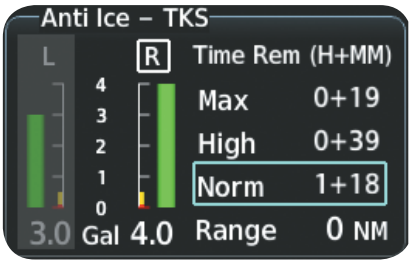
- The fluid quantity is empty (indicated from the fluid level sensor and level switch)
- The left and right tank level imbalance is greater than 0.25 gallons (low tank will be closed until level balance is within 0.15 gallons)
- The fluid quantity is unreliable (a miscompare between the level sensor and level switch or an out of range level sensor value)

While operating in Auto mode a white box is displayed around the 'L' and 'R', located on top of each fluid quantity indicator, when both tanks are open (Figure 3-10). During normal operation, the white box will highlight the left or right tanks as the fluid levels change.

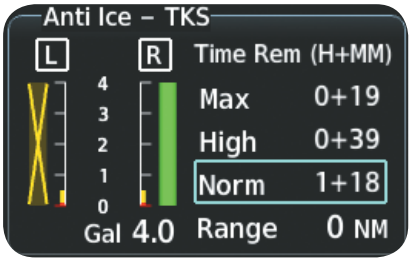


Auto Tank Mode (Normal)

If a fluid level comparison fault is detected (the fluid level sender disagrees with the fluid level switch for a particular tank) the corresponding fluid quantity indicator is grayed out and that quantity is not used in the endurance and range calculations. When the fluid level sender is out of range, the fluid quantity indicator is marked with an amber 'X'.



Fluid Level Unreliable



Fluid Level Out Of Range

Manual Tank Mode

Manual tank mode allows the pilot to control either tank's shut-off valve. Manual may be selected by pressing the **Anti-Ice** Softkey to access the second-level softkeys **Left**, **Auto**, and **Right**. A cyan box is displayed around the selected tank, gallons remaining in the selected tank, and pump operating mode.

- **Left** Softkey – opens left tank valve and closes right tank valve
- **Auto** Softkey – returns to Auto tank mode
- **Right** Softkey – opens right tank valve and closes left tank valve

While operating in manual tank mode, only the selected/open tank's quantity is used for the range and endurance calculations.

Manual Tank Mode (Right tank selected)

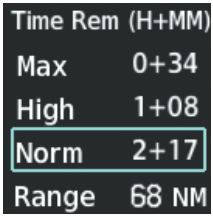
Pump Operating Modes

NOTE: *The ice protection system (optional) must be operated in accordance with the approved flight manual limitations. This option is only available on SR22 and SR22T models.*

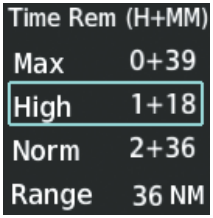
Operating Mode	System Operation	Comments
OFF	System Off	No modes selected
Norm	Both pumps operate on a timed, repeating cycle – 30 seconds ON and 90 seconds OFF	Provides 50% flow rate for light/moderate icing ☂
High	A single pump (#1) operates continuously	Provides 100% flow rate for moderate icing ☂
Max (momentary)	Both pumps operate continuously for 120 seconds	Provides 200% flow rate for severe icing or to expedite the removal of previous ice buildup ☂
Pump Bkup	A single pump (#2) operates continuously	This mode is used in the event of a timer box failure or when Backup mode is selected. Pump #2 provides 100% flow rate, bypassing the timer box ☂

☂ Refer to the current version of the pertinent flight manual for pilot recommended actions

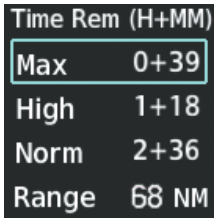
FIKI System Operating Modes



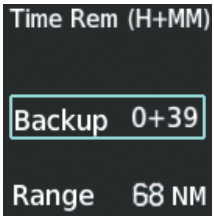
Normal Operating Mode



High Operating Mode



Max Operating Mode



Pump Backup Mode

LEANING ASSIST MODE

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' Page to assist in the leaning process.

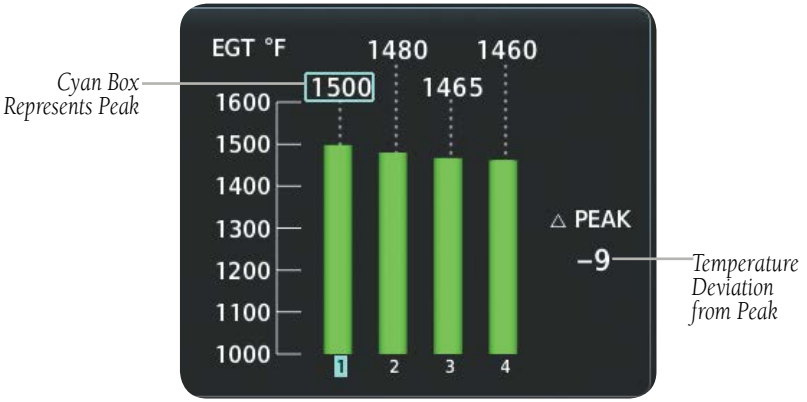
Access Leaning Assist Mode:

1) Press the **Engine** Softkey to display the 'Engine' Page.

2) Press the **Assist** Softkey to identify peaks.

When the **Assist** Softkey is pressed, the system initially highlights the number and places a cyan box around the EGT display of the cylinder with the hottest EGT. The Δ 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 EGTs 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.



Leaning Assist Mode

SYSTEM DISPLAY

NOTE: *Fuel calculations do not use the aircraft fuel quantity indicators and are calculated anytime the initial usable fuel is changed.*

NOTE: *Refer to the current version of the pertinent flight manual for limitations.*

In Reversionary Mode, the EIS System Display shows the engine, fuel calculations, electrical, and various system parameters. Fuel calculations are based on the displayed fuel remaining and the fuel flow totalizer.

Accessing the EIS System Display:

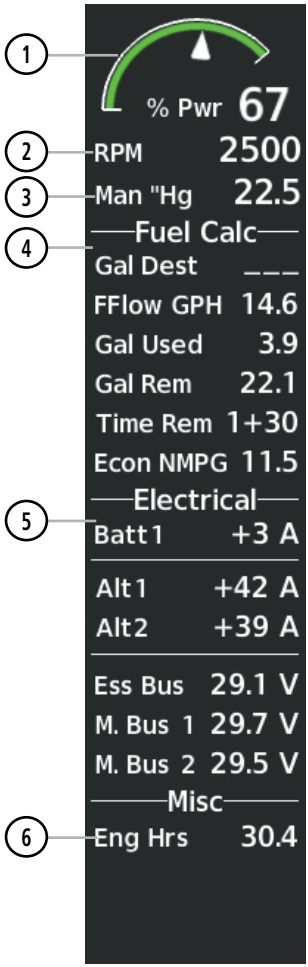
1) Press the **Engine** Softkey.
2) Press the **System** Softkey.
3) To return to the default Engine Display, press the **Engine** or **Back** Softkey.

1	**Percent Power Indicator**	Displays engine power as a percentage
2	**Tachometer**	Shows propeller speed in revolutions per minute
3	**Engine Manifold Pressure Indicator**	Displays manifold pressure in inches of Mercury to indicate engine power

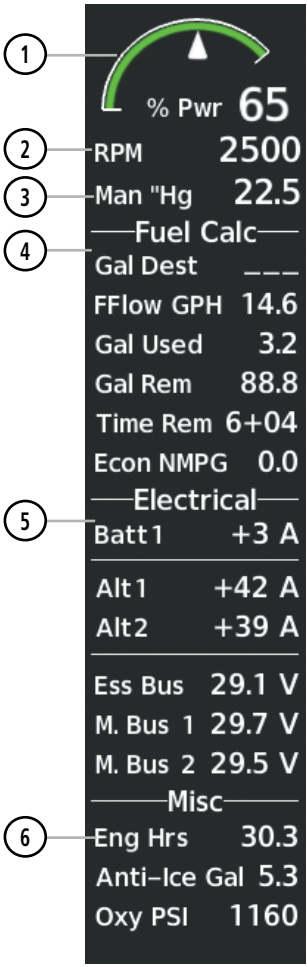
4 Fuel Calculation Group — Displays calculated fuel at destination, fuel used, fuel remaining, time remaining, range (in nautical miles) and economy (in nautical miles per gallon) based on the displayed fuel remaining and the fuel flow totalizer

5 Electrical Group — Displays the alternator and battery current in amperes and the essential and main bus voltage

6 Miscellaneous — Displays engine hours, anti-ice gallons (*optional*) and oxygen pressure (*optional*)



SR20



SR22 Models with optional Anti-Ice and Oxygen

System Display

EIS DISPLAY IN REVERSIONARY MODE

In reversionary mode, the display combines PFD symbology with the EIS Display, and the EIS is separated into two displays: Engine (identical to the normal EIS Display on the MFD) and System. For a description of the EIS Display, refer to the Engine Display section. The System Display shows various system parameters and fuel calculations.

NAV/COM/TRANSPONDER/AUDIO PANEL

COM OPERATION

Manually tuning a COM frequency:

1) Turn the **COM** Knob to tune the desired frequency in the COM Tuning Box (large knob for MHz; small knob for kHz).
2) Press the **Frequency Transfer** Key to transfer the frequency to the active field.
3) Adjust the volume level with the COM **VOL/SQ** Knob.
4) Push the COM **VOL/SQ** Knob to turn automatic squelch on and off.

Manual frequency tuning from the PFD/MFD Controller:

1) Press the **COM** Key to select the COM frequency box.
2) Turn the **COM/NAV CRS/XPDR** Knob to tune the desired frequency in the COM Tuning Box (large knob for MHz; small knob for kHz).
3) Press the **Frequency Transfer** Key to transfer the frequency to the active field.

Auto-tuning a COM frequency for a nearby airport from the PFD:

1) Press the **Nearest** Softkey on the PFD to open the 'Nearest Airports' Window. A list of 25 nearest airport identifiers and COM frequencies is displayed.
2) Turn the **FMS** Knob to scroll through the list and highlight the desired COM frequency.
3) Push the **ENT** Key to load the COM frequency into the COM Standby Tuning Box.
4) Press the **Frequency Transfer** Key to transfer the frequency to the COM Active Frequency Field.

Auto-tuning a COM frequency from the WPT and NRST Pages:

1) From any page that the COM frequency can be auto-tuned, activate the cursor by pressing the **FMS** Knob or pressing the appropriate softkey.
2) Turn the **FMS** Knob to place the cursor on the desired COM frequency.
3) Press the **ENT** Key to display the 'Load Frequency' Window.
4) Turn the **FMS** Knob to place the cursor on the desired COM frequency field.
5) Press the **ENT** Key to load the COM frequency into the selected COM frequency field.

Changing COM frequency channel spacing:

1) Select the 'AUX – System Setup 2' Page.
2) Push the **FMS** Knob to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the Channel Spacing Field in the 'COM Configuration Box.
4) Turn the small **FMS** Knob to select the desired channel spacing.
5) Press the **ENT** Key to complete the channel spacing selection.

NAV OPERATION

Manually tuning a NAV frequency:

1) Turn the **NAV** Knob to tune the desired frequency in the NAV Tuning Box.
2) Press the **Frequency Transfer** Key to transfer the frequency to the NAV Active Frequency Field.
3) Adjust the volume level with the NAV **VOL/ID** Knob.
4) Push the NAV **VOL/ID** Knob to turn the Morse code identifier audio on and off.

Manual frequency tuning from the PFD/MFD Controller:

1) Press the **NAV** Key to select the NAV frequency box.
2) Turn the **COM/NAV CRS/XPDR** Knob to tune the desired frequency in the NAV Tuning Box (large knob for MHz; small knob for kHz).
3) Press the **Frequency Transfer** Key to transfer the frequency to the active field.

Auto-tuning a NAV frequency from the WPT and NRST Pages:

1) From any page that the NAV frequency can be auto-tuned, activate the cursor by pressing the **FMS** Knob or the appropriate softkey.
2) Turn the **FMS** Knob to place the cursor on the desired NAV identifier or NAV frequency.
3) On the Nearest VOR and Nearest Airports pages, press the **FREQ** Softkey to place the cursor on the NAV frequency.
4) Press the **ENT** Key to display the 'Load Frequency' Window.
5) Turn the **FMS** Knob to place the cursor on the desired NAV frequency field.
6) Press the **ENT** Key to load the NAV frequency into the selected NAV frequency field.

MARKER BEACON RECEIVER

Marker Beacon audio is by default configured off and must be enabled after each power cycle.

Turning Marker Beacon Audio On

With the MKR/MUTE annunciator off, press the **MKR/MUTE** Key to enable marker beacon audio.

Muting Marker Beacon Audio

During marker beacon audio reception, press the **MKR/MUTE** Key to mute the audio. The MKR/MUTE annunciator remains lit, but the current marker tone is silenced. Audio muting deactivates automatically and marker beacon audio is heard when the next marker beacon signal is received.

Deselecting Marker Beacon Audio

To deselect marker beacon audio, press the **MKR/MUTE** Key twice during marker beacon reception (once to mute, once more to deselect) or once if a marker beacon signal is not detected.

DME TUNING

Selecting DME transceiver pairing:

1) Press the **DME** Softkey to display the 'DME Tuning' Window.
2) Turn the small **FMS** Knob to select the DME tuning mode.
3) Press the **ENT** Key to complete the selection.

MODE S TRANSPONDER

Selecting a transponder mode:

1) Press the **XPDR** Softkey to display the Transponder Mode Selection Softkeys.
2) Select the desired softkey to activate the transponder mode.

Entering a transponder code with softkeys:

1) Press the **XPDR** Softkey to display the Transponder Mode Selection Softkeys.
2) Press the **CODE** Softkey to display the Transponder Code Selection Softkeys, for digit entry.

3) Press the digit softkeys to enter the code in the code field. When entering the code, the next softkey in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Pressing the **BKSP** Softkey moves the code selection cursor to the previous digit. Five seconds after the fourth digit has been entered, the transponder code becomes active.

Entering a transponder code with the PFD FMS Knob:

1) Press the **XPDR** and the **CODE** Softkeys as in the previous procedure to enable code entry.
2) Turn the small **FMS** Knob on the PFD to enter the first two code digits.
3) Turn the large **FMS** Knob to move the cursor to the next code field.
4) Enter the last two code digits with the small **FMS** Knob.
5) Press the **ENT** Key to complete code digit entry.

Entering a transponder code with the PFD/MFD Controller FMS Knob:

1) Press the **XPDR** and the **CODE** Softkeys as in the previous procedure to enable code entry.
2) Turn the small **FMS** Knob to enter the first two code digits.
3) Turn the large **FMS** Knob to move the cursor to the next code field.
4) Enter the last two code digits with the small **FMS** Knob.
5) Press the **ENT** Key to complete code digit entry.

ADDITIONAL AUDIO PANEL FUNCTIONS

INTERCOM SYSTEM (ICS) WITH THE GMA 350/350C/350H/350HC

The GMA 350/350c includes a six-position intercom system (ICS), two MUSIC inputs, and one telephone/entertainment input for the pilot, copilot and passengers. The intercom provides Pilot, Copilot, and Passenger audio isolation.

Press the **PILOT** Key, **COPLT** Key, and/or **PASS** Key to enable intercom audio for the selected position. If the annunciators are lit, those positions will share intercom audio. If an annunciator is NOT lit that position is isolated from the others.

NOTE: *When the copilot position is configured as a passenger, the **COPLT** Key is disabled and the copilot headset is treated as a 'passenger' for intercom and entertainment audio distribution.*

NOTE: *In the following modes the copilot position is configured as crew.*

All Intercom Mode

In 'All Intercom' mode the Pilot, Copilot, and Passengers hear each other and hear the aircraft audio.

Pilot Isolate Mode

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

Passenger/Crew Isolate Mode

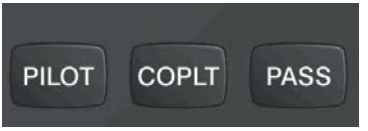
In 'Passenger/Crew Isolate' mode the Pilot and Copilot hear the aircraft audio and each other. The Passengers hear each other.

Copilot Isolate Mode

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

All Isolate Mode

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



Pilot & Copilot Isolate Mode

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

Pilot & Passenger Isolate Mode

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

Copilot & Passenger Isolate Mode

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

BLUE-SELECT MODE (TELEPHONE/ENTERTAINMENT DISTRIBUTION)

The music (MUS1/MUS2/MUSIC/MUS) and telephone/entertainment ( ) audio are distributed using the Blue-Select Mode.

The Blue-Select Mode is entered by pushing the small knob when the volume control cursor (flashing white annunciator) is not active. If the volume control cursor is active, push the small knob twice. The first push will cancel the volume control cursor, the second will activate Blue-Select Mode.

The annunciator over the  Key will be flashing blue. Any combination of the annunciators over the **PILOT** Key, **COPLT** Key, and **PASS** Key may be blue. Select the desired key to turn the blue annunciator on or off to distribute the telephone/entertainment audio to selected crew/passenger positions. Turn the large knob to select MUS1, MUS2, MUSIC, or MUS and select the crew positions to receive the music audio.

Selecting any key other than PILOT, COPLT, PASS, MUS1, MUS2, MUSIC, MUS or  will cancel Blue-Select Mode. Pushing the small knob will also cancel Blue-Select Mode. After approximately ten seconds with no input, the Blue-Select Mode will automatically cancel.

Adjusting Intercom Volume

When the cursor is on PILOT, COPLT, or PASS, the Volume Control Knob adjusts the intercom volume for the listener.

Adjusting Speaker Volume

When the cursor is on SPKR, the Volume Control Knob adjusts the speaker volume of the selected sources (COM, NAV, AUX, MKR). Alert volumes are not affected by the speaker volume control knob.

Adjusting MKR, AUX,  , MUS1, MUS2, MUSIC, and MUS Volume

When the cursor is on MKR, AUX,  , MUS1, MUS2, MUSIC or MUS, the Volume Control Knob adjusts the individual volume of the selected source.

Adjusting Manual Squelch

When the cursor is on MAN SQ, the Volume Control Knob adjusts the ICS Squelch Threshold (the volume level that must be exceeded to be heard over the intercom).

SPLIT COM MODE WITH THE GMA 350/350C/350H/350HC

Selection of more than one MIC Key selects Split COM operation (using COM1/COM2, COM1/COM3, or COM2/COM3). The COM1/MIC1, COM2/MIC2, or COM3/MIC3 annunciators are illuminated indicating Split COM operation. The selected COM frequencies are displayed in green indicating that both transceivers are active. Split COM operation is cancelled by pressing one of the selected MIC Keys again.

When in Split-COM mode, the pilot is using the lower numbered COM, the copilot is using the higher numbered COM. The MIC1 or MIC2 (depends on COMs selected for Split-COM) Annunciator flashes when the pilot's microphone PTT is pressed. The MIC2 or MIC3 (depends on COMs selected for Split-COM) Annunciator flashes when the copilot's microphone PTT is pressed.

3D AUDIO

3D Audio is useful when multiple COM audio sources are present. By using different responses in each ear, 3D audio processing creates the illusion that each COM audio source is coming from a unique location in the horizontal plane.

Because this feature uses different signals for left and right channels, it requires wiring for stereo intercom and stereo headsets. If 3D audio is activated when mono headsets are in use, the listener will still hear all audio sources; however, there is no benefit from location separation.

With a single COM selected and 3D Audio enabled, the listener hears the audio source at the 12 o'clock position. If both COMs are selected, the listener hears COM1 at 11 o'clock and COM2 at the 1 o'clock position. All other audio inputs are processed so that the listener hears the audio source at the 12 o'clock position.

Enabling 3D Audio

Press and hold the **PILOT** Key to toggle 3D audio processing on and off for all headset positions. When 3D Audio is enabled, the aural message "3D audio left" is heard in the left ear followed by "3D audio right" in the right ear. If the aural messages are not heard in only the left and then the right ear respectively, the cause may be aircraft wiring or headset settings.

BLUETOOTH® (GMA 350C/350HC ONLY)

Pairing a Bluetooth Device with the Audio Panel

Push and hold the inner knob for two seconds. The Bluetooth Annunciator flashes to indicate the unit is discoverable and the aural message "Bluetooth discoverable" is heard. The Audio Panel will remain discoverable for 90 seconds or until a successful pair is established. Once paired, the Bluetooth Annunciator turns steady blue and the aural message "Bluetooth connected/paired" is heard.

Assigning an Audio Source to the Bluetooth Device

Press the ♪♫ Key, **MUS1** Key, **MUS2** Key, or **MUS** Key until the annunciator turns blue (the audio from the Bluetooth source will not be heard until this step is complete). The key annunciator cycles OFF-WHITE-BLUE. WHITE selects the wired audio source. BLUE selects the Bluetooth audio source. The BLUE source assignment will persist through Bluetooth audio connection disruptions.

Bluetooth audio will maintain a separate volume level and Blue Select distribution from the wired audio source. If the Bluetooth connection is supporting a phone call, all intercom positions listening to that source can also speak on the call through the headset MICs.

Additional Bluetooth Control Functions

In addition to the 2 second push and hold of the inner knob discussed above, the knob has two additional functions that are intended to be seldom or never used. The following functions are available if needed for troubleshooting:

- Push and hold the inner knob for 5 seconds to turn off the Bluetooth radio. The aural message "**Bluetooth off**" is heard. This function electrically turns off the radio, not just the audio source selection. In the event that Bluetooth radio interference with communication or navigation equipment is suspected, the Bluetooth radio can be powered off without powering off the entire audio panel. A subsequent 5 second push and hold turns the radio back on.
- Push and hold the inner knob for 10 seconds to clear the memory of paired devices (up to 10 are stored). Once cleared, the aural message "**Bluetooth list cleared**" is heard. This function is used as a troubleshooting method when a device is not pairing, or to remove a device that is no longer needed.

AUDIO PANEL PREFLIGHT PROCEDURE

Setting the Audio Panel during preflight:

1) Verify that the PILOT , COPLT and PASS annunciators are lit.

2) Adjust radio volume levels (COM, NAV) to a suitable level.

3) Use the Blue-Select Mode to distribute the telephone/entertainment and music appropriately.

4) Use the VOL/CRSR Knobs to adjust the intercom volumes to the desired level.

Blank Page

FLIGHT MANAGEMENT

Changing a field in the MFD Navigation Data Bar:

1) Select the 'Aux - System Setup 1' Page.
2) Push the **FMS** Knob to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the desired field number in the 'MFD Data Bar Fields' Box.
4) Turn the small **FMS** Knob to display and scroll through the data options list to select the desired data.
5) Press the **ENT** Key. Pressing the **Defaults** Softkey returns all fields to the default setting.

USING MAP DISPLAYS

Changing the Navigation Map orientation:

1) With the 'Map - Navigation Map' Page displayed, press the **MENU** Key. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key to display the 'Map Settings' Window.
3) Select the 'Map' Group if necessary and press the **ENT** Key. Turn the large **FMS** Knob, or press the **ENT** Key once, to select the 'Orientation' Field.
4) Turn the small **FMS** Knob to select the desired orientation.
5) Press the **ENT** Key to select the new orientation.
6) Push the **FMS** Knob to return to the base page.

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

1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Select the 'Map' Group.
4) Press the **ENT** Key.
5) Highlight the 'North Up Above' Field.
6) Select 'On' or 'Off' using the small **FMS** Knob.

7) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the range field.
8) Use the small **FMS** Knob to select the desired range.
9) Press the **ENT** Key to accept the selected option.
10) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

MAP RANGE

Configuring automatic zoom:

1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) If necessary, turn the small **FMS** Knob to select the 'Map' Group.
4) Press the **ENT** Key.
5) Turn the large **FMS** Knob to highlight the 'Auto Zoom' On/Off Field, and select 'Off' or 'On' using the small **FMS** Knob.
6) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Auto Zoom' display selection field.
7) Select 'MFD', 'PFD', or 'All' using the small **FMS** Knob.
8) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Max Look FWD' Field. Times are from zero to 999 minutes.
9) Use the **FMS** Knobs to set the time. Press the **ENT** Key.
10) Repeat step 9 for 'Min Look FWD' (zero to 99 minutes) and 'Time Out' (zero to 99 minutes).
11) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

MAP PANNING

Panning the map:

1) With the desired map page displayed, push the **Joystick** to display the Map Pointer.
2) Move the **Joystick** to move the Map Pointer around the map.
3) Push the **Joystick** to remove the Map Pointer and recenter the map on the aircraft's current position.

Reviewing information for an airport, NAVAID, or user waypoint:

1) With the desired map page displayed on the MFD, push the **Joystick** to display the Map Pointer and place the Map Pointer on a waypoint.
2) Press the **ENT** Key to display the Information Page for the selected waypoint.
3) Press the **Go Back** Softkey, the **CLR** Key, or the **ENT** Key to exit the Information Page and return to the 'Map – Navigation Map' Page.

Reviewing information for a special-use or controlled airspace:

1) With the desired map page displayed on the MFD, push the **Joystick** to display the Map Pointer. Place the Map Pointer on the boundary of an airspace. Information about the airspace is displayed on the map next to the map pointer.
2) Push the **Joystick** to remove the Map Pointer and center the map on the aircraft.

Or:

1) With the desired map page displayed on the MFD, push the **Joystick** to display the Map Pointer. Place the Map Pointer on an open area within the boundaries of an airspace.
2) Press the **ENT** Key to display an options menu.
3) 'Review Airspaces' should already be highlighted, if not select it. Press the **ENT** Key to display the 'Information' Window for the selected airspace.
4) Press the **CLR** or **ENT** Key to exit the Airspace Information Page.

MEASURING BEARING AND DISTANCE

Measuring bearing and distance between any two points:

1) Press the **MENU** Key (with the 'Map - Navigation Map' Page displayed).
2) Highlight the 'Measure Bearing/Distance' Field.
3) Press the **ENT** Key. A Measure Pointer is displayed on the map at the aircraft's present position.
4) Move the **Joystick** to place the reference pointer at the desired location. The bearing and distance are displayed at the top of the map. Elevation at the current pointer position is also displayed. Pressing the **ENT** Key changes the starting point for measuring.
5) To exit the Measure Bearing/Distance option, push the **Joystick**; or select 'Stop Measuring' from the Page Menu and press the **ENT** Key.

TOPOGRAPHY

Displaying/removing topographic data on all MFD pages displaying navigation maps:

1) Press the **Map Opt** Softkey.
2) Press the **TER** Softkey until 'Topo' is shown on the softkey to display topographic data.
3) Press the **TER** Softkey until 'Off' is shown on the softkey to remove topographic data from the navigation map. When topographic data is removed from the page, all navigation data is presented on a black background.

Displaying/removing topographic data on the PFD Map:

1) Press the **Map/HSI** Softkey on the PFD.
2) Press the **TER** Softkey until 'Topo' is shown on the softkey to display topographic data.
3) Press the **TER** Softkey until 'Off' is shown on the softkey to remove topographic data from the navigation map. When topographic data is removed from the page, all navigation data is presented on a black background.

Selecting a topographical data range (Terrain Display):

1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Select the 'Map' Group.
4) Press the **ENT** Key.
5) Highlight the 'Terrain Display' range field. Ranges are from 1 nm to 1000 nm.
6) To change the Terrain Display range setting, turn the small **FMS** Knob to display the range list.
7) Select the desired range using the small **FMS** Knob.
8) Press the **ENT** Key.
9) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

Displaying/removing the topographic scale (Topo Scale):

1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Select the 'Map' Group and press the **ENT** Key.
4) Highlight the 'Topo Scale' Field.
5) Select 'On' or 'Off'.
6) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

Symbol Setup

Setting up the 'Land', 'Aviation' or 'Airspace' Group items:

1) Press the **MENU** Key with the 'Map - Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the desired Group.
4) Press the **ENT** Key. The cursor flashes on the first field.
5) Turn the large **FMS** Knob to select the desired option.
6) Turn the small **FMS** Knob to select the desired setting (e.g. On/Off or maximum range).
7) Press the **ENT** Key to accept the selected option and move the cursor to the next item.
8) Repeat steps 5-7 as necessary for subsequent fields.
9) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

Map Declutter

Decluttering the map:

Press the **Detail** Softkey with the 'Map – Navigation Map' Page displayed. The current declutter level is shown. With each softkey press, another level of map information is removed.

Decluttering the PFD Map:

1) Press the **Map/HSI** Softkey on the PFD.
2) Press the **Detail** Softkey. The current declutter level is shown. With each selection, another level of map information is removed.

AIRWAYS

Displaying/removing airways:

1) Press the **Map Opt** Softkey.
2) Press the **AWY** Softkey. Both High and Low Altitude Airways are displayed (AWY On).
3) Press the softkey again to display Low Altitude Airways only ('AWY LO').
4) Press the softkey again to display High Altitude Airways only ('AWY HI').
5) Press the softkey again to remove High Altitude Airways. No airways are displayed ('AWY Off').

Selecting an airway range (Low ALT Airways or High ALT Airways):

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Airways' Group, and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the 'Low ALT Airways' or 'High ALT Airways' range field.
5) To change the range setting, turn the small **FMS** Knob to display the range list.
6) Select the desired range using the small **FMS** Knob.
7) Press the **ENT** Key.
8) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

ADDITIONAL NAVIGATION MAP ITEMS

Setting up additional 'Map' Group items:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Map' Group.
4) Press the **ENT** Key. The cursor flashes on the first field.
5) Turn the large **FMS** Knob to select the desired option.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.

Or:

If it is a data field, use the **FMS** Knob to select the range or time value.

7) Press the **ENT** Key to accept the selected option and move the cursor to the next item.
8) Repeat steps 5-7 as necessary.
9) Push the **FMS** Knob to return to the Navigation Map.

WAYPOINTS

AIRPORTS

Selecting an airport for review by identifier, facility name, or location:

1) From the 'WPT – Airport Information' Page (**Info 1** Softkey), push the **FMS** Knob.
2) Use the **FMS** Knobs and enter an identifier, facility name, or location within the 'Airport' Box.
3) Press the **ENT** Key.
4) Push the **FMS** Knob to remove the cursor.

Selecting a runway:

1) With the 'WPT – Airport Information' Page (**Info 1** Softkey) displayed, push the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Runways' Box, on the runway designator.
3) Turn the small **FMS** Knob to display the desired runway (if more than one) for the selected airport.
4) To remove the flashing cursor, push the **FMS** Knob.

Viewing a destination airport:

From the 'WPT – Airport Information' Page (**Info 1** Softkey) press the **MENU** Key. Select 'View Destination Airport'. The Destination Airport is displayed.

Viewing information for a nearest airport on the PFD:

1) Press the **Nearest** Softkey to display the 'Nearest Airports' Window.
2) Highlight the airport identifier with the **FMS** Knob and press the **ENT** Key to display the 'Airport Information' Window.

3) To return to the 'Nearest Airports' Window press the **ENT** Key (with the cursor on 'BACK') or press the **CLR** Key. The cursor is now on the next airport in the nearest airports list. (Repeatedly pressing the **ENT** Key moves through the airport list, alternating between the 'Nearest Airports' Window and the 'Airport Information' Window.)

4) Press the **CLR** Key or the **Nearest** Softkey to close the PFD 'Nearest Airports' Window.

Viewing information for a nearest airport on the MFD:.

1) Turn the **FMS** Knobs to select the 'NRST – Nearest Airports' Page (it is the first page of the group, so it may already be selected). If there are no Nearest Airports available, "None Within 200nm" is displayed.

2) Press the **APT** Softkey; or push the **FMS** Knob; or press the **MENU** Key, highlight 'Select Airport Window' and press the **ENT** Key. The cursor is placed in the 'Nearest Airports' Box. The first airport in the nearest airports list is highlighted.

3) Turn the **FMS** Knob to highlight the desired airport. (Pressing the **ENT** Key also moves to the next airport.)

4) Push the **FMS** Knob to remove the flashing cursor.

Viewing runway information for a specific airport:

1) With the 'NRST – Nearest Airports' Page displayed, press the **RNWY** Softkey; or press the **MENU** Key, highlight 'Select Runway Window'; and press the **ENT** Key. The cursor is placed in the 'Runways' Box.

2) Turn the small **FMS** Knob to select the desired runway.

3) Push the **FMS** Knob to remove the flashing cursor.

Selecting nearest airport surface and minimum runway length matching criteria:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page.

2) Push the **FMS** Knob momentarily to activate the flashing cursor.

3) Turn the large **FMS** Knob to highlight the 'Runway Surface' Field in the 'Nearest Airport' Box.

4) Turn the small **FMS** Knob to select the desired runway option (Any, Hard Only, Hard/ Soft).

5) Press the **ENT** Key. The cursor moves to the 'Minimum Length' Field in the 'Nearest Airport' Box.

6) Use the **FMS** Knob or keypad to enter the minimum runway length (zero to 25,000 feet) and press the **ENT** Key.

7) Push the **FMS** Knob to remove the flashing cursor.

NON-AIRPORT AND USER CREATED WAYPOINTS

Viewing Waypoint Information:

1) Turn the **FMS** Knobs to select the 'WPT – (Intersection, NDB, VOR, VRP, or User WPT) Information' Page.

2) Push the **FMS** Knob to display the flashing cursor in the Intersection, NDB, VOR, VRP, or User Waypoint Box.

3) Use the **FMS** Knobs and enter an identifier, facility name, or location.

4) Press the **ENT** Key, if needed.

5) Push the **FMS** Knob to remove the flashing cursor.

Viewing Nearest Non-Airport Waypoints:

1) Turn the **FMS** Knobs to select the 'NRST – Nearest (Intersections, NDB, VOR, VRP, or User WPTS)' Page.

2) Push the **FMS** Knob to display the flashing cursor in the 'Nearest (INT, NDB, VOR, VRP, or User)' Box.

3) If needed, press the **ENT** Key or turn either **FMS** Knob as needed to select an identifier.

4) Push the **FMS** Knob to remove the flashing cursor.

Creating user waypoints from the 'WPT – User WPT Information' Page:

1) Press the **New** Softkey, or press the **MENU** Key and select 'Create New User Waypoint'.

2) Use the **FMS** Knobs or keypad to enter a user waypoint name.

3) Press the **ENT** Key to finish entering the waypoint name. By default, the new waypoint is created as a Route waypoint type using the RAD/DIS mode of reference. The current aircraft position is the default location of the new waypoint.

4) Setting the Waypoint Type:

If the waypoint will be a 'Route' waypoint, press the **ENT** Key.

Or:

a) If the waypoint will be an 'Airport' waypoint, turn the **FMS** Knobs to highlight 'Airport' press the **ENT** Key. Press the **ENT** Key again to close the popup window regarding valid elevation.

b) Use the **FMS** Knobs or keypad to enter the airport elevation and press the **ENT** Key.

5) With the 'Temporary' Field highlighted, press the **ENT** Key to check or uncheck the box to change the storage method to temporary or normal, as desired.

6) Use the large **FMS** Knob to highlight the 'Waypoint Mode' Field. If desired, change the waypoint mode of reference in one of the following ways:

Select 'RAD/RAD' using the small **FMS** Knob, press the **ENT** Key, and enter the two reference waypoint identifiers and radials into the 'Reference Waypoints' Box using the **FMS** Knobs or keypad.

Or:

Select 'RAD/DIS' using the small **FMS** Knob, press the **ENT** Key, and enter the reference waypoint identifier, the radial, and the distance into the 'Reference Waypoints' Box using the **FMS** Knobs or keypad.

Or:

Select 'LAT/LON' using the small **FMS** Knob, press the **ENT** Key, and enter the latitude and longitude into the 'Information' Box using the **FMS** Knobs or keypad.

7) Use the large **FMS** Knob to highlight the field in the 'Comment' Box. If desired, use the **FMS** Knobs or keypad to change the comment (limited to 25 characters).

8) When finished, push the **FMS** Knob to remove the flashing cursor.

Creating user waypoints from map pages:

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

2) Press the **ENT** Key. If the map pointer is within the boundaries of an airspace, a menu pops. Use the **FMS** Knob to highlight 'Create User Waypoint' and press the **ENT** Key. The 'WPT – User WPT Information' Page is displayed with the captured position.

3) Use the **FMS** Knobs or keypad to enter the waypoint name. Press the **ENT** Key to accept the waypoint name. By default, the new waypoint is created as a Route waypoint type using the RAD/DIS mode of reference.

4) Setting the Waypoint Type:

If the waypoint will be a 'Route' waypoint, press the **ENT** Key.

Or:

a) If the waypoint will be an 'Airport' waypoint, turn the **FMS** Knobs to highlight 'Airport' press the **ENT** Key. Press the **ENT** Key again to close the popup window regarding valid elevation.

b) Use the **FMS** Knobs or keypad to enter the airport elevation and press the **ENT** Key.

5) With the 'Temporary' Field highlighted, press the **ENT** Key to check or uncheck the box to change the storage method to temporary or normal, as desired.

6) Use the large **FMS** Knob to highlight the 'Waypoint Mode' Field. If desired, change the waypoint mode of reference in one of the following ways:

Select 'RAD/RAD' using the small **FMS** Knob, press the **ENT** Key, and enter the two reference waypoint identifiers and radials into the 'Reference Waypoints' Box using the **FMS** Knobs or keypad.

Or:

Select 'RAD/DIS' using the small **FMS** Knob, press the **ENT** Key, and enter the reference waypoint identifier, the radial, and the distance into the 'Reference Waypoints' Box using the **FMS** Knobs or keypad.

Or:

Select 'LAT/LON' using the small **FMS** Knob, press the **ENT** Key, and enter the latitude and longitude into the 'Information' Box using the **FMS** Knobs or keypad.

7) Use the large **FMS** Knob to highlight the field in the 'Comment' Box. If desired, use the **FMS** Knobs or keypad to change the comment (limited to 25 characters).

8) When finished, push the **FMS** Knob to remove the flashing cursor.

Editing a user waypoint comment or location:

1) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor.

2) Select a user waypoint in the 'User Waypoint List' Box, if required, and press the **ENT** Key.

3) Use the large **FMS** Knob to move the cursor to the desired field.

4) Use the **FMS** Knobs or keypad to make any changes.
5) Press the **ENT** Key to accept the changes.
6) Push the **FMS** Knob to remove the flashing cursor.

Changing the user waypoint storage duration default setting:

1) With the 'WPT – User WPT Information' Page displayed, press the **MENU** Key.
2) Move the cursor to select 'Waypoint Setup' and press the **ENT** Key.
3) Use the small **FMS** Knob to select 'Normal' or 'Temporary' as desired, and press the **ENT** Key.
4) Push the **FMS** Knob to remove the flashing cursor and return to the 'WPT – User WPT Information' Page.

Deleting a single user waypoint:

1) With the 'WPT – User WPT Information' Page displayed, highlight a User Waypoint in the 'User Waypoint List' Box, or enter a waypoint in the 'User Waypoint' Box.
2) Press the **Delete** Softkey or press the **CLR** Key. 'Yes' is highlighted in the confirmation window.
3) Press the **ENT** Key.
4) Push the **FMS** Knob to remove the flashing cursor.

Or:

1) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor.
2) Use the large **FMS** Knob to highlight a User Waypoint in the 'User Waypoint List' Box, or use the **FMS** Knobs or keypad to enter a waypoint in the 'User Waypoint' Box.
3) Press the **MENU** Key. Use the **FMS** Knobs to highlight 'Delete User Waypoint'.
4) Press the **ENT** Key twice to confirm the selection.
5) Push the **FMS** Knob to remove the flashing cursor.

Deleting all user waypoints:

1) With the 'WPT – User WPT Information' Page displayed, highlight a User Waypoint in the 'User Waypoint List' Box.
2) Press the **MENU** Key.

3) Use the **FMS** Knobs to highlight 'Delete All User Waypoints.'
4) Press the **ENT** Key twice to confirm the selection.

AIRSPACES

Displaying and removing airspace altitude labels:

1) Press the **MENU** Key with the 'Map – Navigation Map' Page displayed. The cursor flashes on the 'Map Settings' option.
2) Press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to select the 'Airspace' Group, if necessary, and press the **ENT** Key.
4) Turn the large **FMS** Knob to select the 'Airspace ALT LBL' Field.
5) Turn the small **FMS** Knob to select 'On' to display labels and 'Off' to remove labels.
6) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

NEAREST AIRSPACE

Enabling/disabling airspace alerts:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the desired field in the 'Airspace Alerts' Box.
4) Turn the small **FMS** Knob clockwise to turn the airspace alert On or counterclockwise to turn the alert Off.
5) Push the **FMS** Knob to remove the flashing cursor.

Changing the altitude buffer distance setting:

1) Use the **FMS** Knob to select the 'Aux – System Setup 1' Page (**Setup 1** Softkey).
2) Push the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'Altitude Buffer' Field in the 'Airspace Alerts' Box.
4) Use the **FMS** Knobs or keypad to enter an altitude buffer value and press the **ENT** Key.
5) Push the **FMS** Knob to remove the flashing cursor.

Selecting and viewing an airspace alert with its associated information:

1) Use the **FMS** Knob to select the 'NRST – Nearest Airspaces' Page.
2) Press the **Alerts** Softkey on the MFD; or push the **FMS** Knob; or press the **MENU** Key, highlight 'Select Alerts Window', and press the **ENT** Key. The cursor is placed in the 'Airspace Alerts' Box.
3) Use the **FMS** Knob to highlight the desired airspace.
4) Push the **FMS** Knob to remove the flashing cursor.

SMART AIRSPACE

Turning smart airspace on or off:

1) Use the **FMS** Knob to select the 'Map – Navigation Map' Page.
2) Press the **MENU** Key, and press the **ENT** Key. The 'Map Settings' Window is displayed.
3) Turn the small **FMS** Knob to highlight the 'Airspace' and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the 'Smart Airspace' Field.
5) Turn the small **FMS** Knob clockwise to turn smart airspace On or counterclockwise to turn smart airspace Off.
6) Push the **FMS** Knob to remove the flashing cursor.

DIRECT-TO-NAVIGATION

Entering a waypoint identifier, facility name, or city as a direct-to destination:

1) Press the D▸ Key. The 'Direct To' Window is displayed (with the active flight plan waypoint as the default selection or a blank waypoint field if no flight plan is active).
2) Turn the small **FMS** Knob clockwise to begin entering a waypoint identifier (turning it counter-clockwise brings up the waypoint selection submenu – press the **CLR** Key to remove it), or use the keypad to begin entering a waypoint identifier, or turn the large **FMS** Knob to select the facility name, or city field and turn the small **FMS** Knob or use the keypad to begin entering a facility name or city. If duplicate entries exist for the entered facility or city name, additional entries can be viewed by turning the small **FMS** Knob during the selection process.

3) Press the **ENT** Key. 'Activate?' is highlighted.
4) Press the **ENT** Key to activate the direct-to.

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

1) While navigating an active flight plan, press the D▸ Key. The 'Direct To' Window is displayed with the active flight plan waypoint as the default selection.
2) Turn the small **FMS** Knob counter-clockwise to display the waypoint submenu window with a list of flight plan waypoints.
3) Turn the large **FMS** Knob to select the desired waypoint.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Or:

1) Press the **FPL** Key.
2) Select the desired waypoint.
3) Press the D▸ Key.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Selecting a Nearest, Recent or User waypoint as a direct-to destination:

1) Press the D▸ Key. The 'Direct To' Window is displayed (with the active flight plan destination as the default selection or a blank destination if no flight plan is active).
2) Turn the small **FMS** Knob counter-clockwise to display the waypoint submenu window.
3) Turn the small **FMS** Knob clockwise to display the Nearest, Recent or User waypoints.
4) Turn the large **FMS** Knob clockwise to select the desired waypoint.
5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
6) Press the **ENT** Key again to activate the direct-to.

Selecting any waypoint as a direct-to destination:

1) Select the page or window containing the desired waypoint type and select the desired waypoint.

2) Press the ⊣D▸ Key to display the 'Direct To' Window with the selected waypoint as the direct-to destination.
3) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
4) Press **ENT** again to activate the direct-to.

Selecting a nearby airport as a direct-to destination:

1) Press the **Nearest** Softkey on the PFD; or turn the **FMS** Knob to display the 'NRST – Nearest Airports' Page on the MFD and push the **FMS** Knob.
2) Use the **FMS** Knob to select the desired airport (the nearest one is already selected).
3) Press the ⊣D▸ Key.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Selecting a manual direct-to course:

1) Press the ⊣D▸ Key. The 'Direct To' Window is displayed.
2) Turn the large **FMS** Knob to highlight the 'CRS' or 'Course' Field.
3) Use the small **FMS** Knob or keypad to enter the desired course.
4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
5) Press the **ENT** Key again to activate the direct-to.

Reselecting the direct course from the current position:

1) Press the ⊣D▸ Key. The 'Direct To' Window is displayed.
2) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
3) Press the **ENT** Key again to activate the direct-to.

Selecting a waypoint as a direct-to destination using the pointer:

1) From a navigation map page, push the **Joystick** to display the pointer.
2) Move the **Joystick** to place the pointer at the desired destination location.
3) If the pointer is placed on an existing airport, NAVAID, VRP, or user waypoint, the waypoint name is highlighted.
4) Press the ⊣D▸ Key to display the 'Direct To' Window with the selected point entered as the direct-to destination.
5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
6) Press the **ENT** Key again to activate the direct-to.

Cancelling a Direct-to:

1) Press the D▸ Key to display the 'Direct To' Window.
2) Press the **MENU** Key.
3) With 'Cancel Direct-To NAV' highlighted, press the **ENT** Key. If a flight plan is still active, the system resumes navigating the flight plan along the closest leg.

FLIGHT PLANNING

FLIGHT PLAN DISPLAY

Displaying/removing the active flight plan progress on the navigation map:

1) Select the 'Map – Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **FPL PROG** Softkey to display the active flight plan progress.
5) To remove the active flight plan progress from the navigation map, press the **Off** Softkey.

Flight Plan Views

Changing the flight plan view:

1) Turn the **FMS** Knob to display the 'FPL – Active Flight Plan' Page or the 'FPL – Standby Flight Plan' Page.
2) Press the **View** Softkey to display the **Wide**, **Narrow**, **Leg-Leg**, and **CUM** Softkeys.
3) Press the **CUM** Softkey to view cumulative waypoint distance, or press the **Leg-Leg** Softkey to view leg-to-leg waypoint distance.
4) Press the **Wide** Softkey to display the wide view, or press the **Narrow** Softkey to display the narrow view.
5) Press the **Back** Softkey to return to the top level flight plan softkeys.

Split Screen

Enabling/Disabling split screen mode from the 'FPL – Active Flight Plan' Page:

1) Press the **FPL** Key on the MFD to display the 'FPL – Active Flight Plan' Page.

2) Press the **Charts** Softkey. If necessary, press the **CHRT Opt** Softkey and press the **Full SCN** Softkey to disable full screen mode. Split screen mode is now enabled showing two display panes. The Chart Pane is highlighted by a dark purple border indicating it is the active pane.
3) To quickly view the chart corresponding to the active flight plan leg, press the **Sync** Softkey.
4) Press the **Charts** Softkey again to disable split screen mode.

Displaying the flight plan map on the 'FPL – Active Flight Plan' Page in split screen mode:

1) Press the **FPL** Key on the MFD to display the 'FPL – Active Flight Plan' Page.
2) Press the **Charts** Softkey. If necessary, press the **CHRT Opt** Softkey and press the **Full SCN** Softkey to disable full screen mode. Split screen mode is now enabled showing two display panes. The Chart Pane is highlighted by a dark purple border indicating it is the active pane.
3) Use the **Joystick** to select the 'Active Flight Plan' Pane as the active pane.
4) Press the **MENU** Key. 'Show Flight Plan Map' is highlighted. Press the **ENT** Key.
5) To remove the Flight Plan Map, press the **MENU** Key and select 'Hide Flight Plan Map'. Press the **ENT** Key.

Changing the flight plan map orientation in split screen mode:

1) If necessary, use the **Joystick** to select the 'FPL – Active Flight Plan' Pane as the active display pane.
2) Press the **MENU** Key. Turn the **FMS** Knob to highlight 'FPL Map Orientation to (Track Up, HDG Up, North Up)'.
3) Press the **ENT** Key to select the orientation setting and return to the 'FPL – Active Flight Plan' Pane.
4) Repeat steps 2 through 3 to cycle through the different orientation settings.

CREATING A FLIGHT PLAN

Creating an active, standby, or stored flight plan:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

   Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.

b) Press the **New** Softkey; or press the **MENU** Key, highlight 'Create New Flight Plan', and press the **ENT** Key to display a blank flight plan for the first empty storage location.

2) If the system auto-designated the Origin, proceed to Step 3.

Or:

Enter or modify the origin airport and runway as follows:

a) Select the field below the Origin header to enter the origin airport identifier.

b) Use the **FMS** Knob, alphanumeric keypad, or the waypoint submenu to enter the identifier, facility, or city name of the airport.

c) Press the **ENT** Key. The 'Set Runway' Window is displayed with the 'Runway' Field highlighted.

d) Turn the small **FMS** Knob to select the runway, and press the **ENT** Key.

e) Press the **ENT** Key again to add the airport/runway to the flight plan.

3) Select the destination airport and runway by highlighting the field below the Destination header and completing steps 2b – 2e.

4) Select the enroute waypoints:

a) Select the location to insert the waypoint.

b) Use the **FMS** Knob, alphanumeric keypad, or the waypoint submenu to enter the identifier, facility, or city name of the waypoint.

c) Press the **ENT** Key. The flight plan is modified as each waypoint is entered.

5) Repeat step number 4 to enter each additional enroute waypoint.

6) When all waypoints have been entered, push the **FMS** Knob to remove to deactivate the cursor.

FLIGHT PLAN WAYPOINT AND AIRWAY MODIFICATIONS

Flight Plan Waypoints

Adding a waypoint to the flight plan:

1) For the active flight plan, press the **FPL** Key.
Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.
Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the location to insert the waypoint.

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

4) Enter the identifier, facility, or city name of the waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The flight plan is modified as each waypoint is entered.

Creating and adding user waypoints to the flight plan using the map pointer on the MFD:

1) For an active flight plan, press the **FPL** Key.
Or:

For a standby flight plan, press the **FPL**. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.
Or:

For a stored flight plan:

a) Press the **FPL** Key. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the location to insert the waypoint.

3) Push the **Joystick** on the MFD to activate the panning function on the flight plan map and pan to the location of the desired user waypoint.

4) Press the **LD WPT** Softkey; or press the **MENU** Key, select 'Load Waypoint', and press the **ENT** Key. The user waypoint is created with a name of MAPxxx (using the next available in sequence) and is added to the flight plan.

Removing an individual waypoint from the flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the waypoint to be removed.

3) Press the **CLR** Key. The 'Remove XXXXX?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to remove the flashing cursor.

Designating a fly-over waypoint:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the location to insert the waypoint.

3) Press the **MENU** Key, highlight 'Set Fly-Over Waypoint', and press the **ENT** Key. The 'Set <waypoint> to be a fly-over waypoint?' Window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) To change the waypoint back to a fly-by waypoint, highlight the desired waypoint. Press the **MENU** Key, highlight 'Set Fly-By Waypoint', and press the **ENT** Key. The 'Set <waypoint> to be a fly-by waypoint?' Window is displayed. With 'OK' highlighted, press the **ENT** Key.

Flight Plan Airways

Adding an airway to the flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the location to insert the waypoint. If there is no valid airway entry waypoint in the flight plan, one must be entered first.

3) Turn the small **FMS** Knob on the MFD one click clockwise and press the **LD AIRWY** Softkey, or press the **MENU** Key for the and select "Load Airway"(PFD or MFD). The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when a valid airway entry waypoint has already been entered in the flight plan.

4) Turn the **FMS** Knob to highlight the desired airway from the list, and press the **ENT** Key. Low altitude airways are shown first in the list, followed by "all" altitude airways, and then high altitude airways.

5) Turn the **FMS** Knob to highlight the desired airway exit point from the list, and press the **ENT** Key. 'Load?' is highlighted.

6) Press the **ENT** Key. The system returns to editing the flight plan with the new airway inserted.

Removing an entire airway from the flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the header of the airway to be removed.

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

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to remove the flashing cursor.

Collapsing/expanding the airways in the flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, highlight 'Collapse Airways' or 'Expand Airways', and press the **ENT** Key. The airways are collapsed/expanded.

FLIGHT PLAN OPERATIONS

Activating a Flight Plan Leg

Activating a flight plan leg:

1) Press the **FPL** Key.

2) Select the end waypoint for the desired leg.

3) Press the **ACT Leg** Softkey (MFD only); or press the **MENU** Key, highlight 'Activate Leg', and press the **ENT** Key. A confirmation window is displayed with 'Activate' highlighted.

4) Press the **ENT** Key to activate the flight plan leg. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to deactivate the flashing cursor.

Utilizing the Standby Flight Plan

Viewing the active and standby flight plan:

For the active flight plan, press the **FPL** Key. The active flight plan may be viewed on either the PFD or the MFD.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

Copy the active flight plan to the standby flight plan:

1) Press the **FPL** Key on the MFD to display the active flight plan.

2) Press the **Menu** Key. Turn the **FMS** Knob to highlight 'Copy to Standby Flight Plan'.

3) Press the **ENT** Key. If a standby flight plan already exists, the message 'Copy to Standby Flight Plan and Replace Current Standby Flight Plan?' is displayed. Press the **ENT** Key to continue. The 'FPL – Standby Flight Plan' Page is displayed showing the copied flight plan.

Activating the standby flight plan:

1) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL - Standby Flight Plan' Page.

2) Press the **Activate** Softkey.

3) If an active flight plan already exists, the message 'Activate standby flight plan and replace current active route?' is displayed. Press the **ENT** Key to continue. The 'FPL – Active Flight Plan' Page is displayed showing the copied flight plan.

Linking aircraft present position ('Join from Present Position') to the standby flight plan:

1) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL - Standby Flight Plan' Page.

2) Push the **FMS** Knob to activate the flashing cursor. Turn the large **FMS** Knob to highlight the desired waypoint for linking the aircraft present position to.

3) Press the **Menu** Key. Turn the **FMS** Knob to highlight 'Join From Present Position'.

4) Press the **ENT** Key. The 'P. POS' reference is added to the standby flight plan prior to the linked waypoint. To change the waypoint that P. POS is linked to, repeat steps 2-4 for the desired waypoint.

Removing P. POS link from the standby flight plan:

1) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL - Standby Flight Plan' Page.

2) Push the **FMS** Knob to activate the flashing cursor. Turn the large **FMS** Knob to highlight the 'P. POS' reference.

3) Press the **CLR** Key. The message, 'Remove Link?' is displayed. Press the **ENT** Key to remove the link from the standby flight plan.

Along Track Offsets

Entering an along track offset distance:

1) For the active flight plan, press the **FPL** Key.

   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

2) Select the waypoint for the along track offset.

3) Press the **ATK OFS** Softkey (MFD only); or press the **MENU** Key, highlight 'Create ATK Offset Waypoint', and press the **ENT** Key.

4) Enter a positive or negative offset distance in the range of ±1 to 999 nm (offset must fall between the first and last waypoint within the flight plan).

5) Press the **ENT** Key to create the offset waypoint.

6) Push the **FMS** Knob to deactivate the flashing cursor.

Removing an along track offset distance:

1) For the active flight plan, press the **FPL** Key.

   Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

2) Turn the large **FMS** Knob to highlight the along track offset.

3) Press the **CLR** Key. The 'Remove VNAV along-track waypoint' Window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Entering a VNV altitude and along-track offset for the waypoint:

1) Press the D▸ Key to display the 'Direct To' Window.

2) Turn the large **FMS** Knob to place the cursor in the altitude field ('VNV' or 'ALT').

3) Enter the desired altitude.

4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an airport, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.

5) The cursor is now flashing in offset distance field.

6) Enter the desired along-track distance.

7) Press the **ENT** Key. 'Activate?' is highlighted.

8) Press the **ENT** Key to activate.

Removing an altitude constraint from an along track offset:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

2) Select the altitude constraint for along track offset.

3) Press the **CLR** Key. The 'Remove VNV altitude?' Window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Closest Point of FPL

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

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, highlight 'Closest Point Of FPL", and press the **ENT** Key. A window appears with the reference waypoint field highlighted.

3) Enter the identifier of the reference waypoint and press the **ENT** Key. The system displays the bearing (BRG) and distance (DIS) to the closest point along the flight plan to the selected reference waypoint and creates a user waypoint at this location. The name for the new user waypoint is derived from the identifier of the reference waypoint.

Parallel Track

Activating parallel track:

1) Press the **FPL** Key.

2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The 'Parallel Track' Window is displayed with the 'Direction' Field highlighted.

3) Turn the small **FMS** Knob to select 'LEFT' or 'RIGHT' and press the **ENT** Key. The 'Distance' Field is highlighted.

4) Turn the small **FMS** Knob or use the keypad to enter a distance from 1-99 nm and press the **ENT** Key. 'Activate Parallel Track' is highlighted.

5) Press the **ENT** Key to activate parallel track. Push the **FMS** Knob or the **CLR** Key to cancel the parallel track activation.

Cancelling parallel track:

1) Press the **FPL** Key.
2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The 'Parallel Track' Window is displayed with 'Cancel Parallel Track?' highlighted.
3) Press the **ENT** Key.

User-Defined Holding Patterns

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

1) For the active flight plan, press the **FPL** Key.

   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the waypoint for the hold.
3) Press the **MENU** Key, highlight 'Hold At Waypoint', and press the **ENT** Key. The 'Hold at' Window appears with the course field highlighted.
4) Use the **FMS** Knobs to edit the course, and press the **ENT** Key.
5) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
6) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
7) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
8) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.

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

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

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

1) Press the **FPL** Key.

2) Press the **MENU** Key, highlight 'Hold At Present Position', and press the **ENT** Key. The 'Hold at' Window appears with the course field highlighted.

3) If desired, use the **FMS** Knobs to edit the course, and press the **ENT** Key.

4) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.

5) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.

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

7) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.

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

9) Press the **ENT** Key while 'Activate?' is highlighted to create an Offroute Direct-to hold waypoint at the aircraft present position and activate the hold.

Creating a user-defined hold at a direct-to waypoint:

1) Press a D→ Key and set up the direct-to waypoint as desired, then select 'Hold?' when finished.

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

3) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.

4) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.

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

6) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.

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

8) Press the **ENT** Key while 'Activate?' is highlighted to activate the direct-to with the user-defined hold defined at the direct-to waypoint. (If the direct-to waypoint is part of the active flight plan, 'HOLD' is inserted into the active flight plan. If the direct-to waypoint is not part of the active flight plan, an off-route direct-to hold is created.)

Exiting a user-defined hold inserted into the active flight plan:

Press the **SUSP** Softkey. The system will provide guidance to follow the holding pattern to the inbound course and resume automatic waypoint sequencing.

Removing a user-defined hold from the flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

- **a)** Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
- **b)** Turn the **FMS** Knob to highlight the desired flight plan.
- **c)** Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Turn the large **FMS** Knob to highlight the 'HOLD' in the flight plan.

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

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

Removing a user-defined hold at an off-route direct-to:

1) Press a D→ Key to display the 'Direct To' Window.

2) Press the **MENU** Key to display the 'Page Menu' Window with the cursor on the 'Cancel Direct-To NAV' selection.

3) Press the **ENT** Key. The holding pattern is removed.

MANAGING FLIGHT PLANS

Ignoring a pending flight plan transferred from a mobile device:

1) When a flight plan transfer has been initiated from a mobile device, a 'PENDING FLIGHT PLAN' pop-up alert appears in the lower right corner of the MFD, and a Connext annunciation appears to the right of the MFD page title.
2) Press the **CLR** Key to remove the pop-up alert and ignore the pending flight plan. The pending flight plan will still be available on the 'FPL – Flight Plan Catalog' Page.

   Or:

   Press the **Ignore** Softkey to remove the pop-up alert and ignore the pending flight plan. The pending flight plan will still be available on the 'FPL – Flight Plan Catalog' Page.

Previewing a pending flight plan transferred from a mobile device:

1) When a flight plan transfer has been initiated from a mobile device, a 'PENDING FLIGHT PLAN' pop-up alert appears in the lower right corner of the MFD, and a Connext annunciation appears to the right of the MFD page title.
2) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.

   Or:

   Press the **Preview** Softkey to display the 'FPL – Preview Flight Plan' Page on the MFD.

Storing a pending flight plan transferred from a mobile device:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the **FMS** Knob to highlight the pending flight plan.
5) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.
6) Press the **Store** Softkey to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

Activating a pending flight plan transferred from a mobile device:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the pending flight plan.
3) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.
4) Press the **Activate** Softkey. The 'Activate Flight Plan?' window is displayed.
5) With 'OK' highlighted, press the **ENT** Key to activate the pending flight plan. The pending flight plan becomes the active flight plan and is removed from the 'FPL – Flight Plan Catalog' Page. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting a pending flight plan:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Push the **FMS** Knob to activate the cursor.
4) Turn the **FMS** Knob to highlight the desired pending flight plan.
5) Press the **Delete** Softkey. The 'Delete Flight Plan XX?' window is displayed.

   Or:

   Press the **CLR** Key. The 'Delete Flight Plan XX?' window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to delete the pending flight plan. The pending flight plan is removed from the 'FPL – Flight Plan Catalog' Page. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting all pending flight plans:

1) Press the **FPL** Key.
2) Turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.
3) Press the **MENU** Key.
4) Turn the **FMS** Knob to highlight 'Delete All Pending'.
5) Press the **ENT** Key. A 'Delete all pending flight plans?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to delete all pending flight plans. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

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) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page on the MFD.
3) Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
4) Push the **FMS** Knob to activate the cursor.
5) Turn either **FMS** Knob to highlight an empty or existing flight plan.
6) Press the **Import** Softkey; or press the **MENU** Key, select "Import Flight Plan", and press the **ENT** Key.

   If an empty slot is selected, a list of the available flight plans on the SD card will be displayed.

   Or:

   If an existing flight plan is selected, an "Overwrite existing flight plan? OK or Cancel" prompt is displayed. Press the **ENT** Key to choose to overwrite the selected flight plan and see the list of available flight plans on the SD card. If overwriting the existing flight plan is not desired, select "Cancel" using the **FMS** Knob, press the **ENT** Key, select another flight plan slot, and press the **Import** Softkey again.
7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.
8) Press the **ENT** Key to initiate the import.
9) Press the **ENT** Key again to confirm the import.

Exporting a flight plan to an SD Card:

1) Insert the SD card into the top card slot on the MFD.
2) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page on the MFD.
3) Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
4) Push the **FMS** Knob to activate the cursor.
5) Turn the large **FMS** Knob to highlight the flight plan to be exported.
6) Press the **Export** Softkey; or press the **MENU** Key, select "Export Flight Plan".
7) If desired, change the name for the exported file by turning the large **FMS** Knob to the left to highlight the name, then use the small and large **FMS** knobs or keypad to enter the new name, and press the **ENT** Key.

8) Press the **ENT** Key to initiate the export.

9) Press the **ENT** Key to confirm the export.

Inverting the Active Flight Plan

Inverting the active flight plan:

1) Press the **FPL** Key.

2) Press the **MENU** Key, highlight 'Invert Flight Plan', and press the **ENT** Key. An 'Invert Active Flight Plan?' confirmation window is displayed.

3) Highlight 'OK'.

4) Press the **ENT** Key to invert and activate the active flight plan. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting the active or standby flight plan:

1) For the active flight plan, press the **FPL** Key.

   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

2) Press the **MENU** Key, highlight 'Delete Flight Plan', and press the **ENT** Key. The 'Delete all waypoints in flight plan?' window is displayed.

3) With 'OK' highlighted, press the **ENT** Key to delete the active flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Viewing information about a stored flight plan:

1) Press the **FPL** Key on the MFD.

2) Turn the small **FMS** Knob clockwise one click to display the 'FPL – Flight Plan Catalog' Page.

3) Push the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the desired flight plan.

4) Information is displayed in the 'Flight Plan Info' Box showing departure, destination, total distance, and enroute safe altitude information for the selected flight plan.

5) Press the **Edit** Softkey to open the 'FPL – Stored Flight Plan' Page and view the waypoints in the flight plan.

6) Push the **FMS** Knob to exit the 'FPL – Stored Flight Plan' Page.

Storing an active flight plan or a standby flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

2) Press the **MENU** Key. Highlight 'Store Flight Plan'.

3) Press the **ENT** Key.

4) With 'OK' highlighted, press the **ENT** Key. The flight plan is stored in the next available position in the flight plan list on the 'FPL – Flight Plan Catalog' Page.

Activating a stored flight plan on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.

3) Press the **Activate** Softkey; or press the **ENT** Key twice; or press the **MENU** Key, highlight 'Activate Flight Plan', and press the **ENT** Key. The 'Activate stored flight plan?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key.

Inverting and activating a stored flight plan on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.

3) Press the **Invert** Softkey; or press the **MENU** Key, highlight 'Invert & Activate FPL?', and press the **ENT** Key. The 'Invert and activate stored flight plan?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Copying a stored flight plan to another flight plan memory slot, on the MFD:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.

3) Press the **Copy** Softkey; or press the **MENU** Key, highlight 'Copy Flight Plan', and press the **ENT** Key. The 'Copy to Flight Plan XX?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to copy the flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting a stored flight plan:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Push the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.

3) Press the **Delete** Softkey; press the **CLR** Key; or press the **MENU** Key, highlight 'Delete Flight Plan', and press the **ENT** Key. The 'Delete Flight Plan #?' window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Deleting all stored flight plans:

1) Press the **FPL** Key and turn the small **FMS** Knob to display the 'FPL – Flight Plan Catalog' Page.

2) Press the **MENU** Key.

3) Highlight 'Delete All' and press the **ENT** Key. A 'Delete all flight plans?' confirmation window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to delete all flight plans. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Changing the flight plan comment:

1) For the active flight plan:

   Press the **FPL** Key.

   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the comment field.

3) Use the **FMS** Knobs or alphanumeric keys on the PFD/MFD Controller to edit the comment.

4) Press the **ENT** Key to accept the changes.

5) Push the **FMS** Knob to deactivate the flashing cursor.

VERTICAL NAVIGATION

Enabling and Disabling VNV guidance:

1) Press the **FPL** Key on the MFD.

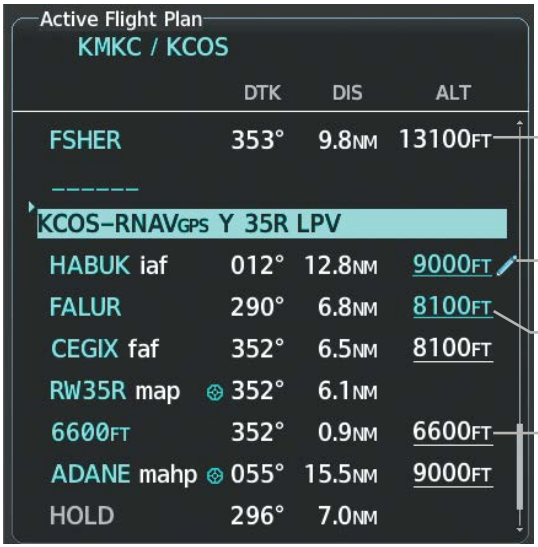
2) Press the **ENBL VNV** Softkey; or press the **MENU** Key, highlight 'Enable VNV', and press the **ENT** Key. Vertical navigation is enabled, and vertical guidance begins with the waypoint shown in the 'Active VNV Profile' Box (defaults first waypoint in the active flight plan with an altitude enabled for vertical navigation (e.g., FALUR)).

3) To disable VNV guidance, press the **Cncl VNV** Softkey; or press the **MENU** Key, highlight 'Cancel VNV', and press the **ENT** Key. Vertical navigation is disabled.

CONSTRAINTS

NOTE: *Initiating the VNV direct-to function to the FAF, manually specifying an FPA to the FAF, or manually creating an altitude constraint at the FAF will disrupt the VNV function from creating a lateral offset. Thus, the baro-VNV path may not intersect the approach descent path.*

Altitude Constraints



Altitude Constraint Examples

2300FT
Cross AT 2,300 ft

5000FT
Cross AT or ABOVE 5,000 ft

7000FT
5000FT
Cross AT or BETWEEN 5,000 ft and 7,000 ft

3000FT
Cross AT or BELOW 3,000 ft

6646FT
Temperature Compensated

White Text	Cyan Text
5000FT Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. 5000FT Altitude(s) retrieved from the navigation database. White line(s) above and/or below indicate the type of constraint as shown in the preceding figure. These altitudes are provided as a reference, and are not designated for vertical guidance.	8100FT Altitude is designated for vertical guidance. Cyan line(s) above and/or below indicate the type of constraint as shown in the preceding figure. A pencil icon indicates manual designation or manually modified data entry. 8100FT The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.

When a procedure is loaded, the system will auto-designate (automatically enter and enable) altitude constraints to be used for vertical guidance. An altitude constraint which has been auto-designated by the system will be displayed as cyan text.

An altitude constraint may be manually designated only if it is available for vertical guidance. Altitudes that are not available for vertical guidance are shown in white text and cannot be selected by the cursor.

NOTE: *If the Final Approach Fix (FAF) is available for vertical guidance, the FAF altitude constraint may be modified and set above or below the published FAF altitude.*

For all designated altitudes, the system will automatically calculate advisory altitudes prior to the designated altitude constraint. These advisory altitudes are not auto-designated and are displayed as white text.

Altitudes that have been designated for use in vertical guidance can be "un-designated". Pressing the **CLR** Key with the altitude constraint highlighted in the active flight plan removes the altitude constraint designation. The altitude will not be used for vertical guidance and the text displayed will be shown in white. The system will recalculate advisory altitudes (white text) when any altitude constraint is designated, modified, or un-designated.

An altitude constraint may be entered as a flight level (FL), height above mean sea level (MSL), or height above ground level (AGL). AGL format is only available for airport waypoints.

A designated altitude constraint may be rendered invalid if any of the following are true:

- Meeting the constraint requires the maximum flight path angle or maximum vertical speed to be exceeded
- Meeting the constraint requires the aircraft to climb
- The descent constraints are not sequentially descending.

Altitude constraints can be modified or deleted after having been added to the flight plan. If an altitude constraint is removed and the navigation database contains an altitude restriction for the lateral waypoint, the system will display that altitude restriction in white text. The system also provides a way to revert a published altitude constraint that has been modified.

Entering or modifying an altitude constraint:

1) Press the **FPL** Key on the MFD.

2) Select the desired waypoint altitude constraint field.

3) Edit the constraint using the **FMS** Knobs or alphanumeric keypad:
   a) Select the 'Type' Field and choose 'AT', 'ABOVE', 'BELOW', or 'BETWEEN' as the type of constraint and press the **ENT** Key to accept, the 'ALT' Field is now highlighted.
   b) Enter the desired altitude(s) and press the **ENT** Key. To enter altitudes as a flight level, turn the small **FMS** Knob counter-clockwise past zero or clockwise past 9 on the first character, and the system automatically changes to show units of Flight Level. Turn the large **FMS** Knob clockwise to highlight the first zero and enter the three digit flight level. To enter altitudes as a flight level using the keypad, enter 'F' as the first character.
4) Press the **ENT** Key to accept the constraint Type and Altitude. If the selected waypoint is an airport without a runway selected, an additional choice is displayed when entering QNH altitudes. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude. For AGL altitudes, a popup window will appear, requesting the confirmation of an AGL to MSL altitude value conversion. With 'OK' highlighted, press the **ENT** Key
5) Press the **ENT** Key to accept the altitude constraint.

Removing/undesignating an altitude constraint:

1) Press the **FPL** Key on the MFD.
2) Select the desired waypoint altitude constraint ('ALT').
3) Press the **CLR** Key. A 'Remove VNV altitude?' confirmation window is displayed.
4) Select 'OK' and press the **ENT** Key.

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

1) Press the **FPL** Key on the MFD.
2) Select the desired waypoint altitude constraint.
3) Press the **CLR** Key. A 'Remove or Revert to published VNV altitude of nnnnnFT?' confirmation window is displayed.
4) Select 'Revert' and press the **ENT** Key. The altitude is changed to the navigation database value.

Vertical Speed and Flight Path Angle Constraints

Modifying the VS TGT and FPA:

1) Press the **FPL** Key on the MFD.
2) Press the **VNV Prof** Softkey; or press the **MENU** Key, highlight 'Select VNV Profile Window', and press the **ENT** Key. The cursor is now located in the 'Active VNV Profile' Box.
3) Turn the **FMS** Knobs or use the alphanumeric keypad as needed to edit the values.
4) Push the **FMS** Knob to remove the flashing cursor.

Modifying the default FPA:

1) Use the **FMS** Knob and **Setup 2** Softkey to select the 'Aux - System Setup 2' Page.
2) Push the **FMS** Knob to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the 'DEFAULT FPA' Field in the 'VNV' Box.
4) Turn the small **FMS** Knob to set the desired flight path angle.

VERTICAL SITUATION DISPLAY (VSD)

Constraint Type	Numeric Representation	Altitude Constraint Icon
AT	3000FT	
AT or ABOVE	5000FT	
AT or BELOW	3000FT	
AT or BETWEEN	5000FT 3000FT	

Altitude Constraint Icons

VSD Mode Button	Displayed Mode	FPL Criteria	Items available on VSD
Auto	AUTO FPL	Available active FPL & aircraft within FPL swath	Terrain/obstacles along the active flight plan route, vertical track vector, selected altitude, and active flight plan information*
	AUTO TRK	(1) Active FPL available & aircraft not within FPL swath, or (2) Active FPL not available	Terrain/obstacles along the current track, vertical track vector, and selected altitude
Flight Plan	FPL	Active FPL available	Terrain/obstacles along the active flight plan route, vertical track vector, selected altitude, and active flight plan information*
		Active FPL not available	Only shows message 'Flight Plan Not Available'
Track	TRK	N/A	Terrain/obstacles along the current track, vertical track vector, and selected altitude

* Active flight plan information consists of waypoints, associated altitude constraints, current VNV profile, TOD/BOD, and destination runway

VSD Modes

VSD Messages

Under certain conditions, some messages may appear in conjunction with others.

Message	Description
'Loading…'	VSD is loading data due to a range change, full/half switch, or first being selected for display.
'Flight Plan Not Available'	Flight Plan mode is selected and there is not a flight plan loaded with at least one leg.
'Flight Plan mode unavailable because aircraft off course and active leg over 200 NM'	All of the following are true: - Flight Plan mode is selected - The active leg is greater than 200 nm - The aircraft is outside the swath
'Aircraft Beyond Active Leg'	Flight Plan mode is selected and the aircraft's position, as projected on the flight plan, is past the end of the active leg.

Message	Description
'VSD Not Available'	At least one of the following is true: - Valid terrain database not available - GPS MSL altitude not available - Current barometric altitude not available - Neither current track nor current heading available - GPS position not available - Map range setting is less than 1 nm
'VSD Data Old,. Deselect and Reselect VSD'	VSD data has failed to update for 2 seconds or more.

VSD System Messages

Enabling the Vertical Situation Display

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **VSD** Softkey to enable the Vertical Situation Display.
5) Press the VSD mode softkey to choose between **Auto**, **FPL**, or **TRK**.

Disabling the Vertical Situation Display

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **Off** Softkey.

VERTICAL NAVIGATION DIRECT TO

Activating a vertical navigation direct-to:

1) Press the **FPL** Key on the MFD.
2) Select the desired waypoint.
3) Press the **VNV** Softkey; or press the **MENU** Key, highlight 'VNV', and press the **ENT** Key. An 'Activate vertical to: NNNNNFT at XXXXXX?' confirmation window is displayed.
4) Press the **ENT** Key. Vertical guidance begins to the altitude constraint for the selected waypoint.
5) Push the **FMS** Knob to remove the flashing cursor.

Removing a VNV direct-to altitude constraint:

1) Press the ⊣D▸ Key to display the 'Direct To' Window.
2) Press the **MENU** Key.
3) With 'Clear Vertical Constraints' highlighted, press the **ENT** Key.

PROCEDURES

Viewing available procedures at an airport:

1) From the 'WPT - Airport Information' Page (**Info 1** Softkey):

   Press the **DP** Softkey. The 'WPT - Departure Information' Page is displayed, defaulting to the airport displayed on the 'WPT - Airport Information' Page.

   Or:

   Press the **STAR** Softkey. The 'WPT - Arrival Information' Page is displayed, defaulting to the airport displayed on the 'WPT - Airport Information' Page.

   Or:

   Press the **APR** Softkey. The 'WPT - Approach Information' Page is displayed, defaulting to the airport displayed on the 'WPT - Airport Information' Page.
2) To select another airport, Push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Turn the large **FMS** Knob to highlight the procedure. The procedure is previewed on the map.
4) Turn the small **FMS** Knob to view the available procedures. Press the **ENT** Key to select the procedure. The cursor moves to the next box (runway or transition). The procedure is previewed on the map.
5) Turn the small **FMS** Knob to view the available runway or transition. Press the **ENT** Key to select the runway or transition. The cursor moves to the next box (if available). The procedure is previewed on the map.
6) Turn the small **FMS** Knob to view the available runway or transition. Press the **ENT** Key to select the runway or transition. The cursor moves to the 'Sequence' Box or the 'Minimums' Box. The procedure is previewed on the map.
7) Press the **Info 1** Softkey to return to the 'WPT - Airport Information' Page.

DEPARTURES

Loading a departure into the active flight plan using the PROC Key:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Departure'.
3) Press the **ENT** Key. The 'PROC - Departure Loading' Page is displayed.
4) Use the **FMS** Knob to select an airport, if necessary, and press the **ENT** Key.
5) Select a departure from the list and press the **ENT** Key.
6) Select a runway (if required) and press the **ENT** Key.
7) Select a transition (if required) and press the **ENT** Key. 'Load?' is highlighted.
8) Press the **ENT** Key to load the departure procedure.

Loading a departure into the active flight plan from the 'WPT – Departure Information' Page:

1) From the 'WPT – Airport Information' Page (first page in the 'WPT' Page Group), press the **DP** Softkey. The 'WPT – Departure Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport information' Page.
2) To select another airport, push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Select a different departure, if desired.
   a) Turn the large **FMS** Knob to highlight the Departure. The departure is previewed on the map.
   b) Turn the small **FMS** Knob to view the available departures. Press the **ENT** Key to select the departure. The cursor moves to the 'Runway' Box. The departure is previewed on the map.
   c) Turn the small **FMS** Knob to view the available runways. Press the **ENT** Key to select the runway. The cursor moves to the 'Transition' Box (only if there are available transitions). The departure is previewed on the map.
   d) Turn the small **FMS** Knob to view the available transitions. Press the **ENT** Key to select the transition. The cursor moves to the 'Sequence' Box. The departure is previewed on the map.
4) Press the **MENU** Key to display the 'Page Menu' Window.

5) Turn the **FMS** Knob to highlight 'Load Departure'.

6) Press the **ENT** Key to load the departure procedure into the active flight plan.

Loading a departure procedure into a standby flight plan or a stored flight plan:

1) For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.
Or:

   For a stored flight plan:

   a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **LD DP** Softkey; or press the **MENU** Key, select 'Load Departure', and press the **ENT** Key. The 'PROC – Departure Loading' Page is displayed.

3) Select a departure. Press the **ENT** Key.

4) Select a runway served by the selected departure, if required. Press the **ENT** Key.

5) Select a transition for the selected departure. Press the **ENT** Key.

6) Press the **ENT** Key to load the selected departure procedure.

Removing a departure procedure from the active, standby, or stored flight plan:

1) For the active flight plan, press the **FPL** Key.

   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, and highlight 'Remove Departure'.

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

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

Or:

1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the departure header in the flight plan.

3) Press the **CLR** Key. A confirmation window is displayed listing the departure procedure.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to remove the flashing cursor.

ARRIVALS

Loading an arrival into the active flight plan using the PROC Key:

1) Press the **PROC** Key. The 'Procedures' Window is displayed.
2) Highlight 'Select Arrival'.
3) Press the **ENT** Key.
4) Use the **FMS** Knob to select an airport, if necessary, and press the **ENT** Key.
5) Select an arrival from the list and press the **ENT** Key.
6) Select a transition (if required) and press the **ENT** Key.
7) Select a runway (if required) and press the **ENT** Key. 'Load' is highlighted.
8) Press the **ENT** Key to load the arrival procedure.

Loading an arrival into the active flight plan from the 'WPT – Arrival Information' Page:

1) From the 'WPT – Airport Information' Page (first page in the 'WPT' Page Group), press the **STAR** Softkey. The 'WPT – Arrival Information' Page is displayed, defaulting to the airport displayed on the 'WPT – Airport Information' Page.
2) To select another airport, push the **FMS** Knob to activate the cursor, enter an identifier/facility name/city, and press the **ENT** Key.
3) Select a different arrival, if desired.
   a) Turn the large **FMS** Knob to highlight the arrival. The arrival is previewed on the map.
   b) Turn the small **FMS** Knob to view the available arrivals. Press the **ENT** Key to select the arrival. The cursor moves to the 'Transition' Box (only if there are available transitions). The arrival is previewed on the map.
   c) Turn the small **FMS** Knob to view the available transitions. Press the **ENT** Key to select the transition. The cursor moves to the 'Runway' Box. The arrival is previewed on the map.
   d) Turn the small **FMS** Knob to view the available runways. Press the **ENT** Key to select the runway. The cursor moves to the 'Sequence' Box. The arrival is previewed on the map.
4) Press the **MENU** Key to display the Arrival Information 'Page Menu' Window.

5) Turn the **FMS** Knob to highlight 'Load Arrival'.

6) Press the **ENT** Key to load the arrival procedure into the active flight plan.

Loading an arrival procedure into the standby flight plan or stored flight plan:

1) For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

   Or:

   For a stored flight plan:

   a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

   c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **LD STAR** Softkey; or press the **MENU** Key, select 'Load Arrival', and press the **ENT** Key. The 'PROC – Arrival Loading' Page is displayed.

3) Select an arrival. Press the **ENT** Key.

4) Select a transition for the selected arrival. Press the **ENT** Key.

5) Select a runway served by the selected arrival, if required. Press the **ENT** Key.

6) Press the **ENT** Key to load the selected arrival procedure.

Removing an arrival from the active, standby, or stored flight plan:

1) For the active flight plan, press the **FPL** Key.
   Or:

   For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.
   Or:

   For a stored flight plan:

   a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, and highlight 'Remove Arrival'.

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

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

Or:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the arrival header in the active flight plan.

3) Press the **CLR** Key. A confirmation window is displayed listing the arrival procedure.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to remove the flashing cursor.

APPROACHES

Instrument Approach

WARNING: *Do not use geometric altitudes 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.*

HSI Annunciation	Description
LNAV	GPS approach using LNAV, VOR, or NDB MDA. Available only if GPS available. If GPS unavailable, abort.
LNAV+V	GPS approach using LNAV, VOR, or NDB MDA with advisory vertical guidance. Available only if GPS available. If GPS unavailable, abort.
L/VNAV	GPS approach using LNAV/VNAV DA. Available with Baro/VNAV or SBAS availability. If both SBAS and Baro/VNAV unavailable, downgrades to published LNAV MDA.
LP	GPS approach using LP MDA. Available only if SBAS available. If SBAS unavailable, downgrades to published LNAV MDA.
LP+V	GPS approach using LP MDA with advisory vertical guidance. Available only if SBAS available. If SBAS unavailable, downgrades to published LNAV MDA.
LPV	GPS approach using LPV DA. Available only if SBAS available. If SBAS unavailable, downgrades to L/VNAV published DA if Baro/VNAV available. Without Baro-VNAV or if after the FAF, downgrades to published LNAV MDA.

Approach Service Levels and Downgrades

Approach Selection and Removal

Loading an approach into the active flight plan using the PROC Key:

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

2) Highlight 'Select Approach', and press the **ENT** Key.

3) Select the airport and approach:

a) Use the **FMS** Knob to select an airport, if necessary, and press the **ENT** Key.

b) Select an approach from the list and press the **ENT** Key.

Or:

a) If necessary, on the MFD, push the **FMS** Knob to exit the approach list, and use the large **FMS** Knob to move the cursor to the 'Approach Channel' Field.

b) Use the **FMS** Knob or keypad to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.

4) Select a transition (if required) and press the **ENT** Key.

5) Minimums

a) To set 'Minimums', turn the small **FMS** Knob to select 'BARO' or 'TEMP COMP' and press the **ENT** Key. Turn the small **FMS** Knob to select the altitude, and press the **ENT** Key.

b) If 'TEMP COMP' was selected, the cursor moves to the temperature field. Turn the small **FMS** Knob to select the temperature, and press the **ENT** Key.

Or:

To skip setting minimums, press the **ENT** Key.

6) Press the **ENT** Key with 'Load' highlighted to load the approach procedure; or turn the large **FMS** Knob to highlight 'Activate' and press the **ENT** Key to load and activate the approach procedure.

When a visual approach is selected, the message 'Obstacle clearance is not provided for visual approaches' is displayed. With 'OK' highlighted, press the **ENT** Key.

Loading an approach into the active flight plan from the 'NRST - Nearest Airports' Page:

1) Select the 'NRST - Nearest Airports' Page.

2) Push the **FMS** Knob, then turn the large **FMS** Knob to highlight the desired nearest airport. The airport is previewed on the map.

3) Press the **APR** Softkey; or press the **MENU** Key, highlight 'Select Approach Window', and press the **ENT** Key.

4) Turn the **FMS** Knob to highlight the desired approach.

5) Press the **LD APR** Softkey; or press the **MENU** Key, highlight 'Load Approach', and press the **ENT** Key. The 'PROC - Approach Loading' Page is displayed with the transitions field highlighted.

6) Turn the **FMS** Knob to highlight the desired transition, and press the **ENT** Key.

7) Minimums

a) To set 'Minimums', turn the small **FMS** Knob to select 'BARO' or 'TEMP COMP' and press the **ENT** Key. Turn the small **FMS** Knob to select the altitude, and press the **ENT** Key.

b) If 'TEMP COMP' was selected, the cursor moves to the temperature field. Turn the small **FMS** Knob to select the temperature, and press the **ENT** Key.

Or:
To skip setting minimums, press the **ENT** Key. The 'LOAD?' Field is highlighted.

8) Press the **ENT** Key with 'Load?' highlighted to load the approach procedure; or turn the large **FMS** Knob to highlight 'Activate?' and press the **ENT** Key to load and activate the approach procedure.

When a visual approach is selected, the message 'Obstacle clearance is not provided for visual approaches' is displayed. With 'OK' highlighted, press the **ENT** Key.

Loading an approach procedure into a standby flight plan or a stored flight plan:

1) For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **LD APR** Softkey; or press the **MENU** Key, select "Load Approach", and press the **ENT** Key. The 'PROC – Approach Loading' Page is displayed.

3) Select the airport and approach:

a) Use the **FMS** Knob to select an airport and press the **ENT** Key.

b) Select an approach from the list and press the **ENT** Key.

Or:

a) If necessary, push the **FMS** Knob to exit the approach list, and use the large **FMS** Knob to move the cursor to the Approach 'Channel' Field.

b) Use the **FMS** Knob or keypad to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.

4) Select a transition for the selected approach. Press the **ENT** Key.

5) Press the **ENT** Key to load the selected approach procedure.

Activating a previously loaded approach:

1) Press the **PROC** Key. The 'Procedures' Window is displayed with 'Activate Approach' highlighted.

2) Press the **ENT** Key to activate the approach.

Activating a previously loaded approach with vectors to final:

1) Press the **PROC** Key to display the 'Procedures' Window.

2) Highlight 'Activate Vector-to-Final' and press the **ENT** Key.

Loading and activating an approach using the MENU Key:

1) Press the **PROC** Key.

2) Use the large **FMS** Knob to highlight 'Select Approach' and press the **ENT** Key.

3) From the 'PROC – Approach Loading' Page, press the **MENU** Key on the MFD. The 'Page Menu' Window is displayed with 'Load & Activate Approach' highlighted.

4) Press the **ENT** Key.

When a visual approach is selected, the message 'Obstacle clearance is not provided for visual approaches' is displayed. With 'OK' highlighted, press the **ENT** Key.

Removing an approach from the active flight plan:

1) Press the **FPL** Key.

2) Press the **MENU** Key, and highlight 'Remove Approach'.

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

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'CANCEL' and press the **ENT** Key.

Removing an approach from the active, standby, or stored flight plan:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Press the **MENU** Key, and highlight 'Remove Approach'.

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

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'Cancel' and press the **ENT** Key.

Or:

1) For the active flight plan, press the **FPL** Key.

Or:

For the standby flight plan, press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Standby Flight Plan' Page and push the **FMS** Knob to activate the cursor.

Or:

For a stored flight plan:

a) Press the **FPL** Key on the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.

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

c) Press the **EDIT** Softkey; or press the **ENT** Key, turn the large **FMS** Knob clockwise to select 'Edit' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the approach header in the active flight plan.

3) Press the **CLR** Key. A confirmation window is displayed listing the approach procedure.

4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'Cancel' and press the **ENT** Key.

5) Push the **FMS** Knob to deactivate the flashing cursor.

Missed Approach

Activating a missed approach in the active flight plan:

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

Or:

Press the Go-Around Button.

Or:

1) Press the **PROC** Key.

2) Turn the **FMS** Knob to highlight 'Activate Missed Approach'.

3) Press the **ENT** Key. The aircraft automatically sequences to the MAHP.

Temperature Compensated Altitude

Manually setting temperature compensated for approach altitudes:

1) Press the **FPL** Key.

2) Press the **MENU** Key, the 'Page Menu' Window is displayed.

3) Turn the **FMS** Knob to highlight 'Temperature Compensation'.

4) Press the **ENT** Key. The 'Temperature Compensation' Window is displayed with the temperature highlighted.

5) Set the 'Temperature at <airport>' Field. The compensated altitude is computed as the temperature is selected.

6) Press the **ENT** Key. 'Activate Compensation?' is highlighted.

7) Press the **ENT** Key. The compensated altitudes for the approach are shown in the flight plan.

Cancelling temperature compensation setting for approach altitudes:

1) Press the **FPL** Key.
2) Press the **MENU** Key, the 'Page Menu' Window is displayed.
3) Turn the **FMS** Knob to highlight 'Temperature Compensation'.
4) Press the **ENT** Key. The 'Temperature Compensation' Window is displayed.
5) Press the **ENT** Key. 'Cancel Compensation?' is highlighted.
6) Press the **ENT** Key.

Entering a temperature compensated minimum into an approach:

1) From the 'FPL – Active Flight Plan' Page, press the **PROC** Key. The 'Procedures' Window is displayed.
2) Turn the large **FMS** Knob to highlight 'Select Approach'. Press the **ENT** Key.
3) Use the **FMS** Knob and the **ENT** Key to select the desired approach and transition.
4) Use the **FMS** Knob to place the flashing cursor in the 'Minimums' Box. Turn the small **FMS** Knob to select 'TEMP COMP'. Press the **ENT** Key.
5) Turn the small **FMS** Knob or use the keypad to enter the minimums altitude. Press the **ENT** Key. The cursor is placed in the 'TEMP AT <destination airport>' Field.
6) Turn the small **FMS** Knob or use the keypad to enter the temperature at the destination. Press the **ENT** Key.
7) Press the **ENT** Key to Load or Activate the approach. The approach is added to the active flight plan, and the temperature compensated minimums are displayed on the PFD.

WEIGHT PLANNING

Viewing the zoomed CG Graph:

1) From the 'Aux - Weight Planning' Page, press the **Graph** Softkey.
2) Press the **Zoom** Softkey to switch between the zoomed and normal view for the 'Station vs Weight' graph.

Entering aircraft load:

1) Push the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the desired field within the 'Aircraft Load' Box.
3) Turn the small **FMS** Knob or use the keypad to enter the weight.
4) Press the **ENT** Key to confirm the entry.
5) Repeat steps 2 through 4 until all seat, fluid, and baggage weight values are accurate.
6) Push the **FMS** Knob to remove the flashing cursor.

Entering the fuel on board weight on the 'Initial Usable Fuel' Page:

1) Press the **Fuel** Softkey to display the 'Initial Usable Fuel' Page.
2) Add or subtract fuel:

   Turn the **FMS** Knobs to match the fuel quantity.

   Or:

   Press the **Full** Softkey if the fuel tanks are full

   Or:

   Press the **Tabs** Softkey if the fuel level visually matches the physical tab level within each fuel tank.
3) Press the **ENT** Key or the **W&B** Softkey to return to the 'Aux - Weight and Balance' Page.
4) Press the **ENT** Key or the **Confirm** Softkey to confirm the 'Aux - Weight and Balance' Page entries, or press the **Undo** Softkey to remove any fuel quantity changes that were made.

Entering the fuel reserves weight:

1) Push the **FMS** Knob to activate the cursor and highlight the 'Fuel Reserves' Field.
2) Turn the small **FMS** Knob or use the keypad to enter the fuel reserves weight.
3) Press the **ENT** Key to confirm the entry.
4) Push the **FMS** Knob to remove the flashing cursor

WEIGHT AND BALANCE CAUTION AND WARNING CONDITIONS

If the Zero Fuel Weight is greater than the maximum allowable zero fuel weight, then the Zero Fuel Weight is displayed in amber.

If the Ramp Weight is greater than the maximum allowable ramp weight, then the Ramp Weight is displayed in amber.

If the Takeoff Weight is greater than the maximum allowable takeoff weight, then the Takeoff Weight is displayed in amber.

If the Current Weight is outside the envelope, then the Current Weight is displayed in amber.

If the Estimated Landing Weight is greater than the maximum allowable landing weight, then the Estimated Landing Weight is displayed in amber.

If the Estimated Landing Fuel weight is positive, but less than or equal to the Fuel Reserves weight, the following values are displayed in amber:

- Estimated Landing Fuel weight
- Excess Fuel weight

If the estimated landing fuel weight is zero or negative, then the following values are displayed in amber:

- Estimated Landing Fuel weight
- Excess Fuel weight

If the aircraft CG will lie outside the specified CG envelope at any time (to include remaining fuel burn calculated after landing), then the respective Take Off triangle, Current diamond, Fuel Burn line, and/or Landing square will be displayed in amber.

If the value for the 'Station' Field is outside of the specified CG envelope, then the data in the 'Station' Field will be displayed in amber.

TRIP PLANNING

Selecting automatic or manual page mode:

From the 'Aux - Trip Planning' Page, press the **Auto** Softkey or the **Manual** Softkey; or press the **MENU** Key, highlight 'Auto Mode' or 'Manual Mode', and press the **ENT** Key.

Selecting flight plan or waypoint mode:

From the 'Aux - Trip Planning' Page, press the **FPL** Softkey or the **WPTs** Softkey; or press the **MENU** Key, highlight 'Flight Plan Mode' or 'Waypoints Mode', and press the **ENT** Key.

Selecting a flight plan and leg for trip statistics:

1) From the 'Aux - Trip Planning' Page, Push the **FMS** Knob to activate the cursor in the 'FPL' Field.
2) Turn the small **FMS** Knob to select the desired flight plan number.
3) Turn the large **FMS** Knob to highlight 'CUM' or 'REM'. The statistics for each leg can be viewed by turning the small **FMS** Knob to select the desired leg. The Trip Planning map also displays the selected data.

Selecting waypoints for waypoint mode:

1) From the 'Aux - Trip Planning' Page, press the **WPTs** Softkey; or press the **MENU** Key, highlight 'Waypoints Mode', and press the **ENT** Key. The cursor is positioned in the waypoint field directly next to the 'FPL' Field.
2) Turn the **FMS** Knobs to select the desired waypoint (or press the **MENU** Key and highlight 'Set WPT to Present Position' if that is what is desired), and press the **ENT** Key. The cursor moves to the second waypoint field.
3) Turn the **FMS** Knobs to select the desired waypoint, and press the **ENT** Key. The statistics for the selected leg are displayed.

Entering manual data for trip statistics calculations:

1) From the 'Aux - Trip Planning' Page, press the **Manual** Softkey or select 'Manual Mode' from the 'Page Menu' Window, and press the **ENT** Key. The cursor may now be positioned in any field in the top right two boxes.
2) Turn the **FMS** Knobs to move the cursor onto the 'Departure Time' Field and enter the desired value. Press the **ENT** Key. The statistics are calculated using the new value and the cursor moves to the next entry field. Repeat until all desired values have been entered.

RAIM PREDICTION

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 at a selected waypoint:

1) Select the 'Aux - GPS Status' Page.
2) If necessary, press the **RAIM** Softkey.

3) Press the **FMS** Knob. The 'Waypoint' Field is highlighted.
4) Turn the small **FMS** Knob to display the 'Waypoint Information' Window.
5) Enter the desired waypoint:

   Use the **FMS** Knob to enter the desired waypoint by identifier, facility, or city name and press the **ENT** Key.

   Or:

   a) Turn the small **FMS** Knob counter-clockwise to display a list of flight plan waypoints (the FPL list is populated only when navigating a flight plan).

   b) Turn the small **FMS** Knob clockwise to display the Flight Plan, Nearest, Recent, or User waypoints, if required.

   c) Turn the large **FMS** Knob clockwise to select the desired waypoint. The system automatically fills in the identifier, facility, and city fields with the information for the selected waypoint.

   d) Press the **ENT** Key to accept the waypoint entry.
6) Use the **FMS** Knob to enter an arrival time and press the **ENT** Key.
7) Use the **FMS** Knob to enter an arrival date and press the **ENT** Key.
8) With the cursor highlighting 'Compute RAIM?', press the **ENT** Key. Once RAIM availability is computed, one of the following is displayed:
   - 'Compute RAIM?'—RAIM has not been computed for the current waypoint, time, and date combination
   - 'Computing Availability'—RAIM calculation in progress
   - 'RAIM Available'—RAIM is predicted to be available for the specified waypoint, time, and date
   - 'RAIM not Available'—RAIM is predicted to be unavailable for the specified waypoint, time, and date

Predicting RAIM availability at present position:

1) Select the 'Aux - GPS Status' Page.
2) If necessary, press the **RAIM** Softkey.
3) Press the **FMS** Knob. The 'Waypoint' Field is highlighted.

4) Press the **MENU** Key.
5) With 'Set WPT to Present Position' highlighted, press the **ENT** Key.
6) Press the **ENT** Key to accept the waypoint entry.
7) Use the **FMS** Knob to enter an arrival time and press the **ENT** Key.
8) Use the **FMS** Knob to enter an arrival date and press the **ENT** Key.
9) With the cursor highlighting 'Compute RAIM?', press the **ENT** Key. Once RAIM availability is computed, one of the following is displayed:
   - 'Compute RAIM?'—RAIM has not been computed for the current waypoint, time, and date combination
   - 'Computing Availability'—RAIM calculation in progress
   - 'RAIM Available'—RAIM is predicted to be available for the specified waypoint, time, and date
   - **'**RAIM not Available'—RAIM is predicted to be unavailable for the specified waypoint, time, and date

Enabling/Disabling SBAS

1) Select the AUX-GPS Status Page.
2) Press the **SBAS** Softkey.
3) Press the **FMS** Knob, and turn the large FMS Knob to highlight 'EGNOS', 'MSAS' or 'WAAS'.
4) Press the **ENT** Key to disable SBAS. Press the **ENT** Key again to enable SBAS.

Blank Page

HAZARD AVOIDANCE

DATA LINK WEATHER

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

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

ACTIVATING DATA LINK WEATHER SERVICES

Before SiriusXM Weather can be used, the service must be activated by providing SiriusXM's customer service the coded ID(s) unique to the installed data link receiver. The Data Radio ID must be provided to activate the weather service. An Audio Radio ID, if present, enables the receiver to provide SiriusXM Radio entertainment. If the GDL 69A SXM receiver is installed, these IDs may be identical. To view this information, refer to the following locations:

- The 'Aux - XM Information' Page on the MFD
- The SiriusXM Activation Instructions included with the Data Link Receiver
- The label on the back of the Data Link Receiver

SiriusXM uses the coded IDs to send an activation signal that allows the system to display weather data and/or provide audio entertainment programming through the data link receiver.

Establishing an account for SiriusXM services:

1) Select the XM Radio Page in the Auxiliary Page Group.
2) If necessary, press the **Info** Softkey to display the 'Aux - XM Information' Page.
3) Note the Data Radio ID (for SiriusXM Weather data) and/or the Audio Radio ID (for SiriusXM Satellite Radio). These IDs may be the same.
4) Contact SiriusXM customer service through the phone number listed on its website, www.siriusxm.com.

5) Provide SiriusXM customer service the Data Radio ID and/or Audio Radio ID, in addition to payment information, and the desired weather product subscription package.

Verifying the SiriusXM Weather service activation:

1) Once a SiriusXM Weather account has been established, select the XM Radio Page in the Auxiliary Page Group.
2) If necessary, press the **Info** Softkey to display the 'Aux - XM Information' Page.
3) View the list of supported Weather Products. A white empty box appears next to an unavailable weather product; a green filled box appears next to an available weather product. During activation, it may take several minutes for weather products in the selected subscription package to become available.

ACTIVATING GARMIN CONNEXT WEATHER

Obtaining the LRU serial numbers and System ID:

1) Select the 'Aux - System Status' Page.
2) Press the **LRU** Softkey.
3) Turn the **FMS** Knob to scroll the cursor until 'GSR 1' is visible in the 'LRU Information' window.
4) Note the serial number displayed for 'GSR 1'.
5) Press the **FMS** Knob to deactivate the cursor.

Registering the system to receive Garmin Connext Weather:

1) Go to www.flygarmin.com. Locate the information for subscribing to Garmin Connext Satellite Services on the website.
2) Choose a desired service which includes weather data and enter the requested information about the aircraft.
3) Note the Access Code provided during the registration process and any additional instructions received.
4) With the aircraft outside and having a clear view of the sky, turn the large **FMS** Knob on the MFD to select the Map page group.

5) Turn the small **FMS** Knob to select the 'Map - Weather Data Link (CNXT)' Page. If another data link weather source such as 'XM' or 'FIS-B' is displayed in the page title, it will be necessary to change the data link weather source to CNXT before continuing. Refer to 'Viewing the Weather Data Link (CNXT) Page' procedure to change the data link source to prior to registration.

6) If the system displays the Connext Registration Window, proceed to step 8. Otherwise, press the **MENU** Key. The page menu window is now displayed.

7) Turn the large **FMS** Knob to select 'Register With Connext' in the menu list.

8) Press the **ENT** Key. The Connext Registration Window appears as shown in Figure 6-3.

9) Enter the access code provided by Garmin in the 'Access Code' field.

10) Press the **ENT** Key. 'Register' is highlighted.

11) Press the **ENT** Key. The system contacts Garmin through the Iridium network. System registration is complete when the Current Registration Window displays the correct information for the Airframe, Tail Number, Airframe Serial Number, and Iridium Serial Number.

12) When finished, push the **FMS** Knob to remove the Connext Registration Window.

WEATHER PRODUCT AGE

Enabling/disabling the weather product age for PFD Maps:

1) Press the **Map/HSI** Softkey.

2) Press the **Layout** Softkey.

3) Press the **WX LGND** Softkey to show/remove the weather product age information for PFD maps.

4) Press the **Back** Softkey twice to return to the top-level softkeys.

SiriusXM Weather Product	Symbol	Expiration Time (Minutes)
NEXRAD		30

SiriusXM Weather Product Symbols and Data Timing

SiriusXM Weather Product	Symbol	Expiration Time (Minutes)
Cloud Top (CLD TOP)		60
Echo Top (ECHO TOP)		30
SiriusXM Lightning (LTNG)		30
Cell Movement		30
SIGMETs/AIRMETs		60
METARs		90
City Forecast		90
Surface Analysis		60
Freezing Levels		120
Winds Aloft		90
County Warnings		60
Cyclone Warnings		60
Icing Potential (CIP and SLD)		90
Pilot Weather Report (PIREP)		90

SiriusXM Weather Product Symbols and Data Timing

SiriusXM Weather Product	Symbol	Expiration Time (Minutes)
Air Report(AIREP)		90
Turbulence		180
Radar Coverage Not Available	No product image	30
Temporary Flight Restriction (TFR)		60
Terminal Aerodrome Forecast (TAF)	No product image	60

SiriusXM Weather Product Symbols and Data Timing

FIS-B Weather Product	Symbol	Expiration Time (Minutes)	Broadcast Rate (Minutes)
NEXRAD Composite (US)		30	15
NEXRAD Composite (Regional)		30	2.5
METARs		90	5
Pilot Weather Report (PIREP)		90	10
Winds Aloft		90	10
SIGMETs/AIRMETs		60	5
No Radar Coverage	No product symbol	30	2.5
Terminal Aerodrome Forecast (TAF)	No product symbol	60	10
Temporary Flight Restriction (TFR)		60	10

FIS-B Weather Product Symbols and Data Timing

Garmin Connext Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Radar Precipitation		30	U.S.: 3* Canada: 3*† Europe: 15 Australia: 15ˆ
Infrared Satellite		60	30
Datalink Lightning		30	Continuous
SIGMETs/AIRMETs		60	Continuous
METARs		90	Continuous
Winds Aloft		90	Continuous
Pilot Weather Report (PIREPs)		90	Continuous
Temporary Flight Restrictions (TFRs)		60	Continuous
Terminal Aerodrome Reports TAFs)	no product image	60	Continuous

** The composite precipitation image is updated every 3 minutes, but individual radar sites may take between 3 and 10 minutes to provide new data.*
† Canadian radar precipitation data provided by Environment Canada.
ˆ Australian radar precipitation data provided by the Australian Bureau of Meteorology.

Garmin Connext Weather Product Symbols and Data Timing

DISPLAYING DATA LINK WEATHER PRODUCTS

Weather Data Link Page

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

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Weather Data Link (XM, CNXT, or FIS-B)' Page. The currently selected data link weather source appears in the page title.

3) If the page title does not contain the desired weather source, press the **MENU** Key.
   a) Turn the **FMS** Knob to highlight 'Display XM Weather', 'Display Connext Weather', or 'Display FIS-B Weather' (choices may vary depending on the installed equipment).
   b) Press the **ENT** Key.

Viewing legends for displayed weather products on the Weather Data Link Page:

1) Select the Weather Data Link Page.
2) Press the **Legend** Softkey to display the legends for the displayed weather products.
3) Turn the **FMS** Knob to scroll through the legends if more are available than fit in the window.
4) To remove the Weather Legends Window, press the **Legend** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Customizing the Weather Data Link Page

Setting up and customizing the Weather Data Link Page:

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

Selecting a map orientation for the Weather Data Link Page:

1) Select the Weather Data Link Page.
2) Press the **MENU** Key.

3) Turn the **FMS** Knob to highlight 'Weather Setup'.
4) Turn the small **FMS** Knob to display the Group options.
5) If SiriusXM is the selected data link weather source, turn the small FMS Knob to highlight the 'Map' Group and press the ENT Key.

   Or:

   If FIS-B or Garmin Connext is the selected data link weather source, turn the large **FMS** Knob to highlight the 'Orientation ' field at the bottom of the Product Group 1 list.
6) Turn the small **FMS** Knob to highlight the desired map orientation: North up, Track up, HDG up, or SYNC, then press the **ENT** Key.

Restoring default Weather Data Link Page settings:

1) Select the Weather Data Link Page.
2) Press the **MENU** Key.
3) Turn the FMS Knob to highlight 'Weather Setup', then press the **ENT** Key.
4) Press the **MENU** Key.
5) Highlight the desired default(s) to restore (all or for selection) and press **ENT** Key.
6) When finished, press the **FMS** Knob or press the **CLR** Key.

Displaying Data Link Weather Products on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the softkey to enable/disable the desired weather product.

Showing/removing the weather legend on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Legend** Softkey to show the weather legends window.
4) When finished, press the **Legend** Softkey again, or press the **FMS** Knob or the **CLR** Key to remove the window.

Setting up and customizing weather data for the navigation maps:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

Displaying Data Link Weather products on the PFD:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the desired weather product softkey(s) to enable/disable the display of data link products on the PFD map.

Enabling/disabling the weather product icon and age display (PFD maps):

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Layout** Softkey.
3) Press the **WX LGND** Softkey to enable/disable the weather product age, source, and icon box display on PFD Maps.

CONNEXT DATA REQUESTS

Manually Requesting Garmin Connext Weather information:

1) Select the 'Map - Weather Data Link (CNXT)' Page.
2) Press the **MENU** Key.
3) With 'Connext Data Request' highlighted, press the **ENT** Key.

4) Turn the large **FMS** Knob to highlight the desired coverage option(s) and press the **ENT** Key to show or hide a green check mark to select one of more of the following coverage selections:

- Present Position – Requests data based on current location.
- Destination – Requests data based on the active flight plan destination (Direct-To destinations excluded). See the Flight Management section for more information about entering and activating flight plans.
- FPL – Requests data along an active flight plan, if one currently exists. Turn the small FMS Knob to select the desired flight plan look-ahead distance option (or choose 'Remaining FPL' to request weather data for the remainder of the flight plan), then press the **ENT** Key.
- Waypoint – Requests data based on a waypoint (which may be off-route). Turn the large and small **FMS** Knobs to enter a waypoint, then press the **ENT** Key.

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

6) Turn the large **FMS** Knob until the 'Send Request' field is highlighted. Press the **ENT** Key to initiate the request immediately or press the **FMS** Knob to return to the 'Map - Weather Data Link (CNXT)' Page without requesting weather data.

Cancelling a Connext Data Request in Progress:

1) Select the 'Map - Weather Data Link (CNXT)' Page.

2) Press the **MENU** Key.

3) With 'Connext Data Request' highlighted, press the **ENT** Key.

4) Turn the large **FMS** Knob to select the 'Cancel Request' field and press the **ENT** Key. The request status box indicates 'Request Cancelled'.

5) Press the **FMS** Knob to return to the Weather Data Link (CNXT) Page.

Enabling/disabling automatic Connext Data Requests:

1) Select the 'Map - Weather Data Link (CNXT)' Page.

2) Press the **MENU** Key.

3) With 'Connext Data Request' highlighted, press the **ENT** Key.

4) Choose the desired weather coverage options.

5) Turn the large **FMS** Knob to select the 'Update Rate' field. Then turn the small **FMS** Knob to highlight the desired automatic update frequency (Off, 5 Min, 10 Min, 15 Min, 20 Min, 30 Min, 45 Min, or 60 Min), then press the **ENT** Key.

6) The 'Send Request' field is highlighted and a countdown timer is displayed in the 'Request Status' Window based on the currently selected update rate. Press the **ENT** Key to immediately send an immediate Connext Data Request.

Or:

Push the **FMS** Knob to return to the 'Map -Weather Data Link (CNXT)' Page.

WEATHER PRODUCT OVERVIEW

NEXRAD (SiriusXM)

Enabling/disabling NEXRAD weather information on the 'Map - Weather Data Link (XM)' Page:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **NEXRAD** Softkey.

Enabling/disabling NEXRAD weather information on MFD navigation maps:

1) Press the **Map Opt** Softkey.
2) Press the **NEXRAD** Softkey.

Enabling/disabling NEXRAD weather information on PFD maps:

1) Press the **Map/HSI** Softkey.
2) Press the **NEXRAD** Softkey.

Changing the NEXRAD coverage region:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **MENU** Key.
3) Turn the large **FMS** Knob to highlight 'Weather Setup' and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the NEXRAD Region datafield.
5) Turn the small **FMS** Knob to highlight 'COMP' or 'BASE' and press the **ENT** Key.

Displaying Time-Lapse NEXRAD Animation on the 'Map - Weather Data Link (XM)' Page:

1) Press the **MENU** Key.
2) Turn the **FMS** Knob to select 'Weather Setup' and press the **ENT** Key.
3) With 'Product Group 1' selected, turn the large **FMS** Knob to highlight the NEXRAD Animation On/Off field.
4) Turn the small **FMS** Knob to select 'On' or 'Off', then press the **ENT** Key.
5) To remove the menu, push the **FMS** Knob or the **CLR** Key.

Displaying Time-Lapse NEXRAD Animation on navigation maps:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob to highlight the NEXRAD Animation On/Off field.
6) Turn the small **FMS** Knob to highlight 'On' or 'Off' and press the **ENT** Key.
7) To remove the menu, push the **FMS** Knob or the **CLR** Key.

NEXRAD (FIS-B)

Displaying the NEXRAD weather product on the 'Map - Weather Data Link (FIS-B)' Page:

1) Select the 'Map - Weather Data Link (FIS-B)' Page.
2) Press the **NXRD** Softkey. Each selection cycles though a coverage option displayed in cyan on the softkey ('Off', 'US', or 'REG', or 'All').

Displaying the FIS-B NEXRAD weather product on the 'Map - Navigation Map' Page:

1) Press the **Map Opt** Softkey.
2) Press the **NEXRAD** Softkey.
3) To change the type of NEXRAD displayed, press the **MENU** Key.
4) With 'Map Settings' highlighted, press the **ENT** Key.
5) Turn the small **FMS** Knob to select the 'Weather' Group, then press the **ENT** Key.

6) Turn the large **FMS** Knob to highlight the NEXRAD Data Region field.
7) Turn the small **FMS** Knob to highlight 'CONUS' (continental United States), 'RGNL' (regional), or 'Combined', then press the **ENT** Key. This selection also affects display of NEXRAD on the PFD Maps.
8) When finished, press the **FMS** Knob or press the **CLR** Key.

Displaying the FIS-B NEXRAD weather product on PFD maps:

1) Press the **Map/HSI** Softkey.
2) Press the **NEXRAD** Softkey to enable/disable the display of NEXRAD information.

Precipitation (Garmin Connext)

Displaying Precipitation weather information:

1) Press the **Map Opt** Softkey (for PFD maps, press the **Map/HSI** or **Map Opt** Softkey). This step is not necessary on the 'Map - Weather Data Link (CNXT)' Page.
2) Press the **PRECIP** Softkey.

Echo Tops (SirisuXM)

Displaying Echo Tops information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **Echo Top** Softkey.

Cloud Tops (SiriusXM)

Displaying Cloud Tops information:

1) Select the 'Map - Weather Data Link (XM)' Page with the **FMS** Knob.
2) Press the **CLD Top** Softkey.

Data Link Lightning (SiriusXM, Garmin Connext)

Displaying Data Link Lightning information on Weather Data Link Page:

1) Turn the **FMS** Knob to select the 'Map - Weather Data Link (XM or CNXT)' Page.
2) Press the **XM LTNG** or **DL LTNG** Softkey.

Displaying Data Link Lightning information on the 'Map - Navigation Map' Page:

1) Turn the **FMS** Knob to select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **XM LTNG** or **DL LTNG** Softkey.

Displaying Data Link Lightning information on PFD maps:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Lightning** Softkey.
3) Press the **Datalink** Softkey.
4) When finished, press the **Back** Softkey.

Cell Movement (SiriusXM)

Displaying Cell Movement information on the 'Map - Weather Data Link (XM)' Page:

1) Select the 'Map - Weather Data Link (XM)' Page using the **FMS** Knob.
2) Press the **Cell MOV** Softkey.

Setting up the system to display Cell Movement with NEXRAD on navigation maps:

1) Use the **FMS** Knob to select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to highlight 'Weather' and press the **ENT** Key.
5) Turn the large **FMS** Knob to 'On' or 'Off' for the Cell Movement menu option. When set to 'On', Cell Movement is enabled/disabled with the NEXRAD weather product on navigation maps. When set to 'Off', Cell Movement is not displayed on navigation maps.
6) When finished, push the **FMS** Knob or **CLR** Key to remove the menu.

Infrared Satellite (Garmin Connext)

Displaying Infrared Satellite information:

1) Select the 'Map - Weather Data Link (CNXT)' Page.
2) Press the **IR SAT** Softkey.

SIGMETs and AIRMETs

Displaying SIGMETs and AIRMETs:

1) Select the 'Map- Weather Data Link (XM, CNXT, or FIS-B)' Page.
2) Press the **SIG/AIR** Softkey.
3) To view the text of the SIGMET or AIRMET, press the **Joystick** and move the Map Pointer over the icon.
4) Press the **ENT** key.

METARs and TAFs

Displaying METAR and TAF text on the MFD:

1) On the 'Map - Weather Data Link (XM or FIS-B or CNXT)' Page, press the **METAR** Softkey.
2) Press the **Joystick** and pan to the desired airport.
3) Press the **ENT** Key. The Weather Information Page is shown with METAR and TAF text.
4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. METAR text must be completely scrolled through before scrolling through the TAF text.
5) Press the **FMS** Knob or the **CLR** Key to return to the Weather Data Link Page.

Or:

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

Displaying original METAR text on the 'Map - Active Flight Plan' Page:

1) Select the 'FPL - Active Flight Plan' Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.

3) Turn the large **FMS** Knob to highlight a waypoint with an available METAR (indicated with a METAR flag next to it). The METAR text will appear in the 'Selected Waypoint Weather' Window below.

4) When finished, push the **FMS** Knob to remove the cursor or press the **FPL** Key to exit the Active Flight Plan Page.

Displaying original METAR text information on the PFD Inset Map:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **METAR** Softkey.
3) Press the **Joystick** and pan to the desired METAR flag. Original METAR text appears on the map.
4) When finished, press the **Joystick** to remove the Map Pointer.

Surface Analysis and City Forecast (SiriusXM)

Displaying Surface Analysis and City Forecast information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **SFC** Softkey.
4) Press the softkey for the desired forecast time: **Current**, **12 HR**, **24 HR**, **36 HR**, or **48 HR**. The **SFC** Softkey label changes to show the forecast time selected.

   Or:

   Press the **Off** Softkey to disable the display of the weather product.

Freezing Level (SiriusXM)

Displaying Freezing Level information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **FRZ LVL** Softkey.

Winds Aloft

Displaying the Winds Aloft weather product:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.

3) Press the **Wind** Softkey.
4) Select a softkey for the desired altitude level: **SFC** (surface) up to 42,000 feet. Press the **Next** or **Prev** Softkey to cycle through the altitude softkeys. The **Wind** Softkey label changes to reflect the altitude selected.

Enabling/disabling the Vertical Situation Display (containing winds aloft data):

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **VSD** Softkey to enable/disable the Vertical Situation Display.

Enabling/disabling winds aloft data display for the VSD:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select 'VSD' and press the **ENT** Key.
5) Turn the large **FMS** Knob to highlight the Winds on/off field.
6) Turn the small **FMS** Knob to select 'On' or 'Off'.
7) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

County Warnings (SiriusXM)

Displaying County Warning information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **County** Softkey.

Cyclone (SiriusXM)

Displaying cyclone (hurricane) track information:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **Cyclone** Softkey.

Icing (CIP & SLD) (SiriusXM)

Displaying Icing data:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **ICNG** Softkey.
4) Select a softkey for the desired altitude level: 1,000 feet up to 30,000 feet. Press the **Next** or **PREV** Softkey to cycle through the altitude softkeys. The **ICNG** Softkey label changes to indicate the altitude selected.

Turbulence (SiriusXM)

Displaying Turbulence data:

1) Select the 'Map - Weather Data Link (XM)' Page.
2) Press the **More WX** Softkey.
3) Press the **TURB** Softkey.
4) Select a softkey for the desired altitude: 21,000 feet up to 45,000 feet. Press the **Next** or **PREV** Softkey to cycle through the altitude softkeys. The **TURB** Softkey label changes to indicate the altitude selection.

PIREPs and AIREPs

Displaying PIREP and AIREP text:

1) Select the 'Map - Weather Data Link (XM or FIS-B or CNXT)' Page.
2) Press the **More WX** Softkey.
3) Press the **PIREPS** or **AIREPS** Softkey. (Note the **AIREPS** Softkey is only available with the SiriusXM Weather service.)
4) Press the **Joystick** and pan to the desired weather report. A gray circle will appear around the weather report when it is selected.
5) Press the **ENT** Key. The Weather Information Page is shown with PIREP or AIREP text. The data is first displayed in a decoded fashion, followed by the original text. Note the original text may contain additional information not present in the decoded version.
6) Use the **FMS** Knob or the **ENT** Key to scroll through the PIREP or AIREP text.
7) Press the **FMS** Knob or the **CLR** Key to return to the Weather Data Link (XM) Page.

TFRS

Displaying TFR Data:

1) Select the 'Map - Weather Data Link (XM. CNXT, or FIS-B)' Page or Navigation Map' Page.
2) Press the **Joystick** and pan the map pointer over a TFR to highlight it. The system displays TFR summary information above the map.
3) Press the **ENT** Key. The system displays a pop-up menu.
4) If necessary, turn the **FMS** Knob to select 'Review Airspaces' and press the **ENT** Key. The system displays the TFR Information window.
5) Press the **FMS** Knob or the **CLR** Key to remove the TFR Information window.

Setting up and customizing TFR data for maps on which TFR data can be displayed:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Aviation' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob to scroll to the TFR product range settings.
6) Turn the small **FMS** Knob to scroll through options (Off, range settings).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

FIS-B WEATHER STATUS

Viewing FIS-B status:

1) Turn the large **FMS** Knob to select the Aux Page Group.
2) Turn the small **FMS** Knob to select the 'Aux - ADS-B Status' Page.

Enabling/disabling the FIS-B weather feature:

1) Select the 'Map - Weather Data Link (FIS-B)' Page.
2) Press the **MENU** Key.
3) Turn the small **FMS** Knob to highlight 'Enable FIS-B Weather' or 'Disable FIS-B Weather', and press the **ENT** Key.

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.*

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

Lightning Age and Symbols

USING THE STORMSCOPE PAGE

Adjusting the Stormscope Map Range:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Stormscope®' Page.
3) Turn the **Joystick** clockwise to increase the map range or counter-clockwise to decrease the map range.

Selecting 'cell' or 'strike' mode: on the 'Map - Stormscope®' Page:

1) Select the 'Map - Stormscope®' Page.
2) Press the **Mode** Softkey. The **Cell** and **Strike** softkeys are displayed.
3) Press the **Cell** Softkey to display 'CELL' data or select the **Strike** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box in the upper right corner of the 'Map - Stormscope®' Page.
4) Press the **Back** Softkey to return to the top level softkeys for the 'Map - Stormscope®' Page.

ADDITIONAL STORMSCOPE DISPLAYS

Displaying Stormscope information on MFD navigation maps:

1) Press the **Map Opt** Softkey.
2) Press the **STRMSCP** Softkey.

Setting up Stormscope options on the 'Map - Navigation Map' Page:

1) On the 'Map - Navigation Map' Page, press the **MENU** Key.
2) With 'Map Settings' selected, press the **ENT** Key.
3) Turn the small **FMS** Knob to display the group selection window. Turn the small **FMS** Knob to select 'Weather', and press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight and move between the product selections:
   - Stormscope On/Off field – Enables/disables the display of Stormscope lightning symbols.
   - Stormscope maximum display range – Selects the maximum map range to display Stormscope symbols. Stormscope data is removed when a map range greater than this value is selected.
   - Stormscope Mode – Selects the Cell or Strike mode of lightning activity. Cell mode identifies clusters or cells of electrical activity. Strike mode indicates the approximate location of lightning strikes.
5) When an item is highlighted, turn the small **FMS** Knob to select the option.
6) Press the **ENT** Key.
7) Press the **FMS** Knob to remove the menu.

Displaying Stormscope information on PFD maps:

1) On the PFD, press the **Map/HSI** Softkey.
2) Press the **Lightning** Softkey.
3) Press the **STRMSCP** Softkey.

STORMSCOPE ABNORMAL OPERATIONS

Manually clearing Stormscope lightning symbols from map displays:

1) Select the 'Map - Stormscope®' Page.
2) Press the **Clear** Softkey.

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.*

On-Ground Legend

In-Air Legend

Relative Terrain Legend

TERRAIN PAGE

Displaying the terrain page:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Terrain Proximity/Terrain-SVT/ TAWS-B' Page.

Showing/hiding aviation information on the terrain page:

1) Press the **MENU** Key.
2) Turn the **FMS** Knob to highlight 'Show Aviation Data' or 'Hide Aviation Data' (choice dependent on current state) and press the **ENT** Key.

Customizing terrain and obstacle display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.

5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
   - Terrain Display – Enables the display of relative ('REL') terrain data or select 'Off' to disable; also sets maximum map range at which terrain is shown.
   - Point Obstacle – Enables/disables the display of obstacle data on or off and sets maximum range at which obstacles are shown.
   - Wire Obstacle – Enables/disables the display of wire obstacle data and sets maximum range at which wire obstacles are shown
6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

VERTICAL SITUATION DISPLAY (VSD) TERRAIN

Enabling/Disabling the Vertical Situation Display (VSD):

1) Select the 'Map - Navigation Map' Page.
2) Press the **Map Opt** Softkey.
3) Press the **Inset** Softkey.
4) Press the **VSD** Softkey to enable or disable the VSD.

Selecting a VSD Mode:

1) Select the 'Map - Navigation Map' Page.
2) Press the **Inset** Softkey.
3) Press the **VSD** Softkey displaying the VSD mode in cyan. Each press of the softkey cycles through a mode selection: FPL (flight plan), TRK (track), or Auto.

Customizing the Track Mode Boundary display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'VSD' Group, then press the **ENT** Key.

5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
   - TRK Mode BNDRY – Enables/disables the display of the Track Mode Boundary and sets maximum range at which Track Mode Boundary is shown.
6) Turn the small **FMS** Knob to scroll through options (On/Off range settings).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

TERRAIN-SVT AND TAWS-B ALERTING DISPLAYS

To acknowledge the pop-up alert:

- Press the **CLR** Key (returns to the currently viewed page), or
- Press the **ENT** Key (accesses the 'Map - Terrain-SVT' or 'Map - TAWS-B' Page)

Inhibiting/enabling TAWS-B or Terrain-SVT Alerting:

1) Select the Terrain page.
2) Press the **Inhibit** Softkey. Alerting is inhibited when softkey annunciator is green.

Manually testing the TAWS-B System:

1) Select the 'Map - TAWS-B' Page.
2) Press the **MENU** Key.
3) Select 'Test TAWS System' and press the **ENT** Key to confirm the selection.

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.*

The system can display the symbols shown in the following table.

Symbol	Description
	Traffic Advisory with directional information. Points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory out of the selected display range with directional information. Displayed at outer range ring at proper bearing.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with directional information. Points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with directional information. Points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with directional information. Points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

TAS Traffic with ADS-B Traffic Symbology with GTX 345R Transponder

TAS Symbol	Description
	Non-Threat Traffic
	Proximity Advisory (PA)

TAS Symbol	Description
	Traffic Advisory (TA)
	Traffic Advisory Off Scale

TAS Symbol Description with GTX 335 Transponder

Bearing	Relative Altitude	Distance (nm)
"One o'clock" through "Twelve o'clock" or "No Bearing"	"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"

TA Descriptive Voice Announcements

TRAFFIC MAP PAGE

Displaying traffic on the 'Map - Traffic Map' Page:

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the 'Map - Traffic Map' Page.
3) Press the **Operate** or **TAS OPER** Softkey to begin displaying traffic.
4) Press the **Standby** or **TAS STBY** Softkey to place the system in the Standby mode.

SYSTEM TEST

Testing the Traffic System:

1) Turn the large **FMS** Knob to select the 'Map - Traffic Map' Page.
2) Turn the **Joystick** to adjust the map range to 2 NM for the inner range ring, and 6 NM for the outer range ring. This ensures the full traffic test pattern is depicted on the map.
3) If the traffic system is in Operating Mode, press the **Standby** or **TAS STBY** Softkey.
4) Press the **Test** Softkey.

OPERATION

NOTE: *The traffic unit automatically transitions from STANDBY to OPERATE mode eight seconds after takeoff. The unit also automatically transitions from OPERATE to STANDBY mode 24 seconds after landing.*

Pressing the **Operate** or **TAS OPER** Softkey allows the system to switch from Standby Mode to Operating Mode as necessary. Pressing the **Standby** or **TAS STBY** Softkey forces the unit into Standby Mode.

Selecting a TAS Operating Mode:

1) Select the 'Map - Traffic Map' Page.
2) To select Standby Mode, press the **Standby** or **TAS STBY** Softkey.

Changing the altitude range of traffic display:

1) On the 'Map - Traffic Map' Page, select the **ALT Mode** Softkey.
2) Press one of the following Softkeys:
   - **Above:** Displays non-threat and proximity traffic from 9000 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 9000 feet below the aircraft. Typically used during descent phase of flight.
   - **UNREST** (unrestricted)**:** All traffic is displayed from 9900 feet above and 9900 feet below the aircraft.
3) To return to the 'Map - Traffic Map' Page, press the **Back** Softkey.

Changing the display range on the 'Map - Traffic Map' Page:

Turn the **Joystick** to select the desired range.

Enabling/disabling traffic information (MFD navigation map):

1) Press the **Map Opt** Softkey.
2) Press the **Traffic** Softkey to enable/disable the traffic overlays.
3) Press the **Back** Softkey to return to the top-level softkeys.

Customizing the traffic display on the 'Map - Navigation Map' Page:

1) Select the 'Map - Navigation Map' Page.
2) Press the **MENU** Key.
3) With 'Map Settings' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the Traffic Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through the selections.
   - Traffic – Turns the display of traffic data on or off.
   - Traffic Mode – Selects the traffic mode for display; select from:
     - All Traffic - Displays all traffic.
     - TA/PA - Displays Traffic Advisories and Proximity Advisories.
     - TA Only - Displays Traffic Advisories only.
   - Traffic Symbols – Selects the maximum range at which traffic symbols are shown.
   - Traffic Labels – Selects the maximum range at which traffic labels are shown with the option to turn off.
6) Turn the small **FMS** Knob to scroll through options (On/Off, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page.

Enabling/disabling traffic information on HSI map:

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.

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 display traffic information.

ADS-B TRAFFIC

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

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

Other Aircraft Equipment	Viewable by GTX 345R Equipped Aircraft
1090ES Out Equipped	Yes
UAT Receive Only Capable	No
UAT Transmit Equipped	Yes
No Transponder, No ADS-B	No
Non ADS-B Equipped, but with Mode C or S Transponder	Yes*

** Only when in ADS-B ground station coverage and when the other aircraft is in ATC radar coverage, or own aircraft is equipped with a TAS system and traffic is within the TAS surveillance range.*

Aircraft Available for Viewing by an ADS-B Equipped Own Aircraft

Bearing	Relative Altitude	Approximate Distance (nm)
"One o'clock" through "Twelve o'clock" or "No Bearing"	"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	"Zero miles", "Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"

TA Descriptive Voice Announcements

TRAFFIC DESCRIPTION

Symbol	Description
	Traffic Advisory with directional information. Points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.
	Traffic Advisory out of the selected display range with directional information. Displayed at outer range ring at proper bearing.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with directional information. Points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with directional information. Points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with directional information. Points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Pointed end indicates direction of travel. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

ADS-B Traffic Symbology

OPERATION

Traffic MAP Page

Enabling/disabling the display of ADS-B traffic.

1) Select the 'Map - Traffic Map' Page.
2) Press the **ADS-B** Softkey.

Testing the display of ADS-B traffic:

1) Select the 'Map - Traffic Map' Page.
2) If necessary, turn the Joystick to select a map range of 2 and 6 nm to ensure full test pattern display.
3) Ensure the **ADS-B** Softkey is disabled. Otherwise the test mode is not available.
4) If the optional TAS is installed, ensure the **TAS STBY** Softkey is enabled.
5) Press the **Test** Softkey.

Changing the altitude range:

1) On the 'Map - Traffic Map' Page, select the **ALT Mode** Softkey.
2) Press one of the following softkeys:
   - **Above:** Displays Other 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 Other 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 Other Non-Threat and proximity traffic from 2700 feet above the aircraft to 9900 feet below the aircraft. Typically used during descent phase of flight.
   - **UNREST** (unrestricted)**:** All traffic is displayed from 9900 feet above and 9900 feet below the aircraft.
3) To return to the 'Map - Traffic Map' Page, press the **Back** Softkey.

Enabling/disabling the Motion Vector display:

1) Select the 'Map - Traffic Map' Page.
2) Press the **Motion** Softkey.

3) Press one of the following softkeys:

- **Absolute:** Displays the motion vector pointing in the absolute direction.
- **Relative**: Displays the motion vector relative to own aircraft.
- **Off**: Disables the display of the motion vector.

Adjusting the duration for the Motion Vector projected time:

1) Select the 'Map -Traffic Map' Page.

2) Press the **Motion** Softkey.

3) Press the **Duration** Softkey.

4) Press a softkey for the desired duration (**30 SEC**, **1 MIN**, **2 MIN**, **5 MIN**).

5) When finished, select the **Back** Softkey to return to the 'Map -Traffic Map' Page.

Showing additional traffic information:

1) Select the 'Map -Traffic Map' Page.

2) Push the **FMS** Knob. The first selected traffic symbol is highlighted in cyan. Additional information appears in a window in the upper-right corner of the 'Map - Traffic Map' Page.

3) To select a different aircraft symbol, turn the **FMS** Knob to move the cyan bracket until the selected aircraft traffic symbol is highlighted.

4) When finished, push the **FMS** Knob again to disable the traffic selection.

Changing the display range on the Traffic Map Page:

Turn the **Joystick** to select the desired range.

Viewing ADS-B Traffic Status:

1) Turn the large **FMS** Knob to select the Aux Page Group.

2) Turn the small **FMS** Knob to select the 'Aux - ADS-B Status' Page.

AUTOMATIC FLIGHT CONTROL SYSTEM

NOTE: The current pertinent flight manual always supersedes this Pilot's Guide.

ACTIVATING THE FLIGHT DIRECTOR

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

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

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

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

Flight Director Activation

AFCS MODES

VERTICAL MODES

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

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

Flight Director Vertical Modes

LATERAL MODES

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

Flight Director Lateral Modes

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

Mode	Description	Control	Annunciation
Vertical Path Tracking	Captures and tracks descent legs of an active vertical profile	**VNV** Key	VPTH
VNV Target Altitude Capture	Captures the Vertical Navigation (VNV) Target Altitude	*	ALTV
Glidepath	Captures and tracks the SBAS glidepath on approach	**APR** Key	GP
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Backcourse Arm/ Capture/Track	Captures and tracks a localizer signal for backcourse approaches	**NAV** Key	BC
Approach, GPS Arm/ Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	**APR** Key	GPS
Approach, VOR Arm/ Capture/Track			VAPP
Approach, ILS Arm/ Capture/Track (Glideslope Mode automatically armed)			LOC
Takeoff	Commands a constant pitch angle and wings level on the ground in preparation for takeoff	**TO/GA** Switch	TO
Go Around**	Commands a constant pitch angle and wings level in the air		GA

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

Flight Director Combination Modes

Selecting VOR Approach Mode:

1) Ensure a valid VOR frequency is tuned.

2) Ensure that VOR is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).

3) Press the **APR** Key.

Selecting GPS Approach Mode without a Glidepath:

1) Ensure a SBAS 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 (use the **CDI** Softkey to cycle through navigation sources if necessary).
3) Press the **NAV** Key.

Selecting GPS Approach Mode with a Glidepath:

1) Ensure a SBAS 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 (use the **CDI** Softkey to cycle through navigation sources if necessary).
3) Press the **APR** Key.

NOTE: *Some RNAV (SBAS) approaches provide a vertical descent angle as an aid in flying a stabilized approach. These approaches are NOT considered Approaches with Vertical Guidance (APV). Approaches that are annunciated on the HSI as LNAV or LNAV+V are considered Non-precision Approaches (NPA) and are flown to an MDA even though vertical glidepath (GP) information may be provided.*

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.*

Selecting LOC Approach Mode without a Glideslope:

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

Or:

1) Ensure that GPS is the selected navigation source (use the **CDI** 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 **APR** Key.

Selecting LOC Approach Mode with a Glideslope:

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

Or:

1) Ensure that GPS is the selected navigation source (use the **CDI** 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 **APR** Key.

Once the following occurs, the flight director reverts to Roll Hold Mode (wings rolled level):

- Approach Mode is active and a Vectors-To-Final is activated
- Approach Mode is active and Navigation source is manually switched
- During a LOC/ILS approach GPS Navigation Mode is active and the FAF is crossed after the automatic navigation source switch from GPS to LOC

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ADDITIONAL FEATURES

SAFETAXI

The **Detail** Softkey (declutter) label advances to Detail All, Detail 3, Detail 2 and Detail 1 each time the softkey is pressed for easy recognition of decluttering level. Pressing the **Detail All** Softkey removes the taxiway markings and airport feature labels. Pressing the **Detail 3** Softkey removes VOR station ID, the VOR symbol, and intersection names if within the airport plan view. Pressing the **Detail 2** Softkey removes the airport runway layout, unless the airport in view is part of an active route structure. Pressing the **Detail 1** Softkey cycles back to the original map detail. Refer to Map Declutter Levels in the Flight Management Section.

Configuring SafeTaxi range:

1) While viewing the 'Map - Navigation Map' Page, press the **MENU** Key to display the 'Page Menu.'
2) Turn the large **FMS** Knob to highlight the 'Map Settings' Menu Option and press the **ENT** Key.
3) Turn the **FMS** Knob to select the 'Aviation' Group and press the **ENT** Key.
4) Turn the large **FMS** Knob to scroll through the 'Aviation' Group options to SafeTaxi.
5) Turn the small **FMS** Knob to display the SafeTaxi range of distances.
6) Turn the large **FMS** Knob to select the desired distance for maximum SafeTaxi display range.
7) Press the **ENT** Key to complete the selection.
8) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

CHARTS

Electronic charts that resemble the paper versions of AeroNav Services terminal procedures charts (FliteCharts) and Jeppesen terminal procedures charts (ChartView) can be displayed on the MFD.

Selecting preferred charts source:

1) While viewing a chart press the **MENU** Softkey to display the Page Menu options.
2) Turn the large **FMS** Knob to highlight the 'Charts Setup' menu option and press the **ENT** Key.

3) Turn the large **FMS** Knob to move to the 'Preferred Charts Source' option.

4) Turn the small **FMS** Knob to choose between the available options (FliteCharts, ChartView).

CHARTVIEW

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

NOTE: Do not maneuver the aircraft based solely upon the georeferenced aircraft symbol.

Terminal Procedures Charts

Selecting terminal procedures charts:

While viewing the 'Map - Navigation Map' Page, 'NRST - Nearest Airport' Page, or 'FPL - Active Flight Plan' Page, press the **Charts** Softkey.

Selecting a chart:

1) While viewing the 'Map - Navigation Map' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airports' Page, press the **Charts** Softkey. The airport diagram or approach chart is displayed on the 'WPT - Airport Information' Page. (Press the **APR** Softkey if not already selected).

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

3) Turn the large **FMS** Knob to select either the Airport Identifier Box or the 'Charts' Box.

4) Turn the small and large **FMS** Knob to enter the desired airport identifier.

5) Press the **ENT** Key to complete the airport selection.

6) Turn the large **FMS** Knob to select the 'Charts' Box.

7) Turn the small **FMS** Knob to show the approach chart selection choices.

8) Turn either **FMS** Knob to scroll through the available charts.

9) Press the **ENT** Key to complete the chart selection.

- Pressing the **SYNC** Softkey displays the database linked chart associated with the current phase of flight.
- Pressing the **DP** Softkey displays the Departure Procedure Chart if available.

- Pressing the **STAR** Softkey displays the Standard Terminal Arrival Chart if available.
- Pressing the **APR** Softkey displays the approach chart for the airport if available.
- Recent NOTAMS applicable to the current ChartView cycle are included in the ChartView database. Pressing the **NOTAM** Softkey shows the local NOTAM information for selected airports, when available. When NOTAMS are not available, the **NOTAM** Softkey label appears subdued and is disabled. The **NOTAM** Softkey may appear on the Airport Information Page and all of the chart page selections. Pressing the **NOTAM** Softkey again removes the NOTAMS information.

Chart Options

- Pressing the **CHRT Opt** Softkey displays the next level of softkeys, the chart options level.
- Pressing the **All** Softkey shows the complete approach chart on the screen.
- Pressing the **Header** Softkey shows the header view (approach chart briefing strip) on the screen.
- Pressing the **Plan** Softkey shows the approach chart two dimensional plan view.
- Pressing the **Profile** Softkey displays the approach chart descent profile strip.
- Pressing the **Minimums** Softkey displays the minimum descent altitude/visibility strip at the bottom of the approach chart.
- If the chart scale has been adjusted to view a small area of the chart, pressing the **Fit WDTH** Softkey changes the chart size to fit the available screen width.
- Pressing the **Full SCN** Softkey alternates between removing and replacing the data window to the right.

Selecting additional information:

1) While viewing the Airport Diagram, press the **Full SCN** Softkey to display the information windows (Airport, Info).

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

3) Turn the large **FMS** Knob to highlight the Airport, Info, Runways, or Frequencies Box.

4) Turn the small **FMS** Knob to select the Info Box choices. If multiple choices are available, scroll to the desired choice with the large **FMS** Knob and press the **ENT** Key to complete the selection.

5) Push the **FMS** Knob again to deactivate the cursor.

Selecting full screen On or Off:

1) While viewing a terminal chart press the **MENU** Key to display the Page Menu Options.
2) Turn the large **FMS** Knob to highlight 'Full Screen Off' Option and press the **ENT** Key.

Day/Night View

Selecting day, night, or automatic view:

1) While viewing a terminal chart press the **MENU** Key to display the Page Menu Options.
2) Turn the large **FMS** Knob to highlight the 'Charts Setup' Menu Option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move to the 'Color Scheme' Option.
4) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
5) If Auto Mode is selected, turn the large **FMS** Knob to select the percentage field. Use the small **FMS** Knob to change the percentage value. The percentage value is the day/night crossover point based on the percentage of backlighting intensity. For example, if the value is set to 15%, the day/night display changes when the display backlight reaches 15% of full brightness.

   The display must be changed in order for the new setting to become active. This may be accomplished by selecting another page or changing the display range.
6) Press the **FMS** Knob when finished to remove the 'Charts Setup' Menu.

FLITECHARTS

Terminal Procedures Charts

Selecting terminal procedures charts:

While viewing the 'Map - Navigation Map' Page, 'NRST - Nearest Airport' Page, or 'FPL - Active Flight Plan' Page, press the **Charts** Softkey.

Selecting a chart:

1) While viewing the 'Map - Navigation Map' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airports' Page, press the **Charts** Softkey. The airport diagram or approach chart is displayed on the 'WPT - Airport Information' Page.

2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to select either the Airport Identifier Box or the 'Charts' Box. (Press the **APR** Softkey if not already selected).
4) Turn the small and large **FMS** Knob to enter the desired airport identifier.
5) Press the **ENT** Key to complete the airport selection.
6) Turn the large **FMS** Knob to select the 'Charts' Box.
7) Turn the small **FMS** Knob to show the approach chart selection choices.
8) Turn either **FMS** Knob to scroll through the available charts.
9) Press the **ENT** Key to complete the chart selection.

- Pressing the **Charts** Softkey switches between the FliteCharts diagram and the associated map in the WPT page group.
- Pressing the **Info** Softkey displays the Airport Diagram.
- Pressing the **DP** Softkey displays the Departure Procedure Chart if available.
- Pressing the **STAR** Softkey displays the Standard Terminal Arrival Chart if available.
- Pressing the **APR** Softkey displays the approach chart for the airport if available.

Chart Options

- Pressing the **CHRT Opt** Softkey displays the next level of softkeys, the chart options level.
- Pressing the **ROT CCW** Softkey rotates the chart counterclockwise.
- Pressing the **ROT CW** Softkey rotates the chart clockwise.
- Pressing the **Full SCN** Softkey alternates between removing and replacing the data window to the right.
- Pressing the **Fit WIDTH** Softkey fits the width of the chart in the display viewing area.
- Pressing the **Back** Softkey, or waiting for 45 seconds reverts to the chart selection softkeys.

Selecting full screen On or Off:

1) While viewing a terminal chart press the **MENU** Key to display the Page Menu Options.
2) Turn the large **FMS** Knob to highlight the 'Full Screen Off' Option and press the **ENT** Key.

Day/Night View

Selecting day, night, or automatic view:

1) While viewing a terminal chart press the **MENU** Key to display the Page Menu 'Options.'
2) Turn the large **FMS** Knob to highlight the 'Charts Setup' Menu Option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move to the 'Color Scheme' Option.
4) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
5) If Auto Mode is selected, turn the large **FMS** Knob to select the percentage field. Use the small **FMS** Knob to change the percentage value. The percentage value is the day/night crossover point based on the percentage of backlighting intensity. For example, if the value is set to 15%, the day/night display changes when the display backlight reaches 15% of full brightness.

   The display must be changed in order for the new setting to become active. This may be accomplished by selecting another page or changing the display range.
6) Push the **FMS** Knob when finished to remove the 'Charts Setup' Menu.

IFR/VFR CHARTS

Selecting IFR Low, IFR High, VFR Charts:

1) Select the 'Map - IFR/VFR Charts' Page.
2) Press the **VFR**, **IFR Low**, or **IFR High** Softkey to display the desired chart.

SATELLITE PHONE AND SMS MESSAGING

REGISTERING WITH GARMIN CONNEXT

A subscriber account must be established prior to using the Iridium Satellite System. Before setting up an Iridium account, obtain the serial number of the Iridium Transceiver (GSR 1) and the System ID by selecting the 'Aux - System Status' Page. Contact Garmin at www.flyGarmin.com.

For aircraft equipped with an Iridium Transceiver and a Flight Stream 510, calls and SMS text can be made using a Personal Electronic Device through the Garmin Pilot App. Please refer to the Garmin Pilot user guide for Iridium Datalink.

DISABLE/ENABLE IRIDIUM TRANSCEIVER

Disabling/enabling telephone and low speed data services:

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone' Page.
3) If necessary, press the **Phone** Softkey to display the 'Aux - Telephone' Page.
4) Press the **MENU** Key. The Page Menu window is now displayed.
5) Turn the **FMS** Knob to select 'Disable Iridium Transmission' in the menu list.
6) Press the **ENT** Key. The Iridium transceiver is now disabled.
7) To enable the Iridium transceiver, repeat steps 1 through 4, then select 'Enable Iridium Transceiver'.

TELEPHONE COMMUNICATION

Viewing the Satellite Phone Page:

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone' page.
3) If necessary, press the **Phone** Softkey to display the 'Aux - Satellite Phone' Page.

Internal Phone	External Phone	Description
		Phone is Idle
		Phone is ringing
		Phone has a dial tone (off hook) or connected to another phone
		Phone dialed is busy
		Phone is dialing another phone

Internal Phone	External Phone	Description
		Phone has failed
		Phone status not known
		Phone is disabled
		Phone is reserved for data transmission
		Calling other phone or incoming call from other phone
		Other phone is on hold
		Phones are connected

Telephone Symbols

Contacts

Entering a new contact:

1) With the 'Aux - Satellite Phone' Page displayed, press the **FMS** Knob to display the cursor.

2) If necessary, turn either **FMS** Knob to place the cursor on 'New Entry'.

3) Press the **ENT** Key. The cursor moves the 'Name' field of the 'Contact Details' window.

4) Enter the desired name of the new contact. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via the **FMS** Knob on the MFD.

5) Press the **ENT** Key. The cursor moves to the 'Phone Number' field.

6) Enter the desired telephone number. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via the **FMS** Knob on the MFD.

7) Press the **ENT** Key. The cursor moves to the 'Email' field.

8) Enter the desired email address. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via the **FMS** Knob on the MFD.

9) Press the **Symbols** Softkey to display the "at" symbol, the period, and other special characters.

10) Press the **ENT** Key. The **Save** button is highlighted.

11) Press the **ENT** Key. The new contact entry is added to the list of saved contacts.

Deleting a contact:

1) With the 'Aux - Satellite Phone' Page displayed, press the **FMS** Knob to display the cursor.

2) Turn either **FMS** Knob to place the cursor on the desired contact name.

3) Press the **Delete** Softkey. A confirmation window is displayed.

4) With 'OK' highlighted, press the **ENT** Key to delete the selected contact.

Editing a contact:

1) With the 'Aux - Satellite Phone Page' displayed, press the **FMS** Knob to display the cursor.

2) Turn either **FMS** Knob to place the cursor on the desired contact name.

3) Press the **Edit** Softkey. The cursor is placed in the 'Name' field. Enter the desired changes. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Controller, the **FMS** Knob on the PFD/MFD Controller, or via the **FMS** Knob on the MFD.

4) Press the **ENT** Key when each field is complete. The **Save** Button is now highlighted.

5) Press the **ENT** Key to save the changes.

Incoming Calls

NOTE: *The Push-to-Talk switch is not utilized for telephone communication. The microphone is active after pressing the Answer Softkey, and stays active until the call is terminated.*

Answering an incoming call in the cockpit:

1) Press the **Phone** Key on the audio panel.

2) Press the **Answer** Softkey on the MFD.

Or:

While viewing the 'Aux - Satellite Phone' Page:

1) Press the **Phone** Key on the audio panel.
2) Press the **MENU** Key to display the Page Menu.
3) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call'.
4) Press the **ENT** Key.

Muting incoming call alerts:

1) With the 'Aux - Satellite Phone' Page displayed, press the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disable Incoming Call Alerts'.
3) Press the **ENT** Key. The voice and pop-up alert will not be displayed now when an incoming call is received.

Outgoing Calls

Making an external call from the cockpit using the Iridium satellite network:

1) Press the **Phone** Key on the audio panel.
2) With the 'Aux - Satellite Phone' Page displayed, press the **Dial** Softkey on the MFD.

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

3) Enter the desired telephone number (country code first) by using the **FMS** Knob on the MFD..
4) Press the **ENT** Key. 'OK' is highlighted.
5) Press the **ENT** Key. The system will begin calling the number.

Making an external call from the cockpit by using the Contact List:

1) Press the **Phone** Key on the audio panel.
2) With the 'Aux - Satellite Phone' Page displayed, press the **FMS** Knob to activate the cursor.
3) Turn the small **FMS** Knob to select the desired contact name in the list of contacts.
4) Press the **Call** Softkey. The external call is initiated and the number associated with the contact name is dialed.

Placing a call on hold:

Press the **Hold** Softkey on the MFD.

TEXT MESSAGING (SMS)

Viewing the Text Messaging Page:

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Aux - Satellite Phone'.
3) If necessary, press the **SMS** Softkey to display the 'Aux - Text Messaging' Page.

Message Symbol	Description
	Received text message that has not been opened
	Received text message that has been opened
	Saved text message, draft not sent
	System is sending text message
	Text message has been sent
	System failed to send text message
	Predefined text message

Text Message Symbols

Viewing a Text Message When Received

Press the **View** Softkey to view the message. Pressing the **Ignore** Softkey will extinguish the pop-up window and leave the text message unopened. Pressing the **Ignore All** Softkey will extinguish the pop-window and ignore all future incoming text messages. Pressing the **SMS** Softkey will display the 'Aux - Text Messaging' Page.

Enabling/disabling incoming text message pop-up alerts:

1) With the 'Aux - Text Messaging' Page displayed, press the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disable New Message Popups' or 'Enable New Message Popups'.
3) Press the **ENT** Key. The pop-up alert will not be displayed when an incoming text message is received.

Replying to a text message:

While viewing the text message, press the **Reply** Softkey.

Sending a Text Message

Sending a new text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey.
2) The SMS Text Message Draft Window is now displayed with the cursor in the 'To' field. Enter the desired telephone number or email address. Entry can be accomplished through use of the **FMS** Knob and softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers and the "at" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.
3) Press the **ENT** Key. The cursor is now displayed in the 'Message' field.
4) Enter the desired message using any combination of entry methods as described in step 2.
5) Press the **ENT** Key.
6) Press the **Send** Softkey to send the message immediately after confirming you want the message to be sent, or press the **Save** Softkey to save the message in Outbox for sending at a later time. Press the **Cancel** Softkey to delete the message.

Predefined Text Messages

Creating a predefined text message:

1) While viewing the 'Aux - Text Messaging' Page, press the **MENU** Key to display the Page Menu.
2) Turn either **FMS** Knob to select 'Edit Predefined Messages'.
3) Press the **ENT** Key. The Predefined Messages view is now displayed.
4) Press the **New** Softkey.
5) The cursor is displayed in the 'Title' field. Enter the desired message title. Entry can be accomplished through use of the **FMS** Knob and softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers and the "at" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.
6) Press the **ENT** Key. The cursor is now displayed in the 'Message' field.
7) Enter the desired message using any combination of entry methods as described in step 5.
8) Press the **ENT** Key.
9) Press the **Save** Softkey. The new predefined message is now shown in the displayed list. Pressing the **Cancel** Softkey will delete the message without saving.

Sending a predefined text message:

1) While viewing the 'Aux - Text Messaging' Page, select the **New** Softkey.
2) The SMS Text Message Window is now displayed with the cursor in the 'To' field. Enter the desired telephone number or email address. Entry can be accomplished through use of the **FMS** Knob and softkeys on the MFD. The **FMS** Knob is used to enter letters, numbers and the "at" symbol, or numbers can be entered from the MFD by pressing the **Numbers** Softkey. Press the **CapsLock** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **Symbols** Softkey.
3) Press the **ENT** Key. The cursor is now displayed in the 'Message' field.
4) Press the **PREDEFD** Softkey. The Predefined Message Menu Window is displayed.

5) Turn either **FMS** Knob to select the desired predefined message.

6) Press the **ENT** Key. The predefined message text is inserted into the message field. If desired, the message can be edited by using the FMS Knobs.

7) Press the **ENT** Key.

8) Press the **Send** Softkey to transmit the message.

Text Message Boxes

Showing Inbox messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Outbox** Softkey and the **Drafts** Softkey to only display the Inbox.

Showing Outbox messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Inbox** Softkey and the **Drafts** Softkey to only display the Outbox.

Showing Draft messages:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Inbox** Softkey and the **Outbox** Softkey to only display the Draft messages.

Managing Text Messages

Viewing messages sorted by message date/time:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Time** Softkey if not already selected.

Viewing messages sorted by message type:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Type** Softkey.

Viewing messages sorted by address:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Address** Softkey.

Viewing the content of a text message:

1) While viewing the 'Aux - Text Messaging' Page, select the desired message box.
2) Push the **FMS** Knob to activate the cursor.
3) Turn either **FMS** Knob to select the desired message.
4) Press the **VIEW** Softkey.

   Or:

   Press the **ENT** Key.
5) To close the text message, press the **Cancel** Softkey.

Marking selected message as read:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **MRK Read** Softkey.

   The message symbol now indicates the message has been opened.

Marking all messages as read:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **MENU** Key to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Mark All New Messages As Read'.
3) Press the **ENT** Key. A confirmation window is displayed.
4) With cursor highlighting 'YES', press the **ENT** Key. The message symbols now indicate all the message have been opened.

Deleting a message:

1) While viewing the Inbox on the 'Aux - Text Messaging' Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **Delete** Softkey. A confirmation window is displayed.
4) With cursor highlighting 'YES', press the **ENT** Key. The message is now deleted.

SURFACEWATCH

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

Inhibiting/uninhibiting SurfaceWatch:

1) Select the 'Aux - System Setup 1' Page**.**
2) Press the **FMS** Knob momentarily to activate the flashing cursor..
3) Turn the large **FMS** Knob to highlight the SurfaceWatch field.
4) Turn the small **FMS** Knob to toggle the SurfaceWatch alerts on or off.

Entering origin/destination airport:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the Origin or Destination Airport field.
4) Use the **FMS** Knobs to input the desired Origin or Destination Airport.

Selecting origin/destination runway:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the Runway or Landing Runway field.
4) Turn the small **FMS** Knob to select the desired available Runway or Landing Runway. As the small **FMS** Knob is turned, the preview of the selected runway or landing runway is also displayed.

Selecting required takeoff/landing distance:

1) Select the 'FPL - SurfaceWatch Setup' Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob if necessary to highlight the REQD Takeoff DIS or REQD Landing DIS field.

4) Use the **FMS** Knobs to enter the required takeoff or landing distance. Upon pressing the **FMS** Knob and committing the required takeoff or landing distance, the Runway Length field will turn amber if an insufficient runway length exists.

WIFI CONNECTIONS

Viewing the WiFi Setup Page:

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Maintenance WiFi Setup' Page.

Setting up a new WiFi connection:

1) Select the **Avail** Softkey on the MFD. A list of available networks will be displayed in the Available Networks window. Signal strength is shown for each network, as well as security requirements and whether the network has been saved in the system's memory.
2) If necessary, select the **Rescan** Softkey to have the system scan again for available networks.
3) Press the **FMS** Knob to place the cursor in the list of networks.
4) Turn either **FMS** Knob to select the desired network.
5) Select the **Connect** Softkey.
6) If the network is secured, a window will be displayed in order to enter the necessary passcode. Use the **FMS** Knobs to enter the desired alpha numeric characters. Select the **CapsLock** Softkey to enter upper case letters. If there is no security associated with the network, proceed to step 9.
7) Press the **ENT** Key. 'OK' will be highlighted.
8) Press the **ENT** Key again.
9) The Save Settings window is now displayed with the cursor highlighting 'Save Connection'.
10) The selected network can be saved to system memory to make re-connection easier at a later time.

Connecting the selected network without saving:

a) Turn the large **FMS** Knob to move the cursor to highlight 'Connect'.
b) Press the **ENT** Key.

Saving and connecting the selected network:

a) Press the **ENT** Key. A checkmark is placed in the checkbox and the cursor moves to the airport field.

b) Using the **FMS** Knobs, enter an airport identifier to be associated with the saved network. This aids in identifying the network later in the event of duplicate network names.

c) Press the **ENT** Key. The cursor moves to 'Connect'.

d) Press the **ENT** Key again to connect to the selected network.

Editing a saved network:

1) While viewing list of saved networks, press the **FMS** Knob to activate the cursor.

2) Turn either **FMS** Knob to highlight the network to be edited.

3) Pressing the **ENT** Key at this point will check or uncheck the Auto Connect checkbox. When a checkmark is present, the system will automatically connect to the network when within range.

4) Select the **Edit** Softkey. The cursor now appears in the Connection Settings window.

5) Turn the large **FMS** Knob to select the network attribute to be edited.

6) Turn the small **FMS** Knob to begin editing the field.

7) When the entry is complete, press the **ENT** Key.

8) Turn the large **FMS** Knob or press the **ENT** Key until 'Save' is highlighted.

9) Press the **ENT** Key.

Disconnecting a WiFi network:

Select the **DISCNCT** Softkey.

Deleting a saved WiFi network:

1) While viewing the list of saved networks, press the **FMS** Knob to activate the cursor.

2) Turn either **FMS** Knob to highlight the network to be deleted.

3) Select the **Delete** Softkey. The selected network is removed from the list.

CONNEXT SETUP

Viewing the Connext Setup Page

1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
2) Turn the small **FMS** Knob to select the Connext Setup page.

Changing the Bluetooth Name

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Bluetooth Name' field.
3) Enter the desired name by using the large **FMS** Knob to select the character field, and the small **FMS** Knob select the desired alphanumeric character for that field.
4) Press the **ENT** Key. The cursor is removed and the new name is displayed.

Enabling/disabling Flight Plan Importing from Garmin Pilot

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'Flight Plan Import' field.
3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'.
4) Press the **FMS** Knob to remove the cursor.

Enabling/disabling WiFi Database Importing from Garmin Pilot

1) While viewing the Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'WiFi Database Import' field.
3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'.
4) Press the **FMS** Knob to remove the cursor.

Enabling/disabling Automatic Reconnection of a Specific Paired Device

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the desired paired device.

3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'. Selecting 'Enabled' allows the system to automatically connect to a previously paired device when detected.

4) Press the **FMS** Knob to remove the cursor.

Removing a Specific Paired Device from the List of Paired Devices:

1) While viewing the 'Aux - Connext Setup' Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to highlight the desired paired device.
3) Press the **Remove** Softkey. A confirmation screen is displayed.
4) If necessary, turn the large **FMS** Knob to select 'Yes'.
5) Press the **ENT** Key to remove the device from the list of paired devices.

POSITION REPORTING

Viewing the Connext Page:

1) Turn the large **FMS** Knob to select the Aux page group.
2) Turn the small **FMS** Knob to select the 'Aux - Connext' Page.

Setting up Position Reporting:

1) With the 'Aux - Connext' Page displayed, press the **FMS** Knob to display the cursor in the Transmission Period field.
2) Turn the small **FMS** Knob to select 'Auto' for automatic transmission of position or 'Off' to disable transmission of position reports.
3) Press the **ENT** Key.
4) Turn the large **FMS** Knob to select the Transmission Rate field.
5) Turn the small **FMS** Knob to highlight the first digit.
6) Turn the small **FMS** Knob to enter the desired number.
7) Turn the large **FMS** Knob to highlight the second digit.
8) Turn the small **FMS** Knob to enter the desired number.
9) Press the **ENT** Key.
10) Turn the large **FMS** Knob to select the Passengers On Board field.
11) Turn the small **FMS** Knob left or right to select 'Yes' or 'No.'
12) Press the **FMS** Knob to remove the cursor.

Sending a position report manually:

1) Turn the large **FMS** Knob to select the Aux page group.
2) Turn the small **FMS** Knob to select 'Aux - Connext' Page.
3) If necessary, set the Transmission Period to 'Auto.'
4) Press the **Send REP** Softkey.

SIRIUSXM RADIO ENTERTAINMENT

ACTIVATING SIRIUSXM SATELLITE RADIO SERVICES

The service is activated by providing SiriusXM Satellite Radio with either one or two coded IDs, depending on the equipment. Either the Audio Radio ID or the Data Radio ID, or both, must be provided to SiriusXM Satellite Radio to activate the entertainment subscription.

SiriusXM Satellite Radio uses one or both of the coded IDs to send an activation signal that, when received by the GDL 69A, allows it to play entertainment programming.

These IDs are located:

- On the label on the back of the Data Link Receiver
- On the XM Information Page on the MFD
- On the XM Satellite Radio Activation Instructions included with the unit (available at www.garmin.com, P/N 190-00355-04)

Activating the SiriusXM Satellite Radio services:

1) Contact SiriusXM Satellite Radio. Follow the instructions provided by SiriusXM Satellite Radio services.
2) Select the Auxiliary Page Group.
3) Select the 'Aux - XM Radio' page.
4) Select the **INFO** Softkey to display the XM Information Page.
5) Verify that the desired services are activated.
6) Select the **Lock** Softkey.
7) Turn the large **FMS** Knob to highlight YES.
8) To complete activation, press the **ENT** Key.

USING SIRIUSXM RADIO

Selecting the XM Radio Page:

1) Turn the large **FMS** Knob to select the Auxiliary Page Group.
2) Turn the small **FMS** Knob to select the displayed XM Radio Page.

3) Select the **Radio** Softkey to show the XM Radio Page where audio entertainment is controlled.

Active Channel and Channel List

Selecting a channel from the channel list:

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

Or:

1) Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.
2) Press the **ENT** Key to activate the selected channel.

Selecting a channel directly:

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

Category

Selecting a category:

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

Or:

Turn the small **FMS** Knob to display the Categories list. Highlight the desired category with the small **FMS** Knob and press the **ENT** Key. Selecting All Categories places all channels in the list.

Presets

Setting a preset channel number:

1) On the XM Radio Page, while listening to an Active Channel that is wanted for a preset, select the **Presets** Softkey to access the first five preset channels (**Preset 1 - Preset 5**).

2) Select the **More** Softkey to access the next five channels (**Preset 6 – Preset 10**), and again to access the last five channels (**Preset 11 – Preset 15**). Selecting the **More** Softkey repeatedly cycles through the preset channels.

3) Select any one of the (**Preset 1 - Preset 15**) Softkeys to assign a number to the active channel.

4) Select the **Set** Softkey on the desired channel number to save the channel as a preset.

Volume

Adjusting the volume:

1) With the XM Radio Page displayed, select the **Volume** Softkey.

2) Select the **VOL –** Softkey to reduce volume or select the **VOL +** Softkey to increase volume. (Once the **VOL** Softkey is selected, the volume can also be adjusted using the small **FMS** Knob.) Volume can also be adjusted with the Audio Panel **Volume** Knob when **MUS1**, **MUS2**, **MUS**, or **MUSIC** Buttons are pressed.

Refer to the Audio Panel Controls for SiruisXM muting instructions.

ELECTRONIC CHECKLISTS

Accessing and navigating checklists:

1) From any page on the MFD (except the EIS Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the Checklist Page.

2) Turn the large **FMS** Knob to select the 'Group' field.

3) Turn the small **FMS** Knob to select the desired procedure and press the **ENT** Key.

4) Turn the large **FMS** Knob to select the 'Checklist' field.

5) Turn the **FMS** Knob to select the desired checklist and press the **ENT** Key. The selected checklist item is indicated with white text surrounded by a white box.

6) Press the **ENT** Key or **Check** Softkey to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking.

   Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.

   Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.

7) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not be checked, '*Checklist Not Finished*' will be displayed in yellow text.

8) Press the **ENT** Key. 'Go To Next Checklist?' will be highlighted by the cursor.

9) Press the **ENT** Key to advance to the next checklist.

10) Press the **Exit** Softkey to exit the Checklist Page and return to the page last viewed.

Accessing emergency procedures:

1) From any page on the MFD (except the EIS Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the Checklist Page.

2) Press the **EMER** Softkey.

3) Turn the **FMS** Knob to select the desired emergency checklist and press the **ENT** Key.

4) Press the **ENT** Key or **Check** Softkey to check the selected emergency checklist item. The line item turns green and a checkmark is placed in the box next to it. The next line item is automatically highlighted for checking.

Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.

Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.

5) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not be checked, '*Checklist Not Finished*' will be displayed in yellow text.

6) Press the **ENT** Key. 'Go To Next Checklist?' will be highlighted by the cursor.

7) Press the **ENT** Key to advance to the next checklist.

8) Press the **Return** Softkey to return to the previous checklist.

9) Press the **Exit** Softkey to exit the Checklist Page and return to the page last viewed.

AUXILIARY VIDEO (OPTIONAL)

Displaying auxiliary video:

1) Turn the large **FMS** Knob to select the Aux page group.
2) Turn the small **FMS** Knob to select Video and display the 'Aux - Video' Page.

Selecting video menu options:

1) While viewing the 'Aux - Video' Page press the **MENU** Key to display the Page Menu OPTIONS.
2) Turn the large **FMS** Knob to highlight the desired video adjustment option and press the **ENT** Key.

Once the **ENT** key is pressed on any option, the page menu closes and returns to the 'Aux - Video' Page.

VIDEO SETUP

Adjusting the video settings:

1) With the 'Aux - Video' Page displayed, press the **Setup** Softkey.
2) Press the **Contrast -** or **Contrast +**, to adjust display contrast in five percent increments from 0 to 100%.
3) Press the **Bright -** or **Bright +**, to adjust display brightness in five percent increments from 0 to 100%.
4) Press the **SAT -** or **SAT +**, to adjust display saturation in five percent increments from 0 to 100%.
5) If desired, return the display to the default settings by pressing the **Reset** Softkey.
6) Press the **BACK** Softkey to return to the previous softkey level.

SCHEDULER

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

Entering a scheduler message:

1) Select the Aux - Utility Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the first empty scheduler message naming field.
4) Use the **FMS** Knob to enter the message text to be displayed in the Messages Window and press the **ENT** Key.
5) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the field next to Type.
6) Turn the small **FMS** Knob to select the message type:
   - Event—Message issued at the specified date/time
   - One time—Message issued when the message timer reaches zero (default setting)
   - Periodic—Message issued each time the message timer reaches zero
7) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
8) For periodic and one-time messages, use the **FMS** Knob to enter the timer value (HHH:MM:SS) from which to countdown and press the **ENT** Key.
9) For event-based messages:
   a) Use the **FMS** Knob to enter the desired date (DD-MM-YY) and press the **ENT** Key.
   b) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
   c) Use the **FMS** Knob to enter the desired time (HH:MM) and press the **ENT** Key.
10) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to enter the next message.

Deleting a scheduler message:

1) Select the Aux - Utility Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the name field of the scheduler message to be deleted.

4) Press the **CLR** Key to clear the message text. If the **CLR** Key is pressed again, the message is restored.

5) Press the **ENT** Key while the message line is cleared to clear the message time.

PILOT PROFILES

Creating a Profile

1) Select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight 'Create' in the Crew Profile Box.
4) Press the **ENT** Key. A 'Create Profile' window is displayed.
5) Use the **FMS** Knob to enter a profile name up to 16 characters long and press the **ENT** Key. Crew profile names cannot begin with a blank as the first letter.
6) In the next field, use the small **FMS** Knob to select the desired settings upon which to base the new profile. Profiles can be created based on Garmin factory defaults, default profile settings (initially based on Garmin factory defaults unless edited by the pilot), or other previously created profile settings.
7) Press the **ENT** Key.
8) With 'Create' highlighted, press the **ENT** Key to create the profile

   Or:

   Use the large **FMS** Knob to select 'Create & Activate' and press the **ENT** Key to activate the new profile.
9) To cancel the process, select 'Cancel' with the large FMS Knob and press the **ENT** Key.

Select an Active Profile

1) Select the AUX - System Setup Page.
2) Press the **FMS** Knob momentarily to activate the flashing cursor.
3) Turn the large **FMS** Knob to highlight the active profile field in the Crew Profile Box.

4) Turn the small **FMS** Knob to display the crew profile list and highlight the desired profile.

5) Press the **ENT** Key. The system loads and displays the system settings for the selected profile.

Rename a Profile

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

Delete a Profile

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

Importing a Profile from an SD Card

1) Insert an SD card containing the crew profile(s) into the top card slot on the MFD.
2) Turn the **FMS** Knob to select the AUX - System Setup Page.

3) Select the **Import** Softkey.

   Or:

   a) Press the **MENU** Key.

   b) Turn the **FMS** Knob to highlight 'Import Crew Profile' and press the **ENT** Key.

4) The system displays the Crew Profile Importing window with 'Import' highlighted. Turn the large **FMS** Knob to highlight the 'Profile Name' field, then scroll to the desired profile name with the large and small FMS Knobs, then press the **ENT** Key. Then press the **ENT** Key with 'Import' highlighted.

5) If the imported profile name is the same as an existing profile on the system, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace profile on the system with the profile imported from the SD card, or turn the **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key to return to the Crew Profile Importing window.

6) If successful, the system displays 'Crew profile import succeeded.' in the window below. With 'OK' highlighted, press the **ENT** or **CLR** Keys or press the **FMS** Knob to return to the AUX - System Setup Page. The imported profile becomes the active profile.

Export a Profile to an SD Card:

1) Insert the SD card for storing the Crew Profile into the top card slot on the MFD.

2) Turn the **FMS** Knob to select the AUX - System Setup Page.

3) Select the **Export** Softkey. The system displays the Crew Profile Exporting window.

   Or:

   a) Press the **MENU** Key.

   b) Turn the **FMS** Knob to highlight 'Export Crew Profile' and press the **ENT** Key.

4) To export the crew profile using the current selected profile, press the **ENT** Key with 'Export' highlighted. To change the selected profile, turn the large **FMS** Knob to highlight the 'Profile Name' field, then scroll to the desired profile name with the large and small FMS Knobs, then press the **ENT** Key. Then press the **ENT** Key with 'Export' highlighted.

5) If the selected profile to be exported is the same as an existing profile file name on the SD card, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace the profile on the SD card with the profile to be exported, or turn the **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key to return to the Pilot Profile Exporting window without exporting the profile.

6) If successful, the window displays 'Crew profile export succeeded.' With 'OK' highlighted, press the **ENT** or **CLR** Keys, or press the **FMS** Knob to return to the AUX - System Setup Page.

ELECTRONIC STABILITY & PROTECTION (ESP™)

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

ESP engages when the aircraft exceeds one or more conditions (pitch, roll, Vmo, and/or Mmo) beyond the normal flight parameters. Enhanced stability for each condition is provided by applying a force to the appropriate control surface to return the aircraft to the normal flight envelope. This is perceived by the pilot as resistance to control movement in the undesired direction when the aircraft approaches a steep attitude or high airspeed.

As the aircraft deviates further from the normal attitude and/or airspeed, the force increases (up to an established maximum) to encourage control movement in the direction necessary to return to the normal attitude and/or airspeed range. Except in the case of high airspeed, when maximum force is reached, force remains constant up to the maximum engagement limit. Above the maximum engagement limit, forces are no longer applied. There is no maximum engagement related to a high airspeed condition.

When ESP has been engaged for more than 20 seconds (cumulative; not necessarily consecutive seconds) of a 40-second interval, the autopilot is automatically engaged with the flight director in Level Mode, bringing the aircraft into level flight. An aural "Engaging Autopilot" alert is played and the flight director mode annunciation will indicate 'LVL' for vertical and lateral modes.

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 and/or airspeed are within their respective engagement limits. ESP can also be overridden by overpowering the servo's mechanical torque limit.

ESP can be enabled or disabled on the 'Aux - System Setup 2' Page on the MFD.

Enabling/disabling ESP:

1) Turn the large **FMS** Knob to select the Aux Page Group.
2) Turn the small **FMS** Knob to select the System Setup Page.
3) If necessary, press the **SETUP 2** Softkey to display the 'Aux - System Setup 2' Page.
4) Press the **FMS** Knob to activate the cursor.
5) Turn the large **FMS** Knob to place the cursor in the Stability & Protection field.
6) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'.
7) Press the **FMS** Knob to remove the cursor.

ROLL ENGAGEMENT

Roll Limit Indicators are displayed on the roll scale at 45° right and left, indicating where ESP will engage (see following figure). As roll attitude exceeds 45°, ESP will engage and the on-side Roll Limit Indicator will move to 30°, as shown in the following figure. The Roll Limit Indicator is now showing where ESP will disengage as roll attitude decreases.

Once engaged, ESP force will be applied between 30° and 75°, as illustrated in the following figure. The force increases as roll attitude increases and decreases as roll attitude decreases. The applied force is intended to encourage pilot input that returns the airplane to a more normal roll attitude. As roll attitude decreases, ESP will disengage at 30°.

ESP is automatically disengaged if the aircraft reaches the autopilot roll engagement attitude limit of 75°.

PITCH ENGAGEMENT

ESP™ engages at 17.5° nose-up and 15.5° nose-down. Once ESP™ is engaged, it will apply opposing force between 17.5° and 50° nose-up and between 15.5° and 50° nose-down. Maximum opposing force is applied between 22.5° and 50° nose-up and between 20.5° and 50° nose-down.

With ESP™ engaged, and the aircraft in a nose-up condition, opposing force steadily decreases from 17.5° nose-up to 12.5° nose-up as aircraft pitch moves toward zero degrees. ESP™ disengages at 12.5° nose-up. With ESP™ engaged, and the aircraft in a nose-down condition, opposing force steadily decreases from 15.5° nose-down to 10.5° nose-down as aircraft pitch moves toward zero degrees. ESP™ disengages at 10.5° nose-down.

LOW AIRSPEED PROTECTION

Low speed protection is provided as part of the ESP feature. When the stall warning system determines a stall condition is imminent, ESP will engage, applying force in the direction necessary to lower the nose of the aircraft.

HIGH AIRSPEED PROTECTION

Exceeding Vmo or Mmo will result in ESP applying force to raise the nose of the aircraft. When the high airspeed condition is remedied, ESP force is no longer applied.

HYPOXIA RECOGNITION & AUTOMATIC DESCENT MODE

The Hypoxia Recognition detects pilot incapacitation due to the affects of hypoxia or other physical condition. This is accomplished by monitoring pilot interaction with the system. If the system determines the pilot is not responding, Automatic Descent Mode is activated placing the aircraft in a descent to a lower altitude to provide the pilot and passengers an opportunity to recover from the effects of hypoxia."

The system is operative when the aircraft altitude is above 14,900 feet (pressure altitude) and the Garmin AFCS autopilot is engaged. Pilot interaction with the system is monitored by detecting key presses and turns of the knobs (Audio Panel and push-to-talk switch excluded). If a period of inactivity (time dependent on altitude, see following figure) is detected, Hypoxia Recognition initiates an automatic descent.

Upon activation, there are three sequential phases employed by the system; determining pilot alertness, descent to 14,000 feet MSL, and descent to 12,500 feet MSL.

DETERMINING PILOT ALERTNESS

When the system detects a sufficient period of inactivity the Advisory Annunciation 'Are you alert?' is displayed. Selecting the **MSG** Softkey will acknowledge the message and reset the system. Pressing any other softkey, or turning a knob will also reset the system.

When no pilot interaction is detected for an additional 60 seconds, the Caution Annunciation 'HYPOXIA ALERT' is displayed. Again, selecting the **MSG** Softkey will acknowledge the message and reset the system. Pressing any other softkey, or turning a knob will also reset the system.

When no pilot interaction is detected for an additional 60 seconds, the Warning Annunciation 'AUTO DESCENT' is displayed in the Annunciation Window and 'Automatic descent to 14,000FT in 60 seconds' is displayed in the Messages Window. Once again, selecting the **MSG** Softkey will acknowledge the message and reset the system. Pressing any other softkey, or turning a knob will also reset the system.

When no interaction is detected for another 60 seconds, the system will automatically proceed with the descent.

AUTOMATIC DESCENT MODE

NOTE: *Automatic Descent Mode does not account for terrain elevation.*

As the system prepares for descent, the Selected Altitude is set to 14,000 and the AFCS enters IAS mode with the airspeed reference set to the maximum allowable airspeed setting for the specific aircraft model. IAS is displayed in the AFCS Status Box along with the target airspeed where Flight Level Change Mode (FLC) is normally displayed. Refer to the Flight Director Vertical Modes in the AFCS section. AFCS lateral mode settings are not affected.

As the descent begins, an 'AUTO DESCENT' warning is displayed in the Annunciation Window. 'AUTO DESCENT - Aircraft Descending to 14,000FT' is displayed in the Messages Window. 'EDM' is shown as an AFCS Status Annunciation indicating the system has entered Automatic Descent Mode. 'EDM' (Emergency Descent Mode) is the AFCS mode that is activated when Hypoxia Recognition initiates an automatic descent. A continuous repeating chime will be heard as long as Automatic Descent Mode is active. After the descent begins, Automatic Descent Mode can only be canceled by disconnecting the autopilot.

As the aircraft reaches 14,000 feet the system sets the AFCS to Altitude Hold mode. The AFCS will also remain in Automatic Descent Mode as indicated by 'EDM' continuing to be displayed as an AFCS Status Annunciation. The system again begins monitoring for pilot interaction.

If no pilot interaction is detected for four minutes, the system initiates the second descent. As the system prepares for this descent, the Selected Altitude is set to 12,500 and the AFCS again enters IAS mode with the airspeed reference set to the maximum allowable airspeed for the specific aircraft model.

As the descent begins, an 'AUTO DESCENT' warning is displayed in the Annunciation Window. 'AUTO DESCENT - Aircraft Descending to 12,500FT' is displayed in the Messages Window. 'EDM' is shown as an AFCS Status Annunciation. Also, the continuous repeating chime is heard.

As the aircraft reaches 12,500 feet the system sets the AFCS to Altitude Hold mode. The AFCS will also remain in Automatic Descent Mode as indicated by 'EDM' continuing to be displayed as an AFCS Status Annunciation as well as the continuing presence of the repeating chime. At this point, the AFCS must be disconnected to cancel Automatic Descent Mode.

Blank Page

ABNORMAL OPERATION

NOTE: The current version of the pertinent flight manual always takes precedence over the information found in this section.

REVERSIONARY MODE

In the event of an MFD failure, the system automatically switches to reversionary (backup) mode. In reversionary mode, all important flight information is presented on the remaining display in the same format as in normal operating mode.

If a display fails, the appropriate GIA Ethernet interface is cut off. Thus, the GIA 64W can no longer communicate with the remaining display (refer to Figure 1-1), and the NAV and COM functions provided to the failed display by the GIA 64W are flagged as invalid on the remaining display. The system reverts to backup paths for the AHRS, ADC, Engine/Airframe Unit, and Transponder, as required. The change to backup paths is completely automated for all LRUs and no pilot action is required.

Reversionary Mode may also be manually activated by pressing the red DISPLAY BACKUP Button. Pressing this button again deactivates Reversionary Mode.

ABNORMAL COM OPERATION

AUDIO PANEL FAIL-SAFE OPERATION

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

STUCK MICROPHONE

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

The MIC Key Annunciator on the Audio Panel flashes as long as the PTT Key remains stuck.

COM TUNING FAILURE

In case of a COM system tuning failure, the emergency frequency (121.500 MHz) is automatically tuned in the radio in which the tuning failure occurred. Depending on the failure mode, an amber or red X may appear on the frequency display.

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

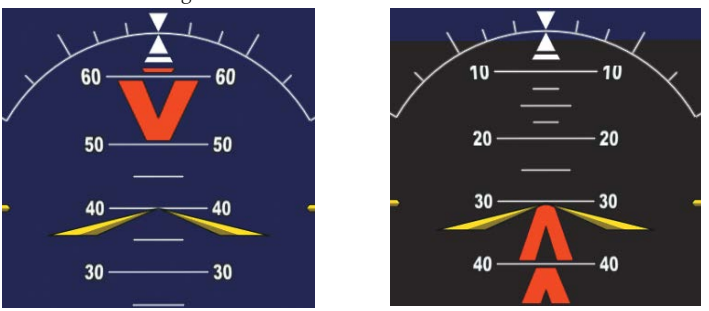
If GPS position is lost, or becomes invalid, selected hazards being displayed on the Navigation Map Page are removed until GPS position is again established.

Loss of Hazard Functions with Loss of GPS Position

UNUSUAL ATTITUDES

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.

Nose High *Nose Low*



Pitch Attitude Warnings

If pitch exceeds +30°/-20° or bank exceeds 65°, some information displayed on the PFD is removed. The Altimeter and Airspeed, Attitude, Vertical Speed, and Horizontal Situation indicators remain on the display and the Bearing Information, Alerts, and Annunciation windows can be displayed during such situations. The following information is removed from the PFD and its softkeys are disabled when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Inset Map
- Outside Air Temperature (OAT)
- Wind data
- Selected Heading readout
- Selected Course readout
- Transponder Status Box
- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
  - References Window
  - Nearest Airports
  - Flight Plan
  - Messages
  - Procedures
- Minimum Descent Altitude/ Decision Height readout
- Vertical Deviation, Glideslope, and Glidepath Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude
- Ground Speed
- True Airspeed

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.

ABNORMAL GPS CONDITIONS

Annunciation	Location	Description
GPS LOI	Right of HSI	Loss of Integrity Monitoring–GPS integrity is insufficient for the current phase of flight
GPS INTEG OK	Right of HSI	Integrity OK–GPS integrity has been restored to within normal limits (annunciation displayed for 5 seconds)
DR	PFD - Lower left of aircraft symbol if HSI Map is disabled, or on aircraft icon if HSI Map enabled MFD - On aircraft icon	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

In Dead Reckoning Mode, the CDI is removed (when GPS is the selected navigation source), and the following items on the PFD are then shown in amber:

- Current Track Bug
- Wind Data
- Distances in the Bearing Information windows
- GPS bearing pointers

These items should be verified when operating in Dead Reckoning Mode and they become increasingly inaccurate over time.

ABNORMAL AFCS OPERATION

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.

If an autopilot failure or trim failure is suspected to have occurred, perform the following steps:

1) Firmly grasp the control wheel.

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) Retrim 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.

The following steps should be added to 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 servo clutches.

ANNUNCIATIONS & ALERTS

CAS MESSAGES

The following alerts are configured specifically for the Cirrus SR2x models. Red annunciations are warnings, amber text signifies cautions, and white annunciations are advisories. See the current version of the pertinent flight manual for recommended pilot actions.

***NOTE:** The ice protection system (optional) must be operated in accordance with the approved flight manual limitations. This option is only available on the SR22 and SR22T models.*

WARNING MESSAGES

CAS Window Text	Alerts Window Text
ANTI ICE CTRL ☂	Tank valves cannot be controlled (closed) (TKS).
ANTI ICE QTY ☂	Left and right fluid quantities are unknown (TKS).
ANTI ICE QTY ☂	Fluid quantity is low (TKS).
AOA OVERHEAT ☂	AOA probe is overheated.
AUTO DESCENT†	Automatic descent to 14,000FT in 60 seconds.
AUTO DESCENT†	Aircraft descending to 14,000FT.
AUTO DESCENT†	Aircraft descending to 12,500FT.
AUTO DESCENT†	Aircraft descended due to pilot incapacitation.
BRAKE TEMP	Brake temperature is high.
CHT	Cylinder head temperature is high.
CO LVL HIGH	Carbon monoxide level is too high.
ESS BUS	Check essential power bus voltage.
FLAP ICE ☂	Full flap prohibited in icing conditions.
FUEL FLOW*	Check fuel flow.
FUEL IMBALANCE	Fuel quantity imbalance has been detected.
FUEL QTY	Check fuel tank levels.
M BUS 1	Check main power bus 1 voltage.

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional) /
[1] In air only / ^ SR22T only / † Garmin AFCS required

CAS Window Text	Alerts Window Text
M BUS 2	Check main power bus 2 voltage.
MAN PRESSURE*	Check manifold pressure.
OIL PRESS	Oil pressure is out of range.
OIL TEMP	Oil temperature is high.
OXYGEN FAULT✧	Oxygen system fault.
OXYGEN QTY✧	Oxygen quantity is low.
PITCH TRIM	Pitch Trim control has failed.
RPM	Check engine RPM.
SPIN SPIN SPIN	Spin entry detected.
STALL	Stall warning.
START ENGAGED	Starter is engaged.
TIT*	TIT temperature is high.
UNDERSPEED PROTECT ACTIVE†	None

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional) /
[1] In air only / ^ SR22T only / † Garmin AFCS required

CAUTION MESSAGES

CAS Window Text	Alerts Window Text
ALT 1	Check alternator 1 current.
ALT 2	Check alternator 2 current.
ALT AIR OPEN*	Alternate air door is open.
ANTI ICE HEAT☂	Stall warning/AoA heater has failed.
ANTI ICE LEVEL☂	Left tank fluid quantity is unreliable (TKS).
ANTI ICE LEVEL☂	Right tank fluid quantity is unreliable (TKS).
ANTI ICE PRESS☂	Tail pressure is low (TKS).
ANTI ICE PRESS☂	Pressure is high (TKS).
ANTI ICE QTY☂	Fluid quantity imbalance has been detected (TKS)
ANTI ICE QTY☂	Fluid quantity is low (TKS).
ANTI ICE SPEED☂	Airspeed is too low for ice protection (TKS).

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional) /
[1] In air only / † Garmin AFCS required

CAS Window Text	Alerts Window Text
ANTI ICE SPEED☂	Airspeed is to high for ice protection (TKS).
ANTI ICE TEMP	Temperature is too low for ice protection (TKS).
AP MISCOMPARE✧	Autopilot miscompare, autopilot is not available.
AP/PFD DIF ADC✧	Autopilot and PFD are using different ADCs.
AP/PFD DIF AHRS✧	Autopilot and PFD are using different AHRSs.
AVIONICS OFF	Avionics master switch is off.
BATT 1	Check battery 1 current.
BRAKE TEMP	Brake temperature is high.
CHT	Cylinder head temperature is high.
FLAP OVERSPEED	Flaps are extended beyond airspeed limitations.
FUEL IMBALANCE	Fuel quantity imbalance has been detected.
FUEL QTY	Check fuel tank levels.
HYPOXIA ALERT†	Hypoxia caution alert.
LRG MAG VAR	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
M BUS 1	Check main power bus 1.
M BUS 2	Check main power bus 2.
MAN 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✧	Oxygen quantity is low.
OXYGEN RQD✧	Oxygen is required.
PARK BRAKE	Parking break is set.
PITOT HEAT FAIL	Pitot heat failure.
PITOT HEAT REQD	Pitot heat is required.
SLCT MAG	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to Magnetic.

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional) /
[1] In air only / † Garmin AFCS required

CAS Window Text	Alerts Window Text
SLCT NON-MAG	The system notifies the pilot to set the Nav Angle units on the 'Avionics Settings' Screen to True.
START ENGAGED	Starter is engaged.
TAKEOFF FLAPS	Flaps not in takeoff configuration.

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional) /
[1] In air only / † Garmin AFCS required

ADVISORY MESSAGES

CAS Window Text	Alerts Window Text
ALTITUDE SEL✧	Climbing away from selected altitude.
ALTITUDE SEL✧	Descending away from selected altitude.
ANTI ICE QTY☂	Fluid quantity is low (TKS).
AOA FAIL☂	Dynamic stall speed band is unavailable.
ARE YOU ALERT?†	Are you alert?
COURSE SELECT✧	Current track will not intercept selected course.
ESP CONFIG✧	ESP config error. Config service req'd.
EXIT ICING☂✧	Exit icing conditions.
FLAPS CLIMB	Flaps not set for enroute climb.
FUEL IMBALANCE	Fuel quantity imbalance has been detected.
HDG MODE	Heading mode active for extended period.
L FUEL QTY	Check left fuel tank level.
OXYGEN LEFT ON✧	Oxygen system is left on after shutdown.
OXYGEN QTY✧	Oxygen quantity is low.
PUMP BACKUP☂	Anti-ice backup pump mode has been selected (TKS).
R FUEL QTY	Check right fuel tank level.
ROL MODE	Roll mode is active.
SFC WATCH FAIL	Surfacewatch failed.
VNAV ALT SEL	The current altitude selected will not capture the path for VNAV.
VNAV NOT ARMED	Press VNV to arm VPATH capture.

✧ Optional / * Not applicable to all models / ☂ TKS FIKI (optional)/
† Garmin AFCS required

MESSAGE ADVISORY ALERTS

Alerts Window Message
CO DET FAIL – The carbon monoxide detector is inoperative.
CO DET SRVC – The carbon monoxide detector needs service.
ESP FAIL† – ESP is inoperative.
ESP OFF† – ESP selected off.
ESP DEGRADE† – ESP IAS mode is inoperative.
FAILED PATH✧ – An autopilot servo data path has failed.
MFD FAN FAIL – MFD cooling fan is inoperative.
PFD FAN FAIL – PFD cooling fan is inoperative.

✧ Optional/ ☂ TKS FIKI (*optional*)/ † Garmin AFCS required

OTHER SYSTEM ANNUNCIATIONS AND ALERTS

VOICE ALERTS

The following aural alerts are announced by the system using a voice of female gender. If an optional terrain system is installed, voice alerts are also generated (refer to the appropriate terrain alerts section in the Hazard Avoidance Section).

Message	Description
"Airspeed"	Airspeed exceeds VNE.
"Altitude"	Issued when the aircraft transitions beyond the set altitude limit.
"Check runway"	Issued when the aircraft is landing on a non-runway (e.g. a taxiway).
"Engaging autopilot"	The ESP system is engaging the autopilot. See the Additional Features section for more details.
"Minimums, minimums"	Aircraft has descended below the preset barometric minimum descent altitude.
"Incoming Call"	A call has been received via the Iridium system.
"Runway too short"	Issued when the aircraft is taking off from a non-runway (e.g. a taxiway).
"Six hundred"	The aircraft is 600 feet above terrain or runway.
"Spin, spin, spin"	Spin entry detected.
"Stall"	Imminent stall is sensed by stall vane.
"TAS System Test Passed"	Played when the optional GTS traffic system passes a pilot-initiated self test.
"TAS System Test Failed"	Played when the optional GTS traffic system fails a pilot-initiated self test.
"Taxiway"	Issued when the aircraft is taking off from, or landing on, a runway with a length less than needed as entered.

Message	Description
"Taxiway"	Issued when the aircraft is taking off from, or landing on, a runway different than that entered in the Takeoff Data or Landing Data screen.
"Timer Expired"	Countdown timer on the PFD has reached zero.
"TIS Not Available"	Aircraft is outside TIS coverage area.
"Traffic"	TIS Traffic Advisory (TA) is issued with the TIS system.
"Traffic, (distance, bearing, altitude)"	TAS Traffic Advisory (TA) is issued with the optional GTS TAS system. See the Hazard Avoidance section for additional details on GTS voice alerts.
"Vertical track"	Aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.

COMPARATOR ANNUNCIATIONS

Annunciation	Condition
ALT	Difference in altitude sensors is > 200 ft.
IAS	If either airspeed sensor detects > 35 knots, and the difference in sensors is > 10 knots
	If either airspeed sensor detects > 80 knots, and the difference in sensors is > 7 knots.
	Difference in heading sensors is > 6 degrees.
HDG	Difference in pitch sensors is > 5 degrees.
PIT	Difference in roll sensors is > 6 degrees.
ROL	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.
PIT	No data from one or both pitch sensors.
ROL	No data from one or both roll sensors.

REVERSIONARY SENSOR ANNUNCIATIONS

Reversionary Sensor Window Text	Condition
USING ADC2	PFD1 is displaying data from the #2 Air Data Computer
USING AHRS2	PFD1 is displaying data from the #2 AHRS.

GARMIN AFCS STATUS ALERTS

Alert Condition	Annunciation	Description
Elevator Mistrim Down	↓ELE	Pitch servo providing sustained force in the indicated direction
Elevator Mistrim Up	↑ELE	
Pitch Trim Failure (or stuck **MEPT** Switch)	PTRM	If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move **MEPT** switches separately to unstick
Roll Failure	ROLL	Roll axis control failure; AP inoperative
Pitch Failure	PTCH	Pitch axis control failure; AP inoperative
System Failure	AFCS	AP and MEPT are unavailable; FD may still be available
Preflight Test	PFT	Performing preflight system test; aural alert sounds at completion Do not press the **AP DISC** Switch during servo power-up and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-up tests). Power must be cycled to the servos to remedy the situation.
	PFT	Preflight system test failed; aural alert sounds at failure

GARMIN AFCS CONDITION/STALL ALERT

Condition	Annunciation	Description
Overspeed	MAXSPD	Flashing annunciation indicating aircraft overspeed condition. The autopilot, if engaged, will follow the pitch up command for the flight director. Engine power should be reduced and/or the pitch reference adjusted to slow the aircraft. The annunciation disappears when the overspeed condition is resolved.
Underspeed/ Stall	MINSPD	Flashing annunciation indicating aircraft underspeed or imminent stall condition. An underspeed condition initiates flight director commands for pitch down and, if engaged, the autopilot will follow the pitch down command. Engine power should be increased and/or the pitch reference adjusted to increase airspeed. A stall condition causes the flight director to capture the Stall Warning Reference Airspeed (i.e., the speed at which Stall Warning Mode was entered) and commands a pitch attitude to follow the reference speed. The Stall Warning Reference Airspeed is increased at a rate of one kt/sec. The annunciation disappears when the condition is resolved.

SURFACEWATCH ALERTS

SurfaceWatch Alert Annunciation	Associated Voice Alert	Description
TWY TAKEOFF	"Taxiway"	Issued when the aircraft is taking off from a non-runway (e.g. a taxiway).
RWY TOO SHORT	"Runway too short"	Issued when the aircraft is taking off from a runway with a length less than needed as calculated by the PERF function.
CHECK RUNWAY	"Check runway"	Issued when the aircraft is taking off from a runway different than that entered in PERF.
TWY LANDING	"Taxiway"	Issued when the aircraft is landing on a non-runway (e.g. a taxiway).
RWY TOO SHORT	"Runway too short"	Issued when the aircraft is landing on a runway with a length less than needed as calculated by the PERF function.
CHECK RUNWAY	"Check runway"	Issued when the aircraft is landing on a runway different than that entered in PERF.

GDL 69 SXM DATA LINK RECEIVER MESSAGES

Message	Message Location	Description
CHECK ANTENNA	XM Information Page (MFD)	Data Link Receiver antenna error; service required
UPDATING	XM Information Page (MFD))	Data Link Receiver updating encryption code
NO SIGNAL	XM Information Page Weather Datalink Page (MFD)	Loss of signal; signal strength too low for receiver
LOADING	XM Radio Page (MFD)	Acquiring channel audio or information
OFF AIR	XM Radio Page (MFD)	Channel not in service
--------	XM Radio Page (MFD)	Missing channel information
WEATHER DATA LINK FAILED	Weather Datalink Page (MFD)	No communication from Data Link Receiver within last 5 minutes

Message	Message Location	Description
ACTIVATION REQUIRED	XM Information Page (MFD)	Sirius XM subscription is not activated
DETECTING ACTIVATION	Weather Datalink Page (MFD)	Sirius XM subscription is activating.
WAITING FOR DATA...	Weather Datalink Page (MFD)	Sirius XM subscription confirmed downloading weather data.

FLIGHT PLAN IMPORT/EXPORT MESSAGES

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

Flight Plan Import/ Export Results	Description
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

PILOT PROFILE IMPORT/EXPORT MESSAGES

Pilot Profile Import/ Export Results	Description
'Pilot profile import succeeded.'	The pilot profile has been successfully imported from the SD card into the system.
'Pilot profile import failed.'	The pilot profile was not successfully imported from the SD card into the system.
'Pilot profile export succeeded.'	The pilot profile has been successfully exported from the system to the SD card.
'Pilot profile export failed.'	The pilot profile was not successfully exported from the system to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.
'No pilot profiles found to import.'	The SD card does not contain pilot profile data or an SD card has not been inserted.
'Profile name invalid. Enter a different profile name.'	The pilot profile names "DEFAULT PROFILE", "CURRENT SETTINGS", "GARMIN DEFAULTS", "NONE", or a name beginning with a blank space are reserved by the system and cannot be used. Choose a different pilot profile name.
'All available pilot profiles in use. Delete a profile before importing another.'	The maximum quantity of pilot profiles which can be stored on the system has been reached. Delete a profile on the system before importing another profile from an SD card.

CONNEXT WEATHER MESSAGES

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

Weather Request Status Message	Description
Auto update retry: ## Seconds	The system will attempt another automatic weather data request after an error occurred during the previous request. Timer counts down until the next automatic request occurs.
Connext Comm Error [1]	A general error has occurred. If the error persists, the system should be serviced.
Connext Comm Error [2]	A communications error has occurred with the GDL59 or GIA. The system should be serviced.
Connext Comm Error [3]	A general error has occurred. If the error persists, the system should be serviced.
Connext Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GDL 59 or a GIA is off-line.
Connext Comm Error [5]	This can occur if the GDL 59 is off-line or not configured, or the Iridium or Garmin Connext services are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
Connext Comm Error [6]	A communications error has occurred. It 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 data request.
Connext Comm Error [8]	A server error has occurred or invalid data received.
Connext Comm Error [9]	An error occurred while reading or writing data. If the error persists, the system should be serviced.
Connext Login Invalid	There is a problem with the Garmin Connext registration. Contact Garmin at 1-866-739-5687 in the United States or 913-397-8200, wait for the operator, and request Extension 1135 for assistance.
Connext Server Temp Inop	The Garmin Connext Weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
Connext Server Inop	The Garmin Connext Weather data server will be out of service for at least 30 minutes.
Invalid Coverage Area	The weather data request coverage area does not contain at least one of the following: a waypoint, a flight plan, or a flight plan destination. Verify at least one of the coverage options is enabled (checked) and contains required criteria, then re-send the data request.

Weather Request Status Message	Description
No Connext Subscription	The system is not be currently subscribed to Garmin Connext services or the access code is incorrect. Verify the access code. Contact Garmin at 1-866-739-5687 in the United States or 913-397-8200, wait for the operator, and request Extension 1135 for assistance.
Reduce Request Area	The size of the received weather data has exceeded system memory limits. Reduce the size of the coverage area and issue another Connext Data Request to ensure all available weather data has been received.
Request Canceled	The user has cancelled a Connext Data Request.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.
Transfer Preempted	The GDL 59 is busy. Retry request later.

SYSTEM MESSAGE ADVISORIES

Message	Comments
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	The AHRS is reporting that the altitude error correction is unavailable.
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	The AHRS is reporting that the airspeed error correction is unavailable.
ADC1 SERVICE – ADC1 needs service. Return unit for repair.	The AHRS should be serviced.
ADC2 ALT EC – ADC1 altitude error correction is unavailable.	The AHRS is reporting that the altitude error correction is unavailable.
ADC2 AS EC – ADC2 airspeed error correction is unavailable.	The AHRS is reporting that the airspeed error correction is unavailable.

Message	Comments
ADC2 SERVICE – ADC2 needs service. Return unit for repair.	The AHRS should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 CAL – AHRS1 calibration version error. Srvc req'd.	The AHRS calibration version error. The system should be serviced.
AHRS1 CONFIG – AHRS1 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The AHRS is not receiving any or any useful GPS information. Check current version of pertinent flight manual limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS1 SERVICE – AHRS1 Magnetic-field model needs update.	The AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving airspeed.	The AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.

Message	Comments
AHRS2 GPS – AHRS2 using backup GPS source.	The AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The AHRS is not receiving any or any useful GPS information. Check current version of pertinent flight manual limitations. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The AHRS is not receiving backup GPS information. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS2 SERVICE – AHRS2 Magnetic-field model needs update.	The AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS2 TAS – AHRS2 not receiving airspeed.	The AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APPR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.
APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV only minimums.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
AUDIO MANIFEST - Audio software mismatch, communication halted.	Incorrect audio software installed. The system should be serviced.

Message	Comments
CHECK CRS – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
COM #[1, 2] INOP - CAL - Check COM calibration.	COM 1 and/or COM 2 calibration version error. Check COM calibration.
COM #[1, 2] INOP - CRNT - Check COM current.	COM 1 and/or COM 2 current is low. Check COM current.
COM #[1, 2] INOP - INTRL - Com internal fault.	COM 1 and/or COM 2 has an internal fault.
COM #[1, 2] REDUCED TX POWER - COM synthesizer lock fault.	COM 1 and/or COM 2 has a reduced transmission power.
COM #[1, 2] INOP - SYNTH - COM synthesizer lock fault.	The COM 1 and/or COM 2 has a synthesizer lock fault.
COM1 CONFIG – COM1 config error. Config service req'd.	The COM1 configuration settings do not match backup configuration memory. The system should be serviced.
COM1 MANIFEST – COM1 software mismatch, communication halted.	COM1 software mismatch. The system should be serviced.
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.

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

Message	Comments
COPILOT PRIM PTT KEYSTK - Copilot primary push-to-talk key is stuck.	The GMA external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COPILOT SEC PTT KEYSTK - Copilot secondary push-to-talk key is stuck.	The GMA external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COPILOT RADIOS MUTED - Copilot radios are muted.	The copilot radios are set on mute.
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFD with preferred settings, if desired.
DB CHANGE – Database changed. Verify user modified procedures.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify that the user-modified procedures in stored flight plans are correct and up to date.
DB CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify use of airways in stored flight plans and reload airways as needed.
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFD and MFD have different navigation database versions or regions installed. Crossfill is off. Check the 'Aux-System Status' Page to determine versions or regions. Also, check the 'Aux-System Status' Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.

Message	Comments
DB MISMATCH – Standby Navigation database mismatch.	The PFD and MFD have different standby navigation database versions or regions installed. Check the 'Aux-System Status' Page to determine versions or regions. Also, check the 'Aux-System Status' Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFD and MFD have different terrain database versions or regions installed. Check the 'Aux-System Status' Page to determine versions or regions. Also, check the 'Aux-System Status' Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFD and MFD have different obstacle database versions or regions installed. Check the 'Aux-System Status' Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
FAILED PATH – A data path has failed.	A data path connected to the GDU or the GIA has failed.
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-up, the system detects that a stored flight plan waypoint is locked. This occurs when an navigation database update eliminates an obsolete waypoint. The flight plan cannot find the specified waypoint and flags this message. This can also occur with user waypoints in a flight plan that is deleted. Remove the waypoint from the flight plan if it no longer exists in any database, Or Update the waypoint name/identifier to reflect the new information.

Message	Comments
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
FS510 CARD ERROR – FS510 not detected in MFD Bottom Slot.	The multimedia card was removed from the bottom card slot of the MFD. The multimedia card needs to be reinserted.
G/S1 FAIL – G/S1 is inoperative.	A fault has been detected in glideslope receiver 1. The system should be serviced.
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A fault has been detected in glideslope receiver 1. The receiver may still be available. The system should be serviced when possible.
G/S2 FAIL – G/S2 is inoperative.	A fault has been detected in glideslope receiver 2. The system should be serviced.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	A fault has been detected in glideslope receiver 2. The receiver may still be available. The system should be serviced when possible.
GCU CNFG – GCU Config error. Config service req'd.	GCU configuration settings do not match those of backup configuration memory. The system should be serviced.
GCU FAIL – GCU is inoperative.	A fault has been detected in the GCU. The GCU is unavailable.
GCU KEYSTK – GCU [key name] Key is stuck.	A key is stuck on the GCU bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
GCU1 MANIFEST – GCU software mismatch, ommunication halted.	The GCU has incorrect software installed. The system should be serviced.
GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The GDC has incorrect software installed. The system should be serviced.

Message	Comments
GDC2 MANIFEST – GDC2 software mismatch, communication halted.	The GDC has incorrect software installed. The system should be serviced.
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69A SXM configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A fault has been detected in the GDL 69A SXM. The receiver is unavailable. The system should be serviced.
GDL69 MANIFEST – GDL69 software mismatch, communication halted.	The GDL 69A SXM has incorrect software installed. The system should be serviced.
GEA #1 INOP- CAL - Check GEA rigging.	There is a problem with the GEA 1 rigging. Check the rigging.
GEA #1 INOP - CNFG - 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.
GEA #1 CM INOP - COMM - Check GEA config module connection.	There is a problem with the GEA 1 config module connection. Check the connection.
GEA #1 CM INOP - INTRL - GEA internal fault.	GEA 1 has an internal fault. The system should be serviced.
GEA #1 CM INOP - SENS - Check GEA configuration.	There is an error in the GEA 1 configuration. Check the configuration. If the problem persists, the system should be serviced.
GEA #1 CM INOP - TEMP - Check GEA config module cooling.	The GEA 1 configuration module has insufficient cooling. If the problem persists, the system should be serviced.
GEA #1 CM INOP - VOLT - Check GEA voltages.	The GEA 1 voltage is low. Check GEA voltages.
GEA1 CONFIG – GEA1 config error. Config service req'd.	The GEA1 configuration settings do not match those of backup configuration memory. The system should be serviced.

Message	Comments
GEA1 MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA has incorrect software installed. The system should be serviced.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	
GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
GIA #[1, 2] INOP - CRNT - Check GIA current.	GIA 1 and/or GIA 2 current is low. The current should be checked.
GIA #[1, 2] OVER TEMP - Check GIA temperature.	GIA 1 and/or GIA 2 is reporting an over-temperature condition.
GIA #[1, 2] INOP - SERIAL - Check GIA serial communication.	Loss of GIA 1 and/or GIA 2 serial communication. Check GIA serial communication.
GIA #[1, 2] INOP - VOLT - Check GIA voltage.	GIA 1 and/or GIA 2 low voltage. Check voltage.
GMA1 AUX MANIFEST – GMA 1 AUX software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.

Message	Comments
GMA1 MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.
GMU1 MANIFEST – GMU1 software mismatch, communication halted.	The GMU has incorrect software installed. The system should be serviced.
GMC CONFIG – GMC Config error. Config service req'd.	Error in the configuration of the GMC.
GMC KEYSTK – GCU [key name] Key is stuck.	A key is stuck on the GMC bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
GMC MANIFEST – GMC software mismatch, communication halted.	The GMC has incorrect software installed. The system should be serviced.
GPS #[1, 2] INSPECT RQRD - BATT - Check GPS battery.	The GPS battery needs to be checked.
GPS #[1, 2] INSPECT INOP - CAL - Check GPS battery.	GPS 1 and/or GPS 2 calibration version error. Check GPS calibration.
GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS fault.

Message	Comments
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A fault has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
GSR2 FAIL – GSR2 has failed.	A fault has been detected in the GSR 56. The transceiver is unavailable. The system should be serviced.
GRS2 MANIFEST – GRS2 software mismatch, communication halted.	The AHRS has incorrect software installed. The system should be serviced.
GTS CONFIG – GTS Config error. Config service req'd.	The GTS and GDU have different copies of the GTS configuration, or the Mode S address is invalid. The system should be serviced.
GTS MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.
GTX1 MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HDG FAULT – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HOLD EXPIRED – Holding EFC time expired.	Expect Further Clearance (EFC) time has expired for the User Defined Hold.
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected; only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	

Message	Comments
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
LOCKED FPL – Cannot navigate locked flight plan.	This occurs when the pilot attempts to activate a stored flight plan that contains locked waypoint. Remove locked waypoint from flight plan. Update flight plan with current waypoint.
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
MANIFEST – MFD1 software mismatch. Communication halted.	The MFD has incorrect software installed. The system should be serviced.
MANIFEST – PFD1 software mismatch. Communication halted.	The PFD has incorrect software installed. The system should be serviced.
MFD SOFTWARE – MFD mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
MFD TERRAIN DSP – MFD Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the specified GDU is missing or invalid.
MFD1 BACKLIGHT CALIBRATION – MFD1 calibration. Return for repair.	The specified GDU's backlight calibration cannot be found or is invalid. The system should be serviced.
MFD1 CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified MFD contains invalid data.
MFD1 CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified MFD. The SD card needs to be reinserted.
MFD1 CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified MFD contains invalid data.
MFD1 CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified MFD. The SD card needs to be reinserted.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.

Message	Comments
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	The MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 multiple database errors exists.	The MFD detected a failure in more than one database. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD detected a failure in the obstacle database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD detected a failure in the terrain database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
MFD1 INOP - DISABLE DISPLAY - Check Disable Display Input Wiring	The specified GDU has insufficient voltage. The system should be serviced.
MFD1 INOP - ECC ERROR - Internal memory unstable - needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.
MFD1 INOP - HTR CRNT - Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
MFD1 INOP - LED STR FAULT - Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
MFD1 INOP - TEMP - Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.

Message	Comments
MFD1 INSPECT RQRD – **BTM SD -** Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.
MFD1 INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.
MFD1 INSPECT RQRD – **TOP SD -** Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
MFD1 KEYSTK – MFD1 [key name] is stuck.	A key is stuck on the MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
NAV #[1, 2] INOP - CAL - Check COM calibration.	NAV 1 and/or NAV 2 calibration version error. Check COM calibration.
NAV #[1, 2] INOP - CRNT - Check COM current.	NAV 1 and/or NAV 2 current is low. Check COM current.
NAV #[1, 2] INOP - INTRL - Com internal fault.	NAV 1 and/or NAV 2 has an internal fault.
NAV #[1, 2] INOP - SERIAL - Check NAV serial communication.	Loss of NAV 1 and/or NAV 2 serial communication. Check NAV serial communication.
NAV #[1, 2] INOP - SYNTH LOCK - COM synthesiser lock fault.	NAV 1 and/or NAV 2 has a synthesizer lock fault.
NAV1 MANIFEST – NAV1 software mismatch, communication halted.	NAV1 software mismatch. The system should be serviced.

Message	Comments
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 receiver. The receiver may still be available. The system should be serviced.
NAV2 MANIFEST – NAV2 software mismatch, communication halted.	NAV2 software mismatch. The system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	A failure has been detected in the NAV2 receiver. The receiver may still be available. The system should be serviced.
NON-MAG UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-up.
NO RUNWAY POSITION DATA – Inhibit SurfaceWatch. No runway position data.	Inhibit SurfaceWatch.
NON WGS84 WPT – Do not use GPS navigation to [xxxx].	The position of the selected waypoint [xxxx] is not calculated based on the WGS84 map reference datum and may be positioned in error as displayed. Do not use GPS to navigate to the selected non-WGS84 waypoint.
PFD1 BACKLIGHT CALIBRATION – PFD1 calibration lost. Return for repair.	The PFD1 backlight calibration cannot be found or is invalid. The system should be serviced.

Message	Comments
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
PFD1 CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified PFD contains invalid data.
PFD1 CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD. The SD card needs to be reinserted.
PFD1 CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified PFD contains invalid data.
PFD1 CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD. The SD card needs to be reinserted.
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD2 DB ERR – PFD2 multiple database errors exists.	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.
PFD2 DB ERR – PFD2 obstacle database error exists.	The PFD detected a failure in the obstacle database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
PFD1 DB ERR – PFD2 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD2 DB ERR – PFD2 terrain database error exists.	The PFD detected a failure in the terrain database. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
PFD2 DB ERR – PFD2 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 INOP - DISABLE DISPLAY - Check Disable Display Input Wiring	The specified GDU has insufficient voltage. The system should be serviced.
PFD1 INOP - ECC ERROR - Internal memory unstable - needs repair.	The internal memory of the specified GDU is unstable. The system should be serviced.

Message	Comments
PFD1 INOP - HTR CRNT - Heater Current Error.	The specified GDU has a heater current error. The system should be serviced.
PFD1 INOP - LED STR FAULT - Reduced backlight level - needs repair.	The specified GDU has reduced backlight levels. The system should be serviced.
PFD1 INOP - TEMP - Check external cooling fans.	The specified GDU is over-temperature. The system should be serviced.
PFD1 INSPECT RQRD – **BTM SD -** Bottom SD Card Unstable - Install new card.	The bottom SD card is unstable and should be replaced.
PFD1 INSPECT RQRD - INTERN SD – Internal Micro SD Unstable - Install new card.	The internal SD card is unstable and should be replaced.
PFD1 INSPECT RQRD – **TOP SD -** Top SD Card Unstable - Install new card.	The top SD card is unstable and should be replaced.
PFD1 KEYSTK – 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.
PFD1 SERVICE – PFD2 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
PFD1 TERRAIN DSP – PFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in PFD1 is missing or invalid.
PFD1 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 voltage is low. The system should be serviced.

Message	Comments
PILOT PRIM PTT KEYSTK - Pilot primary push-to-talk key is stuck.	The GMA external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
PILOT SEC PTT KEYSTK - Pilot secondary push-to-talk key is stuck.	The GMA external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
PILOT RADIOS MUTED – Pilot radios are muted.	The pilot radios are set on mute.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
REGISTER CONNEXT – Data services are inoperative, register w/Connext.	The system is not registered with Garmin Connext or its current registration data has failed authentication.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.

Message	Comments
SURFACEWATCH DISABLED - Too fa r north/ south.	The SurfaceWatch system has been disabled.
SURFACEWATCH FAIL - Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.
SURFACEWATCH FAIL - Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.
SURFACEWATCH FAIL - One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.
SURFACEWATCH INHIBITED - Surfacewatch inhibited.	The SurfaceWatch system has been inhibited.
SVT DISABLED – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVT DISABLED – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (4.9 arc-second or better) is not currently installed.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFD have different software versions installed. The system should be serviced.
SYSTEM CONFIG – SYSTEM config error. Config service req'd.	The system configuration has changed unexpectedly. The system should be serviced.
TERRAIN AUD CFG – Trn Awareness audio config error. Service req'd.	Terrain audio alerts are not configured properly. The system should be serviced
TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.

Message	Comments
TRN AUD FAIL – Trn Awareness audio source unavailable.	The audio source for terrain awareness is offline. Check GIA1 or GIA 2.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
VNV – Unavailable. Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
VNV – Unavailable. Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
VNV – Unavailable. Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
XPDR1 ADS-B 1090 – Datalink: ADS-B 1090 receiver has failed.	A failure has been detected in the 1090 receiver.
XPDR1 ADS-B FAIL – Transponder: XPDR1 is unable to transmit ADS-B messages.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
XPDR1 ADS-B NO POS – Transponder: ADS-B is not transmitting position.	The transponder is not able to receive position information.
XPDR1 ADS-B TRFC – Transponder: ADS-B traffic has failed	The Transponder is incapable of processing traffic information.

Message	Comments
XPDR1 ADS-B UAT – Datalink: ADS-B in UAT receiver has failed.	A failure has been detected in the UAT receiver.
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR1 CSA FAIL - Traffic: ADS-B In traffic alerting has failed.	ADS-B Conflict Situational Awareness (CSA) is unavailable.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR1 FAULT – Datalink: ADSB-B in has failed.	The transponder is unable to receive ADS-B information.
XPDR1 FIS-B WX – Datalink: FIS-B Weather has failed.	The transponder is unable to receive FIS-B weather information.
XPDR1 OVER TEMP - Transponder: Transponder over temp.	The system has detected an over temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
XPDR1 PRES ALT – Transponder: ADS-B no pressure altitude.	Unable to provide pressure altitude information.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XPDR1 UNDER TEMP - Transponder: Transponder under temp.	The system has detected an under temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.

TERRAIN ALERTS

TERRAIN-SVT ALERTS

Alert Type	PFD/MFD* Alert Annunciation	MFD Pop-Up Alert (except Terrain-SVT Page)	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Line Clearance Warning (RLC)	TERRAIN	WARNING – WIRE	"Warning; Wire, Wire"
Imminent Line Impact Warning (ILI)	TERRAIN	WARNING – WIRE	"Warning; Wire, Wire"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Terrain Impact Caution (ILI)	TERRAIN	CAUTION – WIRE	"Caution; Wire, Wire"
Required Reduced Line Clearance Impact Caution (RLCI)	TERRAIN	CAUTION – WIRE	"Caution; Wire, Wire"

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

TERRAIN-SVT SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD† Alert Annunciation	Terrain-SVT Page Center Banner Annunciation	Voice Alert
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting Inhibited	TER INH	None	None
No GPS position	TER N/A	NO GPS POSITION	"Terrain System Not Available"*
Excessively degraded GPS signal; or Out of database coverage area	TER N/A	None	"Terrain System Not Available"*
Terrain System Test Fail; Terrain or Obstacle database unavailable or invalid; Invalid software configuration; or System audio fault	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
MFD Terrain or Obstacle database unavailable or invalid, and Terrain-SVT operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None

† *Annunciation is shown on Terrain-SVT Page and the Navigation Map Page when Terrain is enabled.*
* *"Terrain System Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.*

TAWS-B ALERTS

Alert Type	PFD/TAWS-B Page Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Excessive Descent Rate Warning (EDR)	PULL UP	PULL–UP	"Pull Up"
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN – PULL–UP	"Terrain, Terrain; Pull Up, Pull Up"
Imminent Line Impact Warning (ILI)	PULL UP	WIRE AHEAD – PULL–UP	"Wire Ahead; Pull Up, Pull Up"

Alert Type	PFD/TAWS-B Page Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Reduced Required LIne Clearance Warning (RLC)	PULL UP	WARNING – WIRE	"Wire, Wire; Pull Up, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD – PULL–UP	"Terrain Ahead, Pull Up; Terrain Ahead, Pull Up"
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE – PULL–UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD – PULL–UP	"Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution, Terrain; Caution, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN AHEAD	"Terrain Ahead; Terrain Ahead"
Required Reduced Line Clearance Impact Caution (RLC)	TERRAIN	CAUTION – WIRE	"Caution, Wire; Caution, Wire"
Imminent Line Clearance Impact Caution (ILI)	TERRAIN	WIRE AHEAD	"Wire Ahead; Wire Ahead"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE	"Caution, Obstacle; Caution, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD	"Obstacle Ahead; Obstacle Ahead"
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW – TERRAIN	"Too Low, Terrain"
Altitude Voice Callout (VCO) "500"	None	None	"Five-Hundred"
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Negative Climb Rate Caution (NCR)	TERRAIN	DONT SINK	"Don't Sink"

TAWS-B SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD Alert Annunciation†	TAWS-B Page Center Banner Annunciation	Voice Alert
System Test in progress	TAWS TEST	TAWS TEST	None
System Test pass	None	None	"TAWS System Test OK"
TAWS-B FLTA Alerting Inhibited	TAWS INH	None	None
No GPS position	TAWS N/A	NO GPS POSITION	"TAWS Not Available"*
Excessively degraded GPS signal; or Out of database coverage area	TAWS N/A	None	"TAWS Not Available"*
TAWS-B System Test Fail; Terrain or Obstacle database unavailable or invalid; Invalid software configuration; or System audio fault	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
MFD Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None

† Annunciation is shown on TAWS-B Page and the Navigation Map Page when Terrain is enabled.
** "TAWS Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.*

TRAFFIC ALERTS

TAS TRAFFIC MODES

Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Display Status Icon (Other Maps)
Traffic System Test Initiated	TEST ('TEST MODE' shown in center of page)	
Operating	OPERATING	

Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Display Status Icon (Other Maps)
Standby	STANDBY (also shown in white in center of page)	
Traffic System Failed*	FAIL	

TAS FAILURE ANNUNCIATIONS

Traffic Map Page Center Annunciation	Description
NO DATA	Data is not being received from the TAS unit
DATA FAILED	Data is being received from the TAS unit, but the unit is self-reporting a failure
FAILED	Incorrect data format received from the TAS unit

TAS TRAFFIC STATUS ANNUNCIATIONS

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

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

GTS 800 TRAFFIC ADVISORY SYSTEM VOICE ALERTS

Voice Alert	Alert Trigger
"TAS System Test Passed"	The traffic system has passed a pilot-initiated system test.
"TAS System Test Failed"	The traffic system has failed a pilot-initiated system test.
"Traffic"	Issued each time a new traffic advisory (TA) occurs.

GARMIN DESCRIPTIVE TAS VOICE ALERTS

Bearing	Relative Altitude	Distance (nm)
"One o'clock" through "Twelve o'clock" or "No Bearing"	"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"

ADS-B TRAFFIC MODES

ADS-B Mode	Traffic Mode Annunciation (Traffic Map Page)	Traffic Map Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B System Test Initiated	ADS–B: TEST	TEST MODE	
ADS-B Operating in Airborne Mode	ADS–B: AIRB	None	
ADS-B Operating in Surface Mode	ADS–B: SURF	None	
ABS-B Traffic Off	ADS–B: OFF	ADS–B TRFC OFF	
ADS-B Traffic Not Available	ADS–B: N/A	ADS–B TRFC N/A	
ADS-B Failed*	ADS–B: FAIL	ADS–B TRFC FAIL	

See the following table for additional failure annunciations

ADS-B Ground Station Reception Status	Traffic Map Pane Icon
Receiving ADS-B traffic services from a ground station	
Not receiving ADS-B traffic services from a ground station	

ADS-B TRAFFIC FAILURE ANNUNCIATIONS

Traffic Map Page Center Annunciation	Description
NO DATA	Data is not being received from the traffic unit
DATA FAILED	Data is being received from the traffic unit, but the unit is self-reporting a failure
FAILED	Incorrect data format received from the traffic unit

ADS-B TRAFFIC STATUS ANNUNCIATIONS

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

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

'AUX-ADS-B STATUS' PAGE MESSAGES

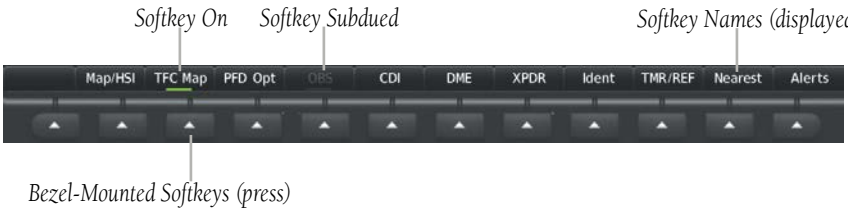
ADS-B Status Page Item	Status Message	Description
Traffic Application Status: Airborne (AIRB), Surface (SURF), Airborne Alerts (CSA)	On	Traffic application is currently on. Required input data is available, and it meets performance requirements.
	Available to Run	Traffic application is not currently active, but application is ready to run when condition(s) determine the application should be active. Required input data is available, and it meets performance requirements.
	Not Available	Traffic application is not available. Required input data is available, but it does not meet performance requirements.
	Fault	Traffic application is not available. Required input data is not available or the application has failed.
	Not Configured	Traffic application is not available, because it has not been configured. If this annunciation persists, the system should be serviced.
	----------	Traffic application status is invalid or unknown.
TIS-B/ADS-R Coverage	Available	The system is receiving the ADS-R coverage from an FAA ground station.
	Not Available	The system is not receiving the ADS-R coverage from an FAA ground station.
	----------	ADS-R coverage is invalid or unknown.
GPS Status: GPS Source	External #1	The GTX 345R is using the #1 GPS receiver for the GPS position source.
	External #2	The GTX 345R is using the #2 GPS receiver for the GPS position source.
	---------	The GPS source is invalid or unknown.
Ground Uplink Status: Last Uplink	Number of minutes, or '------'	Displays the number of minutes since the last uplink from a ground station occurred. If no uplink has been received, or the status is invalid, dashes appear instead of a number of minutes.

'AUX - ADS-B STATUS' PAGE MESSAGES FOR FIS-B WEATHER

ADS-B Status Page Item	Status Message	Description
FIS-B Weather Status: FIS-B Processing	Enabled	The FIS-B weather feature is enabled to process and display FIS-B weather products.
	Disabled	The FIS-B weather feature is disabled.
	----------	No FIS-B weather data received from the transponder.
Weather Products: AIRMET CONUS NEXRAD METAR METAR Graphical NOTAM/TFR PIREP Regional NEXRAD SIGMET TAF Winds/Temp Aloft	Available	FIS-B weather data is available for display for the weather product.
	Not Available	FIS-B weather data is not available for the weather product, and/or the system is not receiving the FIS-B weather service.
	Awaiting Data	The system is receiving the FIS-B weather service, and is waiting to receive the weather product from the FIS-B data broadcast.

APPENDIX

SOFTKEYS



Softkeys (First-Level PFD Configuration)

PFD SOFTKEYS

Level 1	Level 2	Level 3	Level 4	Description
Map/HSI				Displays the PFD Map display settings softkeys.
	Layout			Displays the PFD Map selection softkeys.
		Map Off		Removes the PFD map from display (Inset, HSI, or Traffic).
		Inset Map		Displays the Inset Map.
		HSI Map		Displays the HSI Map.
		Inset Trfc		Replaces the PFD Map with a dedicated traffic display.
		HSI Trfc		Replaces the HSI Map with a dedicated traffic display.
	Detail			Selects desired amount of map detail: - **All** (No Declutter): All map features visible - **Detail 3**: Declutters land data - **Detail 2**: Declutters land and SUA data - **Detail 1**: Removes everything except for the active flight plan
	Traffic			Displays traffic information on PFD Map.
	Topo			Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on PFD Map.
	TER			Displays relative terrain information on the PFD Map.

Level 1	Level 2	Level 3	Level 4	Description
	WX LGND			Displays weather and coverage on PFD Map.
	NEXRAD			Displays XM NEXRAD weather and coverage on PFD Map (subscription optional).
	METAR			Displays METAR information on Inset Map (subscription optional).
	Lightning			Adds/removes the display of SiriusXM or Connext lightning information (based on data link weather source selection) on the PFD Map.
		LTNG Off		Disables lightning function on PFD Map. The softkey annunciator is green when the lightning function is off.
		Datalink		Selects the data link weather source for the PFD Map.
		STRMSCP		Adds or removes the display of Stormscope information on the PFD Map. The softkey annunciator is green when the function is on.
TFC Map				Replaces the PFD Map with a dedicated traffic display.
PFD Opt				Displays second-level softkeys for additional PFD options.
	SVT			Displays additional SVT overlay softkeys.
		Pathways		Displays Pathway Boxes on the Synthetic Vision Display.
		Terrain		Enables synthetic terrain depiction.
		HDG LBL		Displays compass heading along the Zero-Pitch line.
		APT Sign		Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are displayed when the airport is within approximately 9 nm.
		FPA Ref		Displays the FPA reference line on the SVT pitch ladder at the selected angle.
		Wire		Displays power lines on the Synthetic Vision Display.

Level 1	Level 2	Level 3	Level 4	Description
	AOA			Selects the display mode of the AOA Indicator (optional) - **Off**: Disables the display of the AOA Indicator on the PFD. - **Auto**: Enables automatic display of the AOA Indicator on the PFD when the angle of attack is ≥ 0.2, or when flaps are extended. - **On**: Enables the display of the AOA Indicator on the PFD.
	Wind			Displays the wind option softkeys.
		Off		Wind information not displayed.
		Option 1		Wind direction arrow with direction and speed.
		Option 2		Wind direction arrows with headwind and crosswind components.
	DME			Displays 'DME Information' Window.
	Bearing 1			Cycles the 'Bearing 1 Information' Window through NAV1, NAV2, GPS/waypoint ID and GPS-derived distance, and Off.
	Sensors			Displays the sensor selection softkeys.
		ADC		Displays ADC selection softkeys.
			ADC1	Selects the #1 ADC.
			ADC2	Selects the #2 ADC (optional).
		AHRS		Displays the AHRS selection softkeys.
			AHRS1	Selects the #1 AHRS.
			AHRS2	Selects the #2 AHRS (optional).
	Bearing 2			Cycles the 'Bearing 2 Information' Window through NAV1, NAV2, GPS/waypoint ID and GPS-derived distance, and Off (optional).
	ALT Units			Displays softkeys to select altitude unit parameters.
		Meters		When enabled, displays altimeter in meters.
		IN		Press to display the BARO setting as inches of mercury.

Level 1	Level 2	Level 3	Level 4	Description
		HPA		Press to display the BARO setting as hectopascals.
	STD Baro			Sets barometric pressure to 29.92 in Hg (1013 hPa if metric units are selected).
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.
CDI				Cycles through GPS, NAV1, and NAV2 navigation modes on the CDI.
DME				Displays the 'DME Tuning' Window, allowing tuning and selection of the DME (optional).
XPDR				Displays the transponder selection softkeys.
	Standby			Selects transponder Standby Mode (transponder does not reply to any interrogations).
	On			Activates transponder (transponder replies to identification interrogations).
	ALT			Altitude Reporting Mode (transponder replies to identification and altitude interrogations).
	VFR			Automatically enters the VFR code (1200 in the U.S.A. only).
	Code			Displays transponder code selection softkeys 0-7.
		0 - 7		Use numbers to enter code.
		Ident		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
		BKSP		Removes numbers entered, one at a time.
Ident				Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
TMR/REF				Displays 'References' Window to access the Timer, Vspeeds, Minimums, and Position.
Nearest				Displays 'Nearest Airports' Window.

MFD SOFTKEYS

Level 1	Level 2	Level 3	Description
Engine			Displays 'EIS - Engine' Page and second-level engine softkeys; select again to exit page (see the EIS Section for more information).
	Anti-Ice		Displays Anti-Ice Softkeys.
		Left	Selects manual mode and opens the left tank valve and closes the right tank valve.
		Auto	Selects Auto Tank Mode.
		Right	Selects manual mode and opens the right tank valve and closes the left tank valve.
	DCLTR		Declutters the 'Engine Temperatures' Box removing bars and temperatures readouts.
	Assist		Identifies temperature peaks.
	Fuel-W&B		Displays 'Initial Usable Fuel' Page and softkeys.
		Full	Resets initial usable fuel to full.
		Tabs	Resets initial usable fuel to tabs.
		Undo	Rejects the last entry and resets to the previous entry.
		W&B	Saves the usable fuel amount shown on the 'Initial Usable Fuel' Page and displays the 'Aux - Weight and Balance' Page.
Map Opt			Displays second level Map Options softkeys.
	Traffic		Displays traffic information on 'Navigation - Map' Page.
	Inset		Displays inset window second level softkeys.
		Off	Removes the inset window from 'Navigation Map' Page.
		FPL PROG	Displays 'Flight Plan Progress' Window.
		VSD	Displays VSD inset on 'Navigation Map' Page. The softkey annunciator is green when the VSD is displayed.
		VSD	Selects VSD profile information to display: **Auto**: Automatically displays either VSD profile information for active flight plan information or along current track with no active flight plan. **FPL**: Displays VSD profile information for active flight plan. **TRK**: Displays VSD profile information along current track.

Level 1	Level 2	Level 3	Description
	TER		Displays terrain on the map; cycles through the following: - **Off**: No terrain information shown on MFD Map. - **Topo**: Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on MFD Map. - **REL**: Displays relative terrain information on the MFD Map.
	AWY		Displays airways on the map; cycles through the following: - **Off**: No airways are displayed. - **On**: All airways are displayed. - **LO**: Only low altitude airways are displayed. - **HI**: Only high altitude airways are displayed.
	STRMSCP		Displays Stormscope information on 'Navigation Map' Page (optional).
	NEXRAD or PRECIP		Displays XM NEXRAD weather and coverage on 'Navigation Map' Page (optional). Displays Garmin Connext radar precipitation and radar coverage information (optional).
	XM LTNG or DL LTNG		Displays XM lightning information on 'Navigation Map' Page (optional). Displays Connext Weather lightning information on the 'Navigation Map' Page (optional).
	METAR		Displays METAR information on Inset Map (subscription optional).
	Legend		Displays legends for the displayed XM Weather products (optional).
Detail			Selects desired amount of map detail; cycles through the following levels: - **Detail All**: All map features visible. - **Detail-3**: Declutters land data. - **Detail-2**: Declutters land and SUA data. - **Detail-1**: Removes everything except for the active flight plan.

Level 1	Level 2	Level 3	Description
Charts			When available, displays optional airport and terminal procedure charts.
	CHRT Opt		Displays chart display settings softkeys.
	SYNC		Displays the most pertinent chart based on the phase of flight and loaded procedures in the active flight plan.
	Info		Displays airport information: - **Info 1:** Displays 'Airport Information' Page - **Info 2:** Displays 'Airport Directory' Page
	DP		Displays departure procedure chart.
	STAR		Displays standard terminal arrival procedure chart.
	APR		Displays approach procedure chart.
	NOTAM		Displays NOTAM information for selected airport, when available.
Checklist			When available, displays optional checklists.
	DONE		Selects the highlighted checklist item.
	EXIT		Returns to the top-level softkeys.
	EMERGCY		Immediately accesses the emergency procedures.

LOADING UPDATED DATABASES

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

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

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

UPDATE DATABASES USING A SUPPLEMENTAL DATA CARD

Update Databases:

1) With the system OFF, remove an SD Card from the bottom SD card slot of the MFD.

2) Download and install the databases on an SD card.

3) Put the SD Card in the bottom SD card slot of the MFD.

4) Turn the system ON.

5) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

6) Turn the large **FMS** Knob and select 'Aux'.

7) Turn the small **FMS** Knob and select 'Databases'.

8) Monitor the Sync Status on the 'Aux-Databases' Page. Wait for all databases to complete syncing, indicated by 'Sync Complete' being displayed. A cyan double-arrow will appear between the 'Standby' and 'Active' columns to show which Standby databases will be transferred to 'Active' at the next power cycle.

9) Verify the correct database cycle information is shown in the 'Standby' column.

*NOTE: The **Restart** Softkey is enabled only when the aircraft is on the ground.*

10) Press the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished. A 10 second restart countdown will appear.

11) Press the **Restart** Button in the display window to continue with the restart of the system.

12) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

13) Turn the large **FMS** Knob and select 'Aux'.

14) Turn the small **FMS** Knob and select 'Databases'.

15) Verify that the standby databases transferred and are now in the 'Active' column.

16) To manually activate any databases that did not transfer to the active column:
    a) Press the **FMS** Knob. The first database title on the screen will be selected.
    b) Turn the small **FMS** Knob as necessary to select the database title.
    c) Press the **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.
    d) Press the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished. A 10 second restart countdown will appear.
    e) Press the **Restart** Button in the display window to continue with the restart of the system.
    f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
    g) Turn the large **FMS** Knob and select 'Aux'.
    h) Turn the small **FMS** Knob and select 'Databases'.
    i) Verify that the standby databases transferred and are now in the 'Active' column.
17) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.
18) To view database information for an individual display:
    a) Turn the large **FMS** Knob and select 'Aux'.
    b) Turn the small **FMS** Knob and select 'System Status'.
    c) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

UPDATING DATABASES USING THE WIRELESS TRANSCEIVER

In order to load databases through Garmin Pilot and the wireless transceiver, the wireless transceiver must be enabled on the system and inserted in the bottom SD slot of the MFD. A mobile device with Garmin Pilot must be paired with the wireless transceiver over Bluetooth (Refer to the Additional Features section). When there is at least one paired device available to connect, the wireless transceiver will automatically

connect to the system's preferred mobile device. The preferred device can be selected on the 'Aux - Databases' Page from a menu list of paired devices.

Once a connection to the paired mobile device is made, Garmin Pilot makes available databases that can be transferred 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 'Aux - Databases' Page, or from other pages on the MFD.

NOTE: *The system will only provide a WIFI connection if new databases have been detected for download on Garmin Pilot WIFI a valid Bluetooth connection. If there are no database updates required the system will not provide a WiFi signal.*

NOTE: *If the mobile device has previously connected to the wireless transceiver, and is not connected to another WIFI source, the mobile device should connect automatically to the wireless transceiver. If the mobile device is connected to another WIFI source (i.e. hangar WIFI), then the wireless transceiver will not connect automatically.*

Update Databases from any MFD page (except the 'Aux - Databases' Page):

1) Insert the wireless transceiver SD Card in the bottom slot of the MFD if not already inserted.
2) Turn the system ON.
3) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
4) On the mobile device, start Garmin Pilot and touch **Home > Connext > Database Concierge.**
5) Turn the large **FMS** Knob and select 'Aux'.
6) Turn the small **FMS** Knob and select the 'Connext Setup'.
7) Ensure that WIFI Database Import is enabled in the 'Device' Window (Refer to Additional Features section for instructions to enable WIFI Database Import).
8) Verify that the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.

9) In the 'Paired Devices' Window on the 'Connext Setup' Page, ensure the system is paired with the mobile device in use. (Refer to Additional Features for instructions on connection to a preferred device).

NOTE: *The database updates may now be continued from any MFD page, however, the update windows shown in these instructions will not be shown on the 'Aux - Databases' Page. Use the instructions for updating databases from the 'Aux - Databases' Page if desired.*

10) Press the **Update** Softkey when the following window appears. (Pressing the **View** Softkey will allow database updates to be viewed from the 'Aux Databases' Page, however, the windows will not appear on the 'Aux Databases' Page. Pressing the **Ignore** Softkey will postpone the updates until further action is taken.)

11) If using a device that has not been previously paired with the system, a password prompt will appear on the mobile device. Enter the password shown in the 'Password' Field of the 'Aux - Connext Setup' Page.

12) A window will appear. Database update progress may be monitored on the mobile device.

13) When the transfer is complete, the screen will appear. showing the transfer is complete.

14) Press the **Close** Softkey.

15) Select the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished.

16) Press the **Restart** Button in the display window to continue with the restart of the system.

17) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

18) Turn the large **FMS** Knob and select 'Aux'.

19) Turn the small **FMS** Knob and select 'Databases'.

20) Verify that the standby databases transferred and are now in the 'Active' column.

21) To manually activate any databases that did not transfer to the active column:

a) Press the **FMS** Knob. The first database title on the screen will be selected.

b) Turn the small **FMS** Knob as necessary to select the database title.

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

d) Press the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished.

e) Press the **Restart** Button in the display window to continue with the restart of the system.

f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

g) Turn the large **FMS** Knob and select 'Aux'.

h) Turn the small **FMS** Knob and select 'Databases'.

i) Verify that the standby databases transferred and are now in the Active column.

22) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

23) To view database information for an individual display:

a) Turn the large **FMS** Knob and select 'Aux'.

b) Turn the small **FMS** Knob and select 'System Status'.

c) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

Update Databases from the 'Aux - Databases' Page:

1) Insert the wireless transceiver SD Card in the bottom slot of the MFD if not already inserted.

2) Turn the system ON.

3) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

4) On the mobile device, start Garmin Pilot and tap **Home > Connext > Database Concierge.**

5) Turn the large **FMS** Knob and select 'Aux'.

6) Turn the small **FMS** Knob and select the 'Connext Setup'.

7) Ensure that WIFI Database Import is enabled in the 'Device' Window (Refer to Additional Features section for instructions to enable WIFI Database Import).

8) Verify that the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.

9) In the 'Paired Devices' Window on the 'Connext Setup' Page, ensure the system is paired with the mobile device in use. (Refer to Additional Features for instructions on connection to a preferred device).

10) Press the **Device** Softkey to view databases that are ready to be loaded from the mobile device (pressing the **Stby/Actv** Softkey will again display the current Standby and Active databases).

11) The 'Aux - Databases' Page will show the databases connected to the mobile device in place of the active databases on the system. Databases selected to load to the system will be indicated by a single cyan arrow.

12) Press the **Update** Softkey.

13) If using a device that has not been previously paired with the system, a password prompt will appear on the mobile device. Enter the password shown in the 'Password' Field of the 'Aux - Connext Setup' Page.

14) Database Update status will appear in the 'Status' Window at the top of the page. Monitor update progress in the 'Status' Window, or on the mobile device.

15) When all databases have been successfully transferred from the mobile device and appear in the Standby column, remove and reapply power to the system.

16) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

17) Turn the large **FMS** Knob and select 'Aux'.

18) Turn the small **FMS** Knob and select 'Databases".

19) Verify that the standby databases transferred and are now in the 'Active' column.

20) To manually activate any databases that did not transfer to the active column:

    a) Press the **FMS** Knob. The first database title on the screen will be selected.

b) Turn the small **FMS** Knob as necessary to select the database title.

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

NOTE: *The **Restart** Softkey is enabled only when the aircraft is on the ground.*

d) Press the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished.

e) Press the **Restart** Button in the display window to continue with the restart of the system.

f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

g) Turn the large **FMS** Knob and select 'Aux'.

h) Turn the small **FMS** Knob and select 'Databases'.

i) Verify that the standby databases transferred and are now in the 'Active' column.

21) For additional information on each database, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

22) To view database information for an individual display:

a) Turn the large **FMS** Knob and select 'Aux'.

b) Turn the small **FMS** Knob and select 'System Status'.

c) Press the **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.

d) Press the Display Database Selection Softkey (MFD1 DB, PFD1 DB) to show database information for each display. Use the small **FMS** Knob to scroll through the database information. Press the **ENT** Key or the **FMS** Knob to exit.

DATABASE DELETION FEATURE

Deleting databases:

1) Turn the large **FMS** Knob and select 'Aux'.

2) Turn the small **FMS** Knob and select 'Databases'.

3) Press the **Menu** Key.
4) Turn the small **FMS** Knob to select 'Delete Databases.'
5) Press the **ENT** Key.
6) A prompt will appear to confirm deletion of all internal databases. Push the **ENT** Key.
7) Another prompt will appear to confirm deletion of all internal databases. Push the **ENT** Key.

*NOTE: The **Restart** Softkey is enabled only when the aircraft is on the ground.*

8) Press the **Restart** Softkey to restart the system and load the updated database(s), or remove power from the system if the **Restart** Softkey is diminished.
9) Press the **Restart** Button in the display window to continue with the restart of the system.
10) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
11) Turn the large **FMS** Knob and select 'Aux'.
12) Turn the small **FMS** Knob and select 'Databases'.
13) Confirm that all databases have been deleted from the system.

MAGNETIC FIELD VARIATION DATABASE UPDATE

A copy of the current magnetic field variation database (MV DB) is included with the navigation database. At startup, the system compares this version of the MV DB with that presently being used by each AHRS (GRS1 and GRS2). If the system determines the MV DB needs to be updated, a prompt is displayed on the MFD.

Load the magnetic field variation database update:

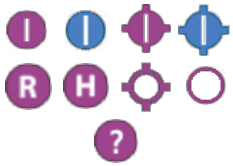
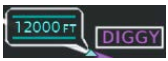
1) With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed
2) When the upload is complete, the prompt for the next GRS upload is displayed.
3) With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed. When the upload is complete, the system is ready for use.

MAP SYMBOLS

LAND SYMBOLS

Land Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
User Waypoint	(Route) or (Airport)	25	40
Highways and Roads			
- Interstate Highway (Freeway)		50	400
- International Highway (Freeway)		50	400
- US Highway (National Highway)		15	150
- State Highway (Local Highway)		10	100
- Local Road (Local Road)	N/A	4	25
Railroads (RAILROAD)		7.5	25
Large City (> 200,000)		100	1000
Medium City (> 50,000)		50	400
Small City (> 5,000)		25	100
State/Province		750	1000
River/Lake		75	100
Latitude/Longitude (LAT/LON)		1	1000

AVIATION SYMBOLS

Aviation Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Large Airport (Longest Runway ≥ 8100 ft)		100	1000
Medium Airport (8100 ft > Longest Runway ≥ 5000 ft., or Longest Runway < 5000 ft. with control tower)		50	400
Small Airport (Longest Runway < 5000 ft without control tower) and Heliports		25	150
Taxiways (SafeTaxi)	See Additional Features	1.5	5
Runway Extension		7.5	150
Intersection (INT)		10	40
Non-directional Beacon (NDB)		25	50
VOR		50	250
Visual Reporting Point (VRP)		25	40
Temporary Flight Restriction (TFR)		250	1000
VNAV Constraints		1000	1000

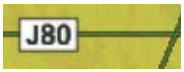
AIRSPACE SYMBOLS

Airspace Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Class B Airspace Altitude Label (ceiling/floor)		*	*
Class C Airspace Altitude Label (ceiling/floor)		*	*
Class D Airspace Altitude Label (ceiling)		*	*

Airspace Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Class B/Terminal Manoeuvring Area** and surrounding airways** (CL B/TMA/AWY)		50	150
Class C Airspace/Control Area (CL C/CTA)		50	100
Class D Airspace/ Class A Airspace (CL A/D)		10	100
Restricted and Prohibited Areas (Restricted)		50	100
Military Operations Areas (MOA (Military))		50	250
ADIZ, Alert, Danger, and Warning (Other)	(see below)	50	250
ADIZ			
Alert			
Danger/Warning			

** Label placement and range is determined by the system for best display and minimal clutter*
*** Applies to European airspace only*

AIRWAY SYMBOLS

Airways Symbols	Symbol	Default Range (nm)	Maximum Range (nm)
Low Altitude Airways (V Routes and T Routes)		50	100
High Altitude Airways (J Routes and Q Routes)		50	100

A

Airport
  Information 40
Airspace
  Smart Airspace 46
Alerts
  Audio voice 177
Along Track Offset 58, 59
Altitude Constraint 72
Approach
  Activating 87
  Loading 84
Approach channel 85
Approaches
  Activating 87
  Loading 86
  Removing 88
APR Softkey 137, 139
Arrival procedure 81
Arrivals 82, 83
Assist, Engine Leaning 19–21
Attitude & Heading Reference System (AHRS) 185, 193, 195
Audio Panel Fail-Safe Operation 169
Automatic Descent Mode 166, 167
Automatic Flight Control System (AFCS)
  AFCS Status Alerts 179
Aviation Symbols 231

B

Bearing/distance, measuring 36
Bluetooth 153

C

CDI 202
Chart Options 137, 139
ChartView 136
Closest Point 60
Cloud Tops 110
Combination Modes (VNV, APR, NAV, BC, GA) 131
COM Tuning Failure 169
Connext 140
Contacts 142
Country Code 144
Cylinder Head Temperature 11

D

Database Importing 153
Data Link Receiver 180
Day/Night View 138, 140
DB Mismatch 221
Dead Reckoning 171
Deleting
  Deleting a Stored Flight Plan 69
  Deleting the Active or Standy Flight Plan 67
Departure
  Procedure 78
  Select 78, 81, 84
Departures
  Loading 78
  Removing 79
Direct-to 46, 47, 48
Display backup 169
DP Softkey 136, 139

E

Emergency Checklist 158
Emergency Frequency 169
EMER Softkey 158
Engine
  Softkey 12–Index-6
Excess Fuel Weight 92
Exhaust Gas Temperature 19–20

F

Fail-Safe Operation 169
Flight Director (FD) 131
Flight Path Angle
  Default modification 74
Flight Path Angle (FPA) 74
Flight Plan 153
  Flight Plan View 49
  Standby Flight Plan 57, 58
  Stored Flight Plan 67, 69
Flight Plan, Active
  Creating 49
Flight Planning
  Activating a Flight Plan Leg 56
  Activating the Standby Flight Plan 57
  Copy a Stored Flight Plan 68
  Copy to the Standby Flight Plan 57
  Creating 50
  Deleting a Stored Flight Plan 69
  Deleting the Active or Standby Flight Plan 67
  Inverting a Flight Plan 67, 68
  Parallel Tracks 60
  Split Screen 49
  Waypoint/Airway Modifications 52
Flight Plan Progress 49
FliteCharts 138
Fly-by Waypoint 54
Fly-over Waypoint 54
Fuel 219
  Calculations 15
  Flow 14
  Totalizer 219
Fuel Calculations 20
Fuel Flow 11
Fuel reserve weight 91

G

Garmin Connext Weather 98
GPS Approach Mode 132

H

High Airspeed Protection 166
Holding
  User Defined 61, 62
Hypoxia 166

I

IFR/VFR Charts 140
Incoming Calls 143
Inverting a Flight Plan 67, 68
IOI 206, 208
Iridium Satellite Network 144

L

Land Symbols 230
Lateral Modes 130
LOC Approach Mode 132, 133
Low Airspeed Protection 166

M

Map Orientation
  Flight Plan Map 50
Marker Beacon 25
Minimum descent altitude, barometric 6
Missed Approach 89
Mode Selection Softkeys 25

N

Nearest
  Airport 39, 40, 85
  Airport Surface Matching 40

Nearest Airports, Frequency Tuning 23
NEXRAD 109
No Compare 178
NOTAM Softkey 137

O

Obstacles 190, 195
Oil Pressure 11, 14
Oil Temperature 11
Outgoing Calls 144

P

Parallel Track 60
Pending Flight Plan 64, 65
P. POS Link 58

R

Required Obstacle Clearance (ROC) 206, 208
ROC 206

S

SBAS 95, 195
Scheduler 159
SiriusXM Radio
  Presets 156
  Volume 157
SiriusXM Weather
  Icing 114
Smart Airspace 46
Softkeys 215–222
  EIS 219
  PFD 215
Split Screen
  Flight Plan Views 49
Standby Flight Plan 50, 57, 58
Standby Navigation Database 222
STAR Softkey 137, 139
Stuck Microphone 169
Surface Analysis 112
SurfaceWatch 153
SYNC Softkey 136
Synthetic Vision Technology (SVT) 203
System Page (EIS) 20

T

TA 178
Tachometer 11, 14
Telephone Communication 141
Temperature Compensated Altitude 90
Temperature Compensated Minimums 90
Terminal Procedures Charts 136, 138
Terrain 190
Terrain Awareness and Warning System (TAWS) 207
Terrain Proximity 118
Text Messaging (SMS) 145
  Managing Text Messages 148
  Predefined Text Messages 147
  Sending a Predefined Text Message 147
  Sending a Text Message 146
  Text Message Boxes 148
  Text Message Symbols 145
  Viewing a Text Message When Received 146
TOPO Data 36
TOPO Scale 37
Traffic Advisory (TA) 178
Transponder 23, 218
True Airspeed (TAS) 185, 186

U

User-Defined Holding Pattern 61, 62, 63

V

Vectors to Final 87
Vertical Navigation (VNV)
  Direct-to 59, 76
Vertical Situation Display (VSD) 76
Video Setup 159
VNAV 204
VNV guidance
  Enabling 70
VOR Approach Mode 131
VRP 231
VS TGT 74

W

Waypoints
  Airports 39
  User Waypoints 41, 42
Waypoint Selection Submenu 52
Wind data 6
Wireless Transceiver 223

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