

GARMIN[®]

G1000[®] NXi

Cockpit Reference Guide



Cessna NAV III

System Software Version 2501.11 or later

FLIGHT INSTRUMENTS

ENGINE INDICATION SYSTEM (EIS)

AUDIO & CNS

FLIGHT MANAGEMENT SYSTEM

HAZARD AVOIDANCE

AUTOMATIC FLIGHT CONTROL SYSTEM

ADDITIONAL FEATURES

ABNORMAL OPERATIONS

ANNUNCIATIONS & ALERTS

APPENDIX

INDEX

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This manual reflects the operation of System Software version 2501.11 or later for Cessna 172S, 182T, T182T, and T206H aircraft. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.



NOTE: *Cessna NAV III aircraft include the Cessna 172S, the normally aspirated Cessna 182 (182T), the turbocharged Cessna 182 (T182T), and the turbocharged Cessna 206 (T206H). Unless otherwise indicated, information in the G1000 Cockpit Reference Guide pertains to all Cessna NAV III aircraft.*

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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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

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



NOTE: 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](https://flygarmin.com) and select 'Aviation Data Error Report'.



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



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



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



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



NOTE: 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: ESP is designed to discourage exceeding the normal flight envelope. It is not designed or capable of performing the necessary recovery procedures due to encounters with adverse flight conditions and environments.



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



NOTE: Operate G1000 NXi system power through at least one cycle in a period of four days of continuous operation to avoid an autonomous system reboot.



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

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Record of Revisions				
Part Number	Revision	Date	Page Range	Description
190-02178-00	A	November 2016	All	Initial release at GDU 20.00
	B	December 2016	All	Added CAS Messages Added SurfaceWatch Alerts Added AFCS Alerts Updated other messages
	C	May 2017	All	Updated Annunciations and Alerts Updated Warnings/Cautions/Notes Updated SurfaceWatch Information Other clerical updates
190-02178-01	A	May 2018	All	Production release at GDU 20.83 - Updated EIS Information - Added WireAware - Added Visual Approaches - Added Baro QFE Altimeter settings - Added Connex Weather - Updated Audio Panel Information - Added Electronic Stability and Protection
	B	November 2019	All	- Updatded AFCS and ESP information - Added QFE Constraints - Updated Approach information - Added Transition to Approach - Updated Temperature Compensation - Added CAS Messages - Fixed clerical errors
190-02178-02	A	December 2019	All	Production Release at GDU 20.83 - Updatded AFCS and ESP information - Updated Voice Alerts - Updated CAS Messages

Record of Revisions				
Part Number	Revision	Date	Page Range	Description
190-02178-03	A	May 2021	All	Production release at GDU 20.94 - Add crew profiles - Add MFD data bar options - Flight ID always displayed - Add GS and ISA readouts to PFD - Remove Restart button on Database Page - Autopilot Disconnect Tone silencing - EIS/message updates - Added GMU 44B and GI 275 standby ADI - Remove VAC indicator/CAS when GI 275 installed - Clerical updates

FLIGHT INSTRUMENTS.....	1
FLIGHT INSTRUMENTS	1
Attitude Indicator	1
Airspeed Indicator	1
Altimeter	3
Horizontal Situation Indicator (HSI)	5
SUPPLEMENTAL FLIGHT DATA	8
GI 275	8
SYNTHETIC VISION TECHNOLOGY (SVT)	9
PFD ANNUNCIATIONS AND ALERTING FUNCTIONS	10
ENGINE INDICATION SYSTEM.....	13
ENGINE DISPLAY	13
Engine Display	20
AUDIO AND CNS	27
COM OPERATION	27
NAV OPERATION	27
MODE S TRANSPONDER	29
ADDITIONAL AUDIO PANEL FUNCTIONS	29
AUDIO PANELS PREFLIGHT PROCEDURE	30
FLIGHT MANAGEMENT	31
USING MAP DISPLAYS	31
Map Orientation.....	31
Map Range.....	32
Map Panning.....	32
Measuring Bearing and Distance.....	33
Topography.....	33
Map Display Symbols	34
WAYPOINTS	36
Airports	36
Non-Airport and User Created Waypoints	38

AIRSPACES 41

 Nearest Airspace 41

 Smart Airspace 42

FLIGHT PLANNING 42

 Direct-To Navigation 42

 Flight Plan Display 44

 Creating a Basic Flight Plan 45

 Flight Plan Waypoint and Airway Modifications 46

 Flight Plan Waypoint Constraints 50

 Flight Plan Vertical Navigation 52

 Vertical Navigation Direct-To 53

 Flight Plan Operations 53

 Managing Flight Plans 58

PROCEDURES 64

 Departures 65

 Arrivals 66

 Approaches 68

TRIP PLANNING 76

HAZARD AVOIDANCE 79

DATA LINK WEATHER 79

 Activating Data Link Weather Services 79

 Weather Product Age 81

 Displaying Data Link Weather Products 81

 Connex Data Requests 83

 Weather Product Overview 85

 Datalink Weather Product Overlays 87

 FIS-B Weather Status 92

STORMSCOPE LIGHTNING DETECTION SYSTEM 93

 Using the Stormscope Page 94

 Additional Stormscope Displays 94

 Stormscope Abnormal Operations 95

TERRAIN DISPLAYS	96
Relative Terrain Symbolology	96
Displaying Relative Terrain Information	96
Vertical Situation Display (VSD) Terrain	97
Terrain-SVT and TAWS-B Alerting Displays	98
Inhibiting Alerting	98
System Status	99
TRAFFIC INFORMATION SERVICE (TIS)	99
Traffic Display SYMBOLOGY	99
Displaying Traffic Data	99
‘Map - Traffic Map’ Page	100
TIS Alerts	101
System Status	101
TAS TRAFFIC	101
System Test	103
Operation	104
ADS-B TRAFFIC	106
ADS-B Traffic Display SYMBOLOGY.....	106
Operation	107
ADS-B System Status	111
AUTOMATIC FLIGHT CONTROL SYSTEM	113
OVERVIEW	113
Basic Autopilot Operation	113
AFCS Preflight Test (PFT)	113
FLIGHT DIRECTOR OPERATION	114
Activating the Flight Director	114
AFCS MODES	115
Vertical Modes	115
Lateral Modes.....	115
Combination Modes	116
Approach Modes	117

ADDITIONAL FEATURES 119

 SAFETAXI 119

 SURFACEWATCH (OPTIONAL) 119

 ELECTRONIC CHARTS 120

 FliteCharts 121

 ChartView (Optional) 123

 IFR/VFR Charts (Optional) 124

 SATELLITE TELEPHONE AND DATALINK SERVICES (OPTIONAL) 124

 Telephone Communication 126

 Text Messaging (SMS) 128

 SIRIUSXM SATELLITE RADIO (OPTIONAL) 136

 Activating SiriusXM Satellite Radio Services 136

 ELECTRONIC CHECKLISTS (OPTIONAL) 138

 AUXILIARY VIDEO (OPTIONAL) 139

 ELECTRONIC STABILITY AND PROTECTION (OPTIONAL) 140

 DATABASE MANAGEMENT 140

 SCHEDULER 141

ABNORMAL OPERATION 143

 REVERSIONARY MODE 143

 ABNORMAL GPS CONDITIONS 144

 GARMIN SVT TROUBLESHOOTING 144

 SVT in Reversionary Mode 145

 GI 275 145

 Manual Shutdown 145

 ADAHRS Sources 145

 Comparator Annunciations 145

 Backup Battery 146

 UNUSUAL ATTITUDES 148

ABNORMAL AUDIO & CNS OPERATION	149
Audio Panel Fail-safe Operation	149
Stuck Microphone	149
COM Tuning Failure	149
Transponder Failure	149
DEAD RECKONING	150
OVERSPEED PROTECTION	150
UNDERSPEED PROTECTION	151
Altitude-Critical Modes (ALT, GS, GP, GA, FLC)	151
Non-Altitude Critical Modes (VS, VNAV, PIT, LVL)	151
SUSPECTED AUTOPILOT MALFUNCTION	152
Reversionary Mode	152
DATALINK TROUBLESHOOTING	152
Quick Troubleshooting	153
ANNUNCIATIONS & ALERTS	155
SYSTEM ANNUNCIATIONS	155
NEAREST AIRSPACE	156
FLIGHT PLANNING	157
Vertical Situation Display (VSD)	157
Managing Flight Plans	158
FIS-B WEATHER ANNUNCIATIONS	159
TERRAIN ANNUNCIATIONS	159
Terrain-SVT/ TAWS-B Annunciations	159
TIS Annunciations	163
TRAFFIC ANNUNCIATIONS	165
TAS Traffic Annunciations	165
ADS-B Traffic Annunciations	166
AFCS STATUS ALERTS	168
SURFACEWATCH ANNUNCIATIONS	169

CAS ANNUNCIATIONS 169

 Warning Annunciations 169

 Caution Annunciations 169

 Advisory Annunciations 170

 Safe Annunciations 170

VOICE ALERTS 170

 Audio Alerting System Test 171

SYSTEM MESSAGES 172

STANDBY ADI (GI 275) SYSTEM MESSAGES 190

APPENDIX 193

 DATABASE MANAGEMENT 193

 Loading Updated Databases 193

 Updating Databases with SD card or Wireless Transceiver Card 194

 Updating Databases with Garmin Pilot / Wireless Transceiver 196

 Deleting Databases 200

 Magnetic Field Variation Database Update 201

 SOFTKEY FUNCTION 201

 PFD Softkeys 201

 MFD Softkeys 204

 STANDBY ADI DISPLAY BACKLIGHTING 207

 SYMBOLS 208

 PFD Navigation Status Box and MFD Data Bar Symbols 208

 Map Display Symbols 208

 Flight Planning Symbols 213

 Obstacle Symbols 214

INDEX Index-1

 INDEX Index-1

FLIGHT INSTRUMENTS

FLIGHT INSTRUMENTS

ATTITUDE INDICATOR

GI 275

Attitude information is displayed over a virtual blue sky and brown ground with a white horizon line. The Attitude Indicator displays the pitch (indicated by the symbolic aircraft on the pitch scale), roll, and slip/skid information.

The horizon line is part of the pitch scale. Pitch markings occur at 2.5° intervals between ±20° and at 5° intervals through all other pitch ranges.

The roll pointer is fixed and matches the PFD. The inverted white triangle indicates zero on the roll scale. Major tick marks at 30° and 60°, minor tick marks at 10° and 20°, and inverted hollow triangles at 45° are shown to the left and right of the zero. Angle of bank is indicated by the position of the pointer on the roll scale.

Slip/skid is indicated by the location of the trapezoid under the roll scale pointer

STANDARD RATE TURN BANK ANGLE POINTERS

The Standard Rate Turn Bank Angle Pointers are “airplane” pointers displayed on the roll scale that show the bank angle needed for a standard rate turn at the known true airspeed.

AIRSPEED INDICATOR

Enabling/disabling or modifying individual Vspeed Reference Bugs:

- 1) Press the **TMR/REF** Softkey.
- 2) Turn the large **FMS** Knob to highlight the desired Vspeed value.
- 3) Use the small **FMS** Knob to change the Vspeed in 1-kt increments (when a speed has been changed from a default value, an asterisk appears next to the speed).
- 4) Press the **ENT** Key or turn the large **FMS** Knob to highlight the On/Off field
- 5) Turn the small **FMS** Knob clockwise to ‘On’ or counterclockwise to ‘Off’.
- 6) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

Enabling/disabling Vspeed Reference Bugs as a group or restoring all default settings:

- 1) Press the **TMR/REF** Softkey.
- 2) Press the **MENU** Key.
- 3) Turn the **FMS** Knob to scroll as needed to highlight ‘All References On’, ‘All References Off’ or ‘Restore Defaults’.
- 4) Press the **ENT** Key.
- 5) To remove the References Window, press the **CLR** Key or the **TMR/REF** Softkey.

GI 275

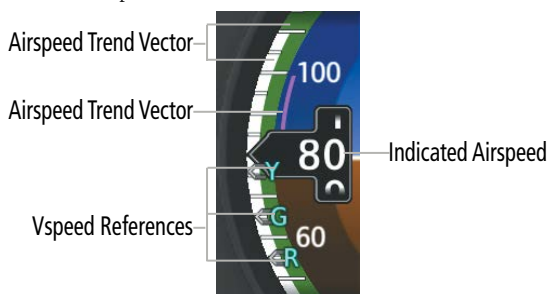


NOTE: The Vspeed Reference values depend upon the aircraft's specific system configuration and may vary from the examples portrayed in this document.

The Airspeed Indicator displays airspeed on a rolling number gauge using a moving tape. The numeric labels and major tick marks on the moving tape are marked at intervals of 10 knots and minor ticks every 5 knots. Speed indication starts at 20 knots. The indicated airspeed is displayed inside the black pointer. The pointer remains black until reaching the configured never-exceed speed (Vne), at which point it turns red.

A color-coded (red, white, green, amber, and red/white "barber pole") speed range strip is located on the moving tape. The colors denote flaps operating range, normal operating range, caution range, and never-exceed speed (Vne). A red range is present for low speed awareness.

The Airspeed Trend Vector is a vertical magenta line, extending up or down on the airspeed scale, shown to the right of the color-coded speed range strip. The end of the trend vector corresponds to the predicted airspeed in 6 seconds if the current rate of acceleration is maintained.



GI 275 Airspeed Indicator

VSPEED REFERENCES

Depending on configuration, various Vspeed references ("bugs") including Glide, Vx, Vy, are available.

Enabled Vspeeds display at their respective locations on the airspeed indicator tape.

Toggling Vspeed visibility:

- 1) Press and hold knob to open the menu and select Options > Airspeeds.
- 2) Select the All On, All Off, or specific Vspeed Buttons desired.

Adjusting Vspeed values on the Standby ADI:

- 1) Press and hold knob to open the menu and select ADI Options > Airspeeds.
- 2) Select the Vspeed requiring adjustment.
- 3) Use the Knobs or keypad to adjust the Vspeed. Changes are saved automatically and restore to defaults on unit restart.

Restoring Vspeed default values:

- 1) Press and hold knob to open the menu and select Options > Airspeeds.
- 2) Select the Restore Defaults Button. All crew-adjusted Vspeed values will restore to configured defaults.

ALTIMETER

Setting the Selected Altitude:

Turn the **ALT** Knob to set the Selected Altitude. Turn the large knob for 1000-ft increments, small knob for 100-ft increments. If set to Metric mode, the large knob adjusts the Selected Altitude in 500-meter increments; the small knob adjusts the Selected Altitude in 50-meter increments.

If a minimum altitude alert value has been set, this altitude is also available for the Selected Altitude while turning the **ALT** Knob.

Enabling complementary altitude units overlays:

- 1) Press the **PFD Opt** Softkey to display the second-level softkeys.
- 2) Press the **ALT Units** Softkey.
- 3) Press the **Meters** or **Feet** Softkey to enable/disable the altitude overlay.
- 4) Press the **Back** Softkey twice to return to the top-level softkeys.

Selecting the altimeter barometric pressure setting:

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

Selecting standard barometric pressure (29.92 in Hg):

- 1) Press the **PFD Opt** Softkey to display the second-level softkeys.
- 2) Press the **STD Baro** Softkey. The PFD softkeys automatically return to the top-level after pressing the softkey.

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.



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

Setting BARO QFE while on the ground:

- 1) Set the appropriate QFE BARO setting on the PFD.
- 2) Use the **FMS** Knob to select the 'Aux - System Setup 1' Page on the MFD.
- 3) Push the **FMS** Knob to activate the cursor.
- 4) Turn the large **FMS** Knob to select the 'REF' field in the 'BARO QFE' Box.
- 5) Use the small **FMS** Knob to select 'Manual' or 'FMS ORIG', and press the **ENT** Key to accept.
- 6) If 'Manual' was selected, use the **FMS** Knobs to enter the field elevation of the departure airport in the 'ELEV' field and press the **ENT** Key.
- 7) If 'FMS ORIG' was selected, the field elevation of the selected departure airport/runway from the flight plan will be shown in the 'BARO QFE' Box. Verify this information is correct.
- 8) The 'On/Off' Field will automatically highlight, turn the small **FMS** Knob to change 'Off' to 'On'.
- 9) Push the **FMS** Knob to deactivate the cursor. QFE mode is now active.
Change the BARO setting to STD BARO to disable BARO QFE.

Setting BARO QFE while in flight:

- 1) Set the BARO setting to STD BARO on the PFD.
- 2) Use the **FMS** Knob to select the 'Aux - System Setup 1' Page on the MFD.
- 3) Push the **FMS** Knob to activate the cursor.
- 4) Turn the large **FMS** Knob to select the 'REF' field in the BARO QFE Box.
- 5) Use the small **FMS** Knob to select 'Manual' or 'FMS DEST', and press the **ENT** Key to accept.
- 6) If 'Manual' was selected, use the **FMS** Knobs to enter the field elevation of the destination airport in the 'ELEV' field and press the **ENT** Key.
- 7) If 'FMS DEST' was selected, the field elevation of the selected destination airport/runway from the flight plan will be shown in the BARO QFE Box. Verify this information is correct.
- 8) The 'On/Off' Field will automatically highlight, turn the small **FMS** Knob to change the selection from 'Off' to 'On'.
- 9) Push the **FMS** Knob to deactivate the cursor. BARO QFE mode is now armed.
- 10) Enter the reference field QFE BARO setting. As soon as barometric settings change from STD BARO, QFE mode activates.
Change the BARO setting to STD BARO to disable BARO QFE. The desired BARO setting can now be entered.

GI 275

The Altimeter displays barometric altitude on a rolling number gauge using a moving tape. Numeric labels and major tick marks are shown at intervals of 100 feet. Minor tick marks are

at intervals of 50 feet. The indicated altitude is displayed in the black pointer. The Selected Altitude (if enabled) is displayed above the Altimeter. A bug corresponding to this altitude is shown on the tape; if the Selected Altitude exceeds the range shown on the tape, the bug appears at the corresponding edge of the tape.



NOTE: *G1 275 Selected Altitude is independent from and does not sync with G1000 Selected Altitude.*

Changing the selected altitude:

- 1) Touch the Selected Altitude field.
- 2) Turn the Inner Knob clockwise to increase or counterclockwise to decrease the Selected Altitude bug in 100-foot increments.

Synching the selected altitude to the current altitude:

Touch and hold the Selected Altitude field.

Changing the BARO Units:

- 1) Press and hold knob to open the menu.
- 2) Use the outer knob to scroll to **System**.
- 3) Touch **Units**.
- 4) Touch **BARO** to cycle through inHg, hPa, and mb.

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 PFD Softkeys.

Adjusting the Selected Heading:

Turn the **HDG** Knob to set the Selected Heading.

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

Adjusting the Selected Course:

Turn the **CRS** Knob to set the Selected Course.

Push the **CRS** Knob to center the CDI and set the course to the bearing of the active waypoint or navigation station.

Changing the navigation angle true/magnetic setting:

- 1) Use the **FMS** Knob to select the 'Aux - System Setup 1' Page on the MFD.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight the NAV Angle setting 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 deviation
 - 'True(°T)' - References angles to true north

Selecting bearing display and changing sources:

- 1) Press the **PFD Opt** Softkey.
- 2) Press either **Bearing 1** or **Bearing 2** Softkey to display the desired bearing pointer and information window with the NAV1 source.
- 3) Press the bearing softkey again to display the bearing pointer with the NAV2 source.
- 4) Press the bearing softkey again to display the bearing pointer with GPS as the source.
- 5) Press the bearing softkey again to display the bearing pointer with the optional ADF as the source.
- 6) 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 Opt** Softkey.
- 2) Press the **DME** Softkey to display the DME Information Window to the left of the HSI.
- 3) To remove the DME Information Window, press the **DME** Softkey again.

GI 275

The current heading is displayed on the 'ADI'. If heading data is unavailable, the track derived from GPS data is displayed instead. Letters indicate the cardinal points and numeric labels occur every 30°. Major tick marks are at 10° intervals and minor tick marks at 5° intervals.



NOTE: *GI 275 Selected Heading is independent from and does not sync with G1000 Selected Heading.*

Adjusting the selected heading:

- 1) Touch the Heading Datafield below the airspeed indicator.
- 2) Turn the Inner Knob.

Synchronizing the selected heading to the current heading:

Touch and hold the Heading Datafield or HDG Button.

Changing navigation sources:

- 1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the cyan tuning box over the NAV1 standby frequency in the upper left corner of the PFD.
- 2) Press the **CDI** Softkey again to change from VOR1 or LOC1 to VOR2 or LOC2. This places the cyan tuning box over the NAV2 standby frequency.
- 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) Push the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight the Format Allowed selection 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, push the **FMS** Knob or the **CLR** Key.

Flight Phase	Annunciation ¹	Automatic CDI Full-scale Deflection
Departure	DPRT	0.3 nm
Terminal	TERM	1.0 nm
Enroute	ENR	2.0 nm
Oceanic	OCN	4.0 nm
Approach (Non-precision)	LNAV	1.0 nm decreasing to 350 feet depending on variables.
Approach (Non-precision with Advisory Vertical Guidance)	LNAV + V	
	VISUAL	1.0 nm decreasing to a specified course width, then 0.3 nm, depending on variables.
Approach (LNAV/VNAV)	L/VNAV	
Approach (LPV)	LPV	
Approach (Non-precision with Advisory Vertical Guidance)	LP+V	
Approach (LP)	LP	
Missed Approach	MAPR	0.3 nm

¹ Flight phase annunciations are normally shown in magenta, but when cautionary conditions exist the color changes to amber.

Automatic GPS CDI Scaling

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

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

SUPPLEMENTAL FLIGHT DATA**Using the generic timer:**

- 1) Press the **TMR/REF** Softkey.
- 2) Turn the large **FMS** Knob to select the timer field (HH:MM:SS).
- 3) Use the **FMS** Knob to enter the desired time.
- 4) Press the **ENT** Key. The Up/Dn field is now highlighted.
- 5) Turn the small **FMS** Knob to display the Up/Dn Window.
- 6) Turn the small **FMS** Knob to select 'Up' or 'Dn'.
- 7) Press the **ENT** Key. 'Start?' is now highlighted.
- 8) Press the **ENT** Key to start the timer. The field changes to 'Stop?'. If the timer is counting down, it will start counting up after reaching zero.
- 9) To stop the timer, press the **ENT** Key with 'Stop?' highlighted. The field changes to 'Reset?'.
- 10) To reset the timer, press the **ENT** Key with 'Reset?' highlighted. The field changes back to 'Start?' and the digits are reset.
- 11) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

Displaying wind data:

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

GI 275**ADI MISC. Fields**

The Misc. Field on the ADI can be configured to display True Airspeed (TAS), Ground Speed (GS), Air Temperature (OAT, ISA, TAT), or Wind (Direction and Velocity).

Displaying True Airspeed:

- 1) From the 'ADI' Page, open the menu and select ADI Options > Misc. Field.
- 2) Select the TAS Button to toggle True Airspeed.

Displaying Ground Speed:

- 1) From the 'ADI' Page, open the menu and select ADI Options > Misc. Field.
- 2) Select the GS Button to toggle Ground Speed.

Displaying Outside Air Temperature:

- 1) From the 'ADI' Page, open the menu and select ADI Options > Misc. Field.
- 2) Select the preferred temperature option, ISA, OAT, or TAT.
- 3) Select the button to toggle Temperature.

Displaying Wind:

- 1) From the 'ADI' Page, open the menu and select ADI Options > Misc. Field.
- 2) Scroll down and select the preferred wind format.
- 3) Select the Wind button to toggle Wind.

SYNTHETIC VISION TECHNOLOGY (SVT)



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.

Toggling SVT depiction:

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

Toggling Airport Signs depiction:

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **SVT** Softkey.
- 3) Press the **APT Sign** Softkey.

Toggling Horizon Headings depiction:

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **SVT** Softkey.
- 3) Press the **HDG LBL** Softkey.

Toggling Pathways depiction:

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



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

Toggling WireAware depiction:

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

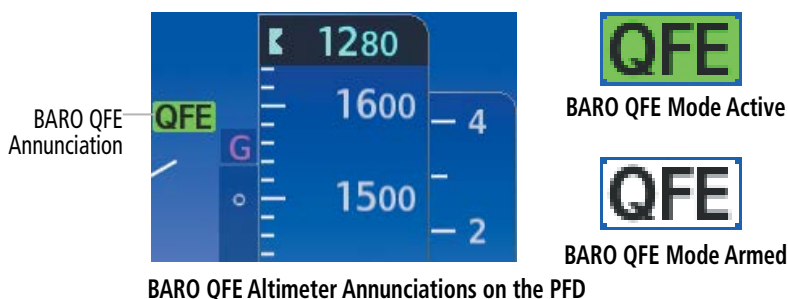
Configuring SVT field of view depiction on the navigation map:

- 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 **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) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

PFD ANNUNCIATIONS AND ALERTING FUNCTIONS**Setting the Baro Transition Alerts:**

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



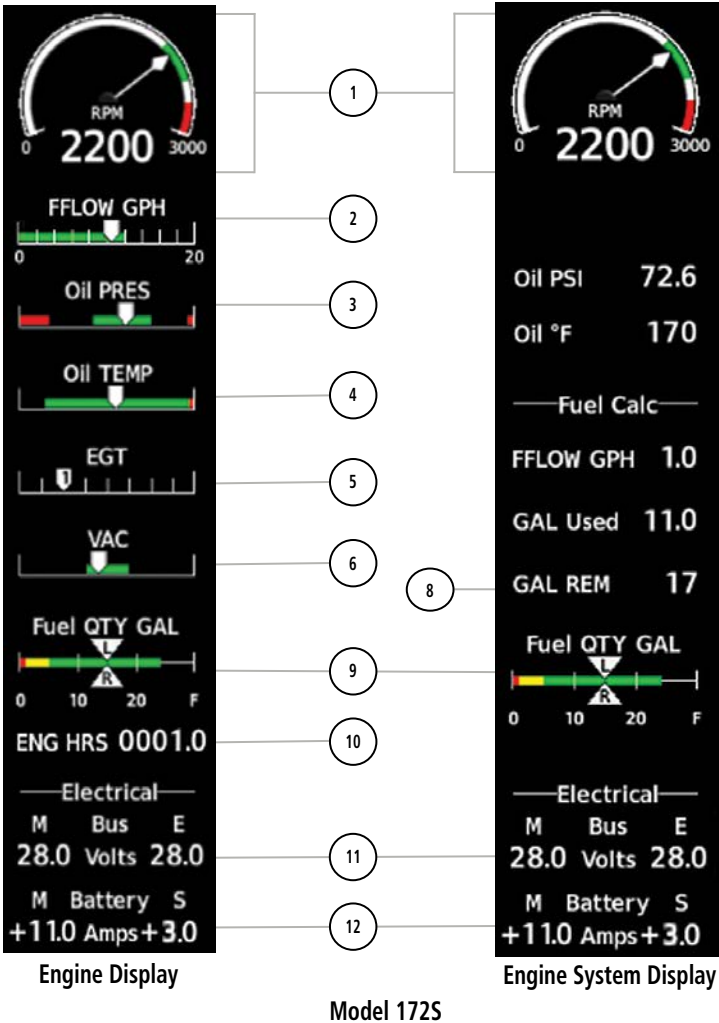
Setting the Baro/Temp Comp Minimum Altitude Alert and bug:

- 1) Press the **TMR/REF** Softkey.
- 2) Turn the large **FMS** Knob to highlight the MINS 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.

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ENGINE INDICATION SYSTEM

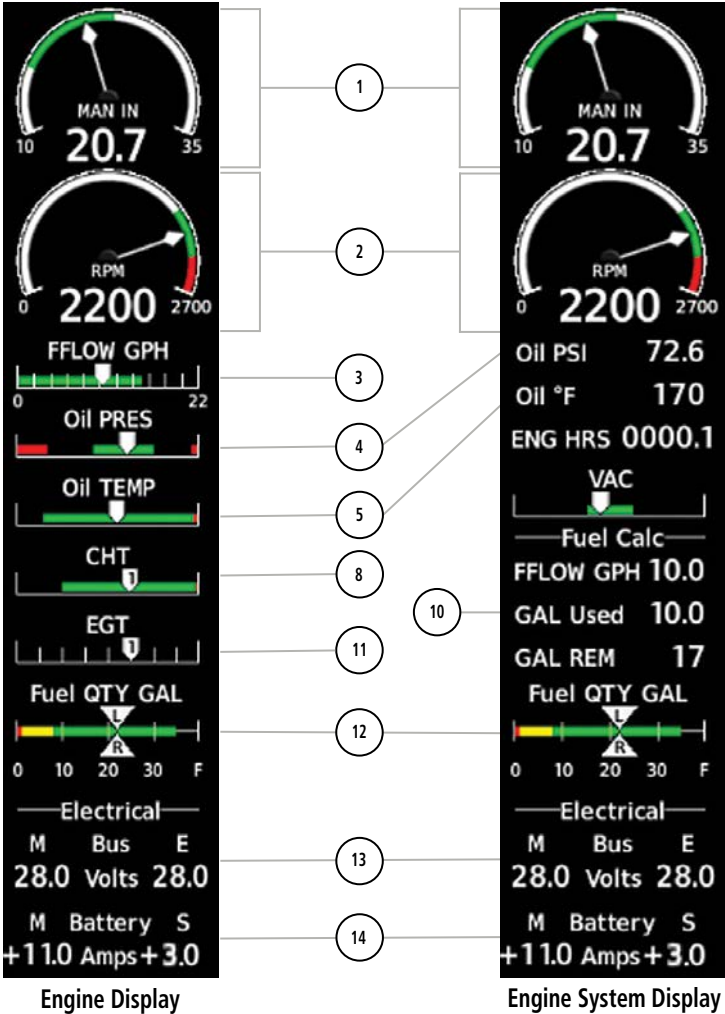
ENGINE DISPLAY



1 **Tachometer Indicator (RPM)** Displays engine tachometer in revolutions per minute (RPM)

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

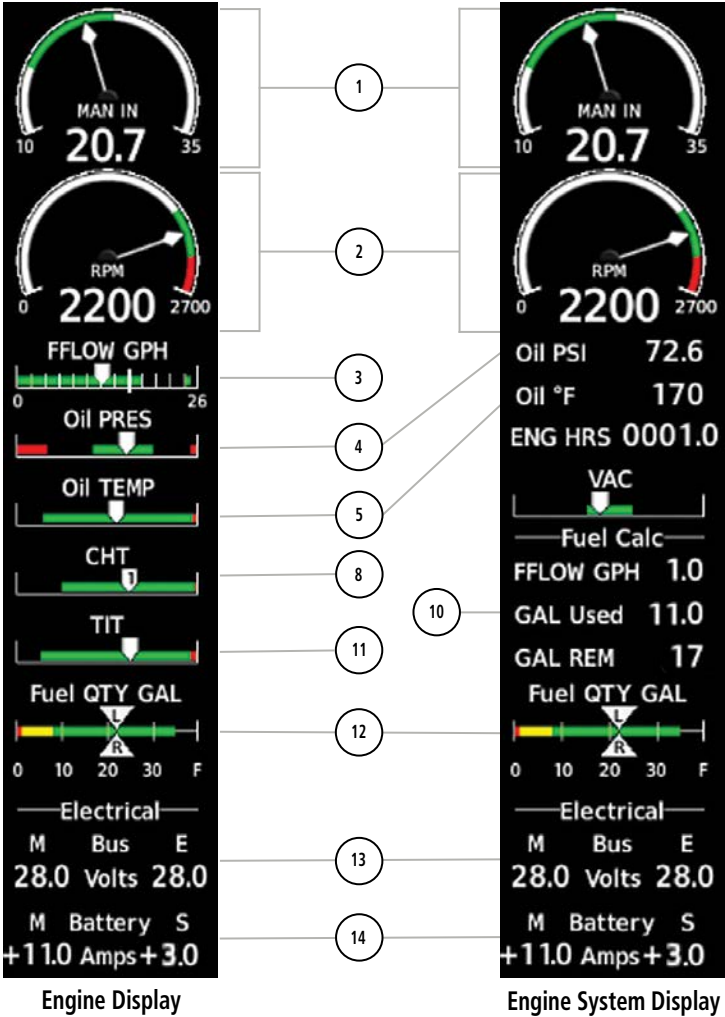
- 2 Fuel Flow Indicator (FFLOW GPH)** Displays fuel flow in gallons per hour (gph)
- 3 Oil Pressure Indicator (OIL PSI)** Displays oil pressure in pounds per square inch (psi)
- 4 Oil Temperature Indicator (OIL °F)** Displays oil temperature in degrees Fahrenheit (°F)
- 5 Exhaust Gas Temperature Indicator (EGT)** Displays exhaust gas temperature in degrees Fahrenheit (°F)
- 6 Vacuum Pressure Indicator (VAC)** Displays standby vacuum pump pressure
- 7 Calculated Fuel Used (GAL Used)** Displays fuel used in gallons, based on fuel flow
- 8 Calculated Fuel Remaining (GAL REM)** Displays the totalizer-based fuel remaining in gallons
- 9 Fuel Quantity Indicator (Fuel QTY GAL)** Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank
- 10 Engine Hour Indicator (ENG HRS)** Displays a numeric indication for the time in hours (hrs) the engine has been in service
- 11 Voltmeter (M, E Bus Volts)** Displays the main and essential bus voltages
- 12 Ammeter (M, S Battery Amps)** Displays the main and standby battery load in amperes



- 1 **Manifold Pressure Indicator (IN HG)** Displays engine manifold pressure inches of mercury (IN HG)
- 2 **Tachometer Indicator (RPM)** Displays engine tachometer in revolutions per minute (RPM)
- 3 **Fuel Flow Indicator (FFLOW GPH)** Displays fuel flow in gallons per hour (gph)

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

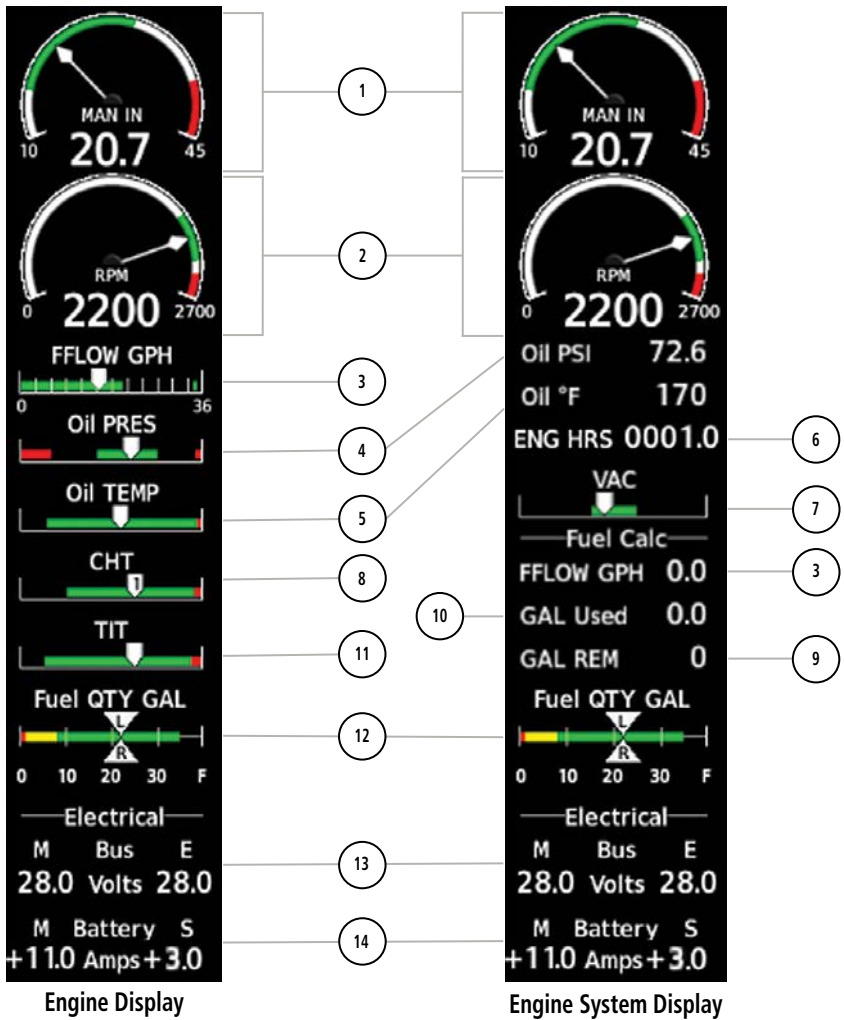
- 4 Oil Pressure Indicator (OIL PSI)** Displays oil pressure in pounds per square inch (psi)
- 5 Oil Temperature Indicator (OIL °F)** Displays oil temperature in degrees Fahrenheit (°F)
- 6 Engine Hour Indicator (ENG HRS)** Displays a numeric indication for the time in hours (hrs) the engine has been in service
- 7 Vacuum Pressure Indicator (VAC)** Displays standby vacuum pump pressure
- 8 Cylinder Head Temperature Indicator (CHT)** Displays cylinder head temperature in degrees Fahrenheit (°F)
- 9 Calculated Fuel Remaining (GAL REM)** Displays the totalizer-based fuel remaining in gallons
- 10 Calculated Fuel Used (GAL Used)** Displays fuel used in gallons, based on fuel flow
- 11 Exhaust Gas Temperature Indicator (EGT)** Displays exhaust gas temperature in degrees Fahrenheit (°F)
- 12 Fuel Quantity Indicator (Fuel QTY GAL)** Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank.
- 13 Voltmeter (M, E Bus Volts)** Displays the main and essential bus voltages
- 14 Ammeter (M, S Battery Amps)** Displays the main and standby battery load in amperes



- ① **Manifold Pressure Indicator (IN HG)** Displays engine manifold pressure inches of mercury (IN HG)
- ② **Tachometer Indicator (RPM)** Displays engine tachometer in revolutions per minute (RPM)
- ③ **Fuel Flow Indicator (FFLOW GPH)** Displays fuel flow in gallons per hour (gph)

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

- 4 Oil Pressure Indicator (OIL PSI)** Displays oil pressure in pounds per square inch (psi)
- 5 Oil Temperature Indicator (OIL °F)** Displays oil temperature in degrees Fahrenheit (°F)
- 6 Engine Hour Indicator (ENG HRS)** Displays a numeric indication for the time in hours (hrs) the engine has been in service
- 7 Vacuum Pressure Indicator (VAC)** Displays standby vacuum pump pressure
- 8 Cylinder Head Temperature Indicator (CHT)** Displays cylinder head temperature in degrees Fahrenheit (°F)
- 9 Calculated Fuel Remaining (GAL REM)** Displays the totalizer-based fuel remaining in gallons
- 10 Calculated Fuel Used (GAL Used)** Displays fuel used in gallons, based on fuel flow
- 11 Turbine Inlet Temperature Indicator (TIT)** Displays turbine inlet temperature in degrees Fahrenheit (°F)
- 12 Fuel Quantity Indicator (Fuel QTY GAL)** Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank.
- 13 Voltmeter (M, E Bus Volts)** Displays the main and essential bus voltages
- 14 Ammeter (M, S Battery Amps)** Displays the main and standby battery load in amperes



Flight Instruments	④	Oil Pressure Indicator (OIL PSI)	Displays oil pressure in pounds per square inch (psi)
EIS	⑤	Oil Temperature Indicator (OIL °F)	Displays oil temperature in degrees Fahrenheit (°F)
Audio & CNS	⑥	Engine Hour Indicator (ENG HRS)	Displays a numeric indication for the time in hours (hrs) the engine has been in service
Flight Management	⑦	Vacuum Pressure Indicator (VAC)	Displays standby vacuum pump pressure
Hazard Avoidance	⑧	Cylinder Head Temperature Indicator (CHT)	Displays cylinder head temperature in degrees Fahrenheit (°F)
AFCS	⑨	Calculated Fuel Remaining (GAL REM)	Displays the totalizer-based fuel remaining in gallons
Additional Features	⑩	Calculated Fuel Used (GAL Used)	Displays fuel used in gallons, based on fuel flow
Abnormal Operation	⑪	Turbine Inlet Temperature Indicator (TIT)	Displays turbine inlet temperature in degrees Fahrenheit (°F)
Annun/Alerts	⑫	Fuel Quantity Indicator (Fuel QTY GAL)	Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank.
	⑬	Voltmeter (M, E Bus Volts)	Displays the main and essential bus voltages
	⑭	Ammeter (M, S Battery Amps)	Displays the main and standby battery load in amperes

ENGINE DISPLAY

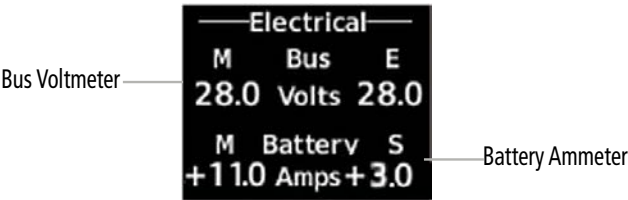
The MFD Engine Displays shows engine, fuel, electrical, and fuel calculation information. To access addition engine information, press the **Engine** Softkey. To return to the main engine information, press the **Back** Softkey.



MFD Engine Display

Electrical

Current for the battery (Battery Amps) and bus voltage (Bus Volts) are displayed in numerical digits and are located on the Engine display.



Electrical Group

Turbine Inlet Temperature

Turbine Inlet Temperature (TIT) horizontal bar indicators is displayed on the main Engine display and on the Engine Lean display. The Engine Lean page also displays the numerical temperature in degrees of Fahrenheit (°F).



Turbine Inlet Temperature

Exhaust Gas Temperature

Exhaust Gas Temperature (EGT) indication for the selected cylinder is displayed on the Engine Lean display. The temperature indication is displayed in degrees of Fahrenheit (°F).



Exhaust Gas Temperatures (Normal)

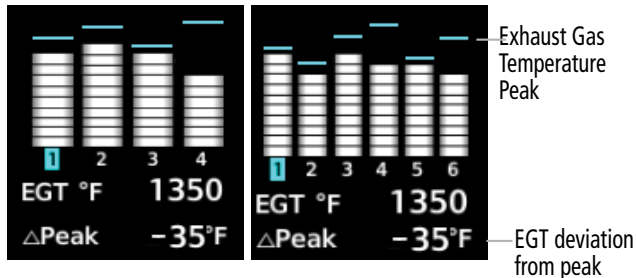
Cylinder Head Temperature

Cylinder Head Temperature (CHT) indication is shown near the bottom Engine Lean display.



Cylinder Head Temperatures (CHT)

Engine Lean Display



Exhaust Gas Temperatures (Lean Assist)

Accessing the EIS Lean Display:

- 1) On the MFD, press the **Engine** Softkey.
- 2) Press the **Lean** softkey.

From the Lean display, the **CYL SLCT** and **Assist** Softkeys can be utilized to obtain information about specific cylinders on both the EGT and CHT graphs. Pressing the **CYL SLCT** Softkey cycles through the cylinders; the selected cylinder number is displayed in cyan. The **CYL SLCT** Softkey is disabled during warning or caution conditions or when the **Assist** Softkey is pressed.

Monitoring the desired cylinder's EGT and CHT:

From the Lean display, press the **CYL SLCT** Softkey to cycle through each cylinder and view its EGT and CHT. The selected cylinder is shown in cyan.

When the **Assist** Softkey is selected, the system initially highlights and selects the cylinder number with the hottest EGT and displays its temperature below the EGT bar graph. A showing the difference between peak (Δ PEAK) and the current temperature for the selected cylinder is displayed the EGT numerical temperature indication.

As the mixture is leaned, a cyan line will appear above each cylinder to indicate EGT peak. Refer to the current version of the pertinent flight manual for the recommended mixture adjustment procedures.

Monitoring of the cylinder continues until the **Assist** Softkey is pressed again.

Fuel Calculations



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

Fuel used (GAL Used) and range (in nautical miles) are calculated based on the displayed fuel remaining (GAL REM) and the fuel flow totalizer. The calculated range also takes into account the aircraft's heading and the wind direction and speed.

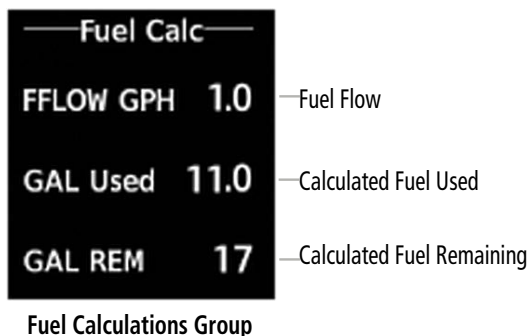
Adjusting the fuel totalizer quantity:

- 1) On the MFD, press the **Engine** Softkey.
- 2) Press the **System** softkey.
- 3) Press the **GAL REM** softkey.

Select the softkey that best describes the current fuel load desired. Once selected, press the **BACK** softkey.

Resetting the fuel totalizer:

Press the **RST Fuel** Softkey; this resets displayed fuel remaining (GAL REM) to zero.



A map feature related to the EIS Fuel Calculations is the Fuel Range Ring, which graphically illustrates the aircraft's remaining range based on heading, groundspeed, and current calculated wind direction and speed. The solid green circle represents the range until all the remaining fuel is depleted. The dashed green circle indicates the aircraft range until only reserve fuel remains. Once on reserve fuel, the range is indicated by a solid amber circle.

The Fuel Range Ring shifts position in relation to the aircraft according to the current calculated wind effects. For example, more fuel is required for flying into a headwind, and the aircraft's decreased range in that direction is indicated by the Fuel Range Ring shifting toward the tail of the Aircraft Symbol. However, it does not calculate forecasted winds and weather from the datalink.

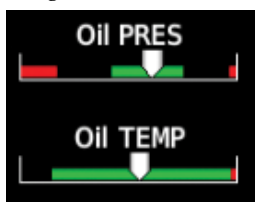
The amount of reserve fuel (only for purposes of the Fuel Range Ring) is set on the 'Navigation Map' Page Setup Menu in terms of remaining flight time. When enabled the Fuel Range Ring appears on the Navigation Map Page, the Weather Data Link Page, and PFD Inset Map.

Enabling/disabling the Fuel Range Ring and selecting a reserve fuel time:

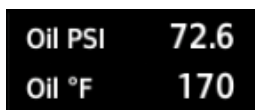
- 1) Display the 'Navigation Map' Page (press and hold the **CLR** Key for 2 seconds to quickly select this map).
- 2) Press the **MENU** Key.
- 3) Highlight 'Map Settings' and press the **ENT** Key. The Map Settings Menu is displayed.
- 4) Use the small **FMS** Knob to select the 'Map' group and press the **ENT** Key.
- 5) Highlight the 'Fuel Range (RSV)' field.
- 6) Turn the small **FMS** Knob to select 'On' or 'Off'.
- 7) Turn the large **FMS** Knob to highlight the reserve fuel time, how long the aircraft can fly after reaching the reserve fuel.
- 8) Enter the desired reserve fuel time (00:00 to 23:59; hours:minutes) and press the **ENT** Key.
- 9) Push the **FMS** Knob to return to the 'Navigation Map' Page.

Oil Pressure and Temperature Gauges

Engine oil pressure and temperature are shown along horizontal bar indicators on the MFD, and are shown in numerical digits when EIS display is displayed. Oil pressure is shown in pounds per square inch (psi) and temperature in degrees of Fahrenheit (°F). If the oil pressure pointer enters the amber band, a caution is issued. If the oil pressure or oil temperature pointers enter the red band, a warning is issued.



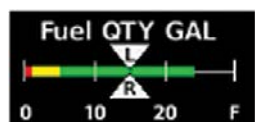
Engine Displayed Oil Pressure and Temperature Gauges Displayed on MFD



Engine System Displayed Oil Pressure and Temperature Gauges

Fuel Quantity

The fuel display shows the fuel quantity in each tank in gallons (gal). Fuel quantity for each tank is normally shown along a horizontal bar indicator. A caution or warning is issued for low fuel quantity.



Fuel Display

Flight
Instruments

EIS

Audio & CNS

Flight
Management

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

AUDIO AND CNS

COM OPERATION

Manually tuning a COM frequency:

- 1) Turn the **COM** Knob to tune the desired frequency (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.

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) Press the **ENT** Key to load the COM frequency into the COM Standby Frequency Field.
- 4) Press the **Frequency Transfer** Key to transfer the frequency to the COM Active Frequency Field.

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

- 1) From any page the COM frequency can be auto-tuned, activate the cursor by pushing the **FMS** Knob or pressing the appropriate softkey.
- 2) Turn the large **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 select the desired COM1 or COM2 active or standby location.
- 5) Press the **ENT** Key to load the frequency.

Changing COM frequency channel spacing:

- 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 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.

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

- 1) From any page the NAV frequency can be auto-tuned, activate the cursor by pushing the **FMS** Knob or the appropriate softkey.
- 2) Turn the large **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 select the desired NAV1 or NAV2 active or standby location.
- 6) Press the **ENT** Key to load the frequency into the selected NAV frequency field.

Tuning an ADF frequency:

- 1) Press the **ADF/DME** Softkey to display the 'ADF/DME Tuning' Window.
- 2) Turn the large **FMS** Knob to place the selection cursor over the standby ADF frequency field.
- 3) Turn the small **FMS** Knob to begin data entry and change each digit.
- 4) Turn the large **FMS** Knob to move the cursor to the next digit position.
- 5) Press the **ENT** Key to complete data entry for the standby frequency.

Transferring the active and standby ADF frequencies:

- 1) Turn the large **FMS** Knob to place the selection cursor over the standby ADF frequency field.
- 2) Press the **ENT** Key to complete the frequency transfer.

Selecting an ADF receiver mode:

- 1) Turn the large **FMS** Knob to place the selection cursor over the ADF mode field.
- 2) Turn the small **FMS** Knob to select the desired ADF receiver mode.

Adjusting ADF receiver volume:

- 1) Turn the large **FMS** Knob to place the selection cursor over the ADF volume field.
- 2) Turn the small **FMS** Knob to adjust volume as desired.

Selecting DME transceiver pairing:

- 1) Press the **ADF/DME** Softkey to display the 'ADF/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) Press 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. Press the **BKSP** Softkey to move 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 Flight ID:

- 1) Press the **TMR/REF** Softkey to display the 'References' Window.
- 2) Push the **FMS** Knob to activate the selection cursor, if not already activated.
- 3) Turn the large **FMS** Knob to scroll down to the Flight ID.
- 4) Turn the small **FMS** Knob to enter the desired Flight ID.
- 5) Press the **ENT** Key to complete Flight ID entry.

ADDITIONAL AUDIO PANEL FUNCTIONS

Enabling/Disabling 3D Audio:

- 1) Use the **FMS** Knob and the **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 Pilot or Copilot 3D Audio Field in the Audio Configuration Box.
- 4) Turn the small **FMS** Knob to select 'Off' or 'On'.
- 5) Press the **ENT** Key to complete the selection.

Swapping Left-Right Audio:

- 1) Use the **FMS** Knob and the **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 Pilot or Copilot L-R Swap in the Audio Configuration Box.
- 4) Turn the small **FMS** Knob to select 'Off' or 'On'.
- 5) Press the **ENT** Key to complete the selection.

Enabling/Disabling Automatic Reconnect of a Paired Device:

- 1) While viewing the 'Aux - Connex Setup' Page, push 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) Push the **FMS** Knob to remove the cursor.

Removing a Paired Device:

- 1) While viewing the 'Aux - Connex Setup' Page, push 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.

AUDIO PANELS PREFLIGHT PROCEDURE

Setting the Audio Panel during preflight:

- 1) Press the **MAN SQ** Key so the in-key annunciation is illuminated.
- 2) Verify manual squelch is set to full open.
- 3) To enable the intercom selection(s) press the **PILOT ICS**, **COPILOT ICS**, and/or **PASS ICS** Keys so the in-key annunciation(s) are illuminated.
- 4) Turn **CRSR Control** Knob to select the intercom audio source to be adjusted. Once selected, turn **VOL/SQ Control** Knob to set the intercom audio level for that position.
- 5) Turn **CRSR Control** Knob to select the COM/NAV radios and each remaining audio source to be adjusted. Once selected, turn **VOL/SQ Control** Knob to adjust the volume level for that position.
- 6) Press the **MAN SQ** Key so the in-key annunciation is no longer illuminated. Auto Squelch will now be active.

FLIGHT MANAGEMENT

Changing a field in the MFD Navigation Data Bar:

- 1) 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 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

MAP ORIENTATION

Changing the orientation for map displays:

- 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.
- 4) Press the **ENT** Key.
- 5) Turn the small **FMS** Knob to select the desired orientation.
- 6) Press the **ENT** Key to select the new orientation.
- 7) 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) 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 display shown on the MFD, 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 display shown 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 display shown 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 display shown on the MFD, push the **Joystick** to display the Map Pointer and 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) Push the **FMS** Knob, or press the **CLR** or **ENT** Key to exit the 'Information' Window.

MEASURING BEARING AND DISTANCE

Measuring bearing and distance between any two points:

- 1) Press the **MENU** Key (with the 'Map – Navigation Map' Page or one of the IFR/VFR pages displayed).
- 2) Use the **FMS** Knob to 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' Window and press the **ENT** Key.

TOPOGRAPHY

Displaying/removing topographic data on MFD map displays:

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

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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) Turn the small **FMS** Knob to select the 'Map' Group.
- 4) Press the **ENT** Key.
- 5) Use the large **FMS** Knob to 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) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to highlight the 'Topo Scale' Field.
- 5) Turn the small **FMS** Knob to select 'On' or 'Off'. Press the **ENT** Key.
- 6) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

MAP DISPLAY SYMBOLS

Symbol Setup

Setting up the 'Land', 'Aviation', 'Airspace', or 'Airways' 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.
- 9) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

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.

Displaying/removing airways:

- 1) Press the **Map Opt** Softkey with the 'Map – Navigation Map' Page displayed.
- 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 Range Field 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.

Map Declutter

Decluttering the MFD map display:

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.
- 2) Press the **Detail** Softkey. The current declutter level is shown. With each selection, another level of map information is removed.

Additional Map display 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 through 7, as necessary.
- 9) Push the **FMS** Knob to return to the 'Map – Navigation Map' Page.

WAYPOINTS

AIRPORTS

Airport Information

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 flashing 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.

Nearest Airport

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

- 6) Use the **FMS** Knob 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

Waypoint Information

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.

Nearest Waypoints

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,

Or:

If the 'NRST – Nearest VOR' Page is displayed, to display the flashing cursor:
Press the **VOR** Softkey.

Or:

- a) Press the **MENU** Key
- b) Highlight 'Select VOR Window', and press the **ENT** Key.
- 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.

User Waypoints

Creating a user waypoint:

- 1) Create a new waypoint name:
 - a) From any page showing a map display, push the **Joystick** to activate the panning function and pan to the map location of the desired user waypoint (excluding the 'Aux – Trip Planning' and Procedure pages).

- b) Press the **ENT** Key. The system provides an automated User Waypoint name. (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.
 - c) If desired, use the large **FMS** Knob to highlight the User Waypoint name, and use the **FMS** Knobs to change the name.
Or:
 - a) With the 'WPT – User WPT Information' Page displayed, press the **New** Softkey, or press the **MENU** Key and select 'Create New User Waypoint' and press the **ENT** Key.
 - b) Use the **FMS** Knobs to enter a user waypoint name.
 - c) Press the **ENT** Key to accept the waypoint name.
Or:
 - a) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor. Use the large **FMS** Knob to highlight the waypoint name.
 - b) Enter a user waypoint name.
 - c) Press the **ENT** Key. The message 'Are you sure you want to create the new user waypoint AAAAAA?' is displayed.
 - d) With 'Yes' highlighted, press the **ENT** Key to accept the waypoint name.
Or:
 - a) With a flight plan page or window displayed, push the **FMS** Knob to activate the cursor (not required on the PFD).
 - b) Select the point in the flight plan before which to add the new user waypoint. The new waypoint is placed directly in front of (above) the highlighted waypoint.
 - c) Turn the small **FMS** Knob clockwise to display the 'Waypoint Information' Window.
 - d) Enter the name of the new user waypoint (a waypoint that does not match any existing waypoint in the database) and press the **ENT** Key.
 - e) The message 'AAAAA does not exist. Create User Waypoint?' is displayed. Press the **ENT** Key with 'Yes' highlighted to accept the waypoint name.
 - 2) If desired, use the large **FMS** Knob to highlight the 'Temporary' Field and press the **ENT** Key to check or uncheck the box to change the storage method to temporary or normal, as desired.
 - 3) Use the large **FMS** Knob to highlight the 'Waypoint Type' Field if necessary. If desired, change the waypoint type 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:

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:

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.

- 4) If desired, use the large **FMS** Knob to highlight the field in the 'Comment' Box, then use the **FMS** Knobs to change the comment (limited to 25 characters).
- 5) When finished, push the **FMS** Knob to remove the flashing cursor.

Or:

With a flight plan page or window displayed, turn the large **FMS** Knob to highlight 'Load WPT to FPL' and press the **ENT** Key.

Editing a user waypoint comment or location:

- 1) With the 'WPT – User WPT Information' Page displayed, push the **FMS** Knob to activate the cursor. The cursor is placed in the 'User Waypoint' Box.
- 2) Use the **FMS** Knobs to enter the name of the User Waypoint; or turn the large **FMS** Knob and scroll to the desired waypoint in the 'User Waypoint List' Box.
- 3) Turn the large **FMS** Knob to move the cursor to the desired field.
- 4) Use the **FMS** Knobs 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.

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

NEAREST AIRSPACE

Setting Airspace Alerts

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** Knob to enter an altitude buffer value and press the **ENT** Key.
- 5) Push the **FMS** Knob to remove the flashing cursor.

Viewing Nearest Airspace Information

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.

FLIGHT PLANNING

DIRECT-TO NAVIGATION

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

- 1) Press the **→** 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 turn the large **FMS** Knob to select the facility name, or city field and turn the small **FMS** Knob 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. The 'Activate?' Field 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 **→** 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) Push the **FMS** Knob to activate the cursor (not required on PFD), and turn the large **FMS** Knob to highlight the desired waypoint.
- 3) Press the **→** 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 **→** 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 **→** 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 **→** 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 **→** 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 large **FMS** Knob to highlight the 'CRS' or 'Course' Field.
- 3) Use the small **FMS** Knob 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 **→** 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 Map Pointer:

- 1) From any page showing a map display (excluding the traffic and terrain pages), push the **Joystick** to display the Map Pointer.
- 2) Move the **Joystick** to place the pointer at the desired destination location. If the Map Pointer is placed on a waypoint, the waypoint name is highlighted.
- 3) Press the **→** Key to display the 'Direct To' Window with the selected point entered as the direct-to destination.
- 4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'
- 5) Press the **ENT** Key again to activate the direct-to.

Cancelling a Direct-to:

- 1) Press the **→** 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 PLAN DISPLAY**Flight Plan Views****Changing the flight plan view:**

- 1) Press the **FPL** Key for the MFD to display the 'FPL – Active 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 active flight plan softkeys.

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

- 1) Press the **FPL** Key for 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 cyan 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 for 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 cyan 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 BASIC FLIGHT PLAN

Creating a flight plan:

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

Or:

For a stored flight plan:

- a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
- b) Press the **New** Softkey; push the **FMS** Knob and select an empty Flight Plan List Field, and press the **ENT** Key; or press the **ENT** Key; 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, 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 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 the flashing cursor.

FLIGHT PLAN WAYPOINT AND AIRWAY MODIFICATIONS

Flight Plan Waypoints

ADDING WAYPOINTS

Adding a waypoint to a flight plan:

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

Or:

For a stored flight plan:

a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.

2) Select the point in the flight plan before which to add the new waypoint. The new waypoint is placed directly in front of the highlighted 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 a flight plan using the map pointer on the MFD:

- 1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).
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; or press the **MENU** Key, select 'Edit Flight Plan' 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** for 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 WAYPOINTS

Removing an individual waypoint from a flight plan:

- 1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).
Or:
 For a stored flight plan:
 - a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
- 2) Turn the large **FMS** Knob to highlight 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.

FLY-OVER WAYPOINTS

Designating a fly-over waypoint:

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

Or:

For a stored flight plan:

- a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
- 2) Highlight the desired 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 AIRWAYS

Adding an airway to a flight plan:

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

Or:

For a stored flight plan:

- a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
- 2) Turn the large **FMS** Knob to move the cursor below the airway entry waypoint for the insertion point. If there is no valid airway entry waypoint in the flight plan, one must be entered first.

- 3) Turn the small **FMS** Knob for the MFD one click clockwise and press the **LD AIRWY** Softkey, or press the **MENU** Key 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 AIRWAYS

Removing an entire airway from a flight plan:

- 1) For the active flight plan, press the **FPL** Key, and push the **FMS** Knob to activate the cursor (not required on PFD).
Or:
 For a stored flight plan:
 - a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' 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 AIRWAYS

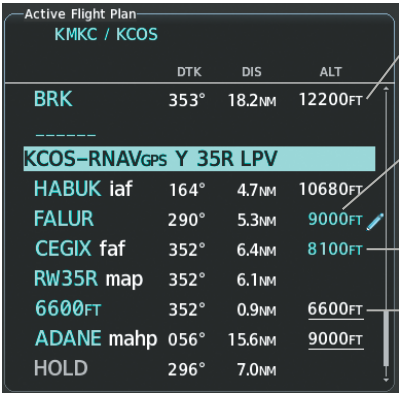
Collapsing/expanding the airways in a flight plan:

- 1) For the active flight plan, press the **FPL** Key.
Or:
 For a stored flight plan:
 - a) Press the **FPL** Key for 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; or press the **MENU** Key, select 'Edit Flight Plan' 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.

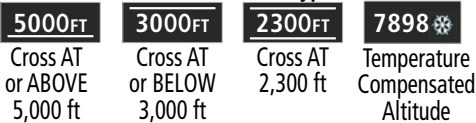
FLIGHT PLAN WAYPOINT CONSTRAINTS

Altitude Constraints



- System Calculated Advisory Altitude (White Text)
- Modified Altitude Constraint (Cyan Text with Pencil Icon)
- Auto Designated Altitude (Cyan Text)
- Published Altitude Not Designated (White Text with Altitude Restriction Bar)

Altitude Constraint Types



Waypoint Altitude Constraints

White Text	Cyan Text
5000FT Advisory altitude calculated by the system estimating the altitude of the aircraft as it passes the waypoint. 5000FT Altitude 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 to be used in determining vertical guidance.	8600FT Altitude is designated for vertical guidance. A pencil icon indicates a manually modified altitude constraint. 8100FT The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.

Altitude Constraint Legend

Entering/designating or modifying an altitude constraint:

- 1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) Turn the small **FMS** Knob and enter an altitude constraint value using the **FMS** Knob. 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.
- 4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an aerodrome without a runway selected, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.

Removing/undesignating an altitude constraint:

- 1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
- 2) Push the **FMS** Knob to activate the cursor and turn to highlight the desired waypoint altitude constraint.
- 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 for the MFD to display the 'FPL – Active Flight Plan' Page.
- 2) Push the **FMS** Knob to activate the cursor and turn to highlight 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.

QFE Constraints



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



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

Entering or modifying a Baro QFE altitude constraint:

- 1) With Baro QFE enabled, press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.

- 2) Push the **FMS** Knob, and turn the large **FMS** Knob to highlight the desired waypoint altitude constraint ('ALT').
- 3) Turn the small **FMS** Knob to begin entry of the altitude constraint, and use the **FMS** Knobs to enter the constraint in reference to Baro QFE. If modifying an existing Baro QFE altitude constraint, turning the small **FMS** Knob displays the existing constraint in MSL in the entry field. If adding a new altitude constraint, turning the small **FMS** Knob displays '00000FT' in the entry field.
- 4) Press the **ENT** Key. Turn the small **FMS** Knob to highlight 'QFE' and press the **ENT** Key to accept the altitude constraint. The constraint is shown in parenthesis indicating it is based on the Baro QFE setting.

FLIGHT PLAN VERTICAL NAVIGATION

Enabling and Disabling VNV guidance:

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

Active VNAV Profile

Modifying the VS TGT and FPA:

- 1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
- 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 as needed to edit the values.
- 4) Push the **FMS** Knob to remove the flashing cursor.

Vertical Situation Display (VSD)

Enabling and changing settings for 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** or **Off** Softkey to enable or disable the Vertical Situation Display.
- 5) If desired, 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 for the MFD to display the 'FPL – Active Flight Plan' Page.
- 2) Push the **FMS** Knob to activate the cursor and turn to highlight the desired waypoint.
- 3) Press the **VNV**  Softkey; or press the **MENU** Key, highlight 'VNV Direct-To', and press the **ENT** Key. An 'Activate vertical Direct-to 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 altitude constraint:

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

FLIGHT PLAN OPERATIONS

Activating a Flight Plan Leg

Activating a flight plan leg:

- 1) Press the **FPL** Key to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Push the **FMS** Knob to activate the cursor not required on PFD), and turn the large **FMS** Knob to highlight the destination 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 remove the flashing cursor.

Along Track Offsets

Entering an along track offset distance:

- 1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).
- 2) Turn the large **FMS** Knob to highlight 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 (limited by leg distances).
- 5) Press the **ENT** Key to create the offset waypoint.
- 6) Push the **FMS** Knob to remove the flashing cursor.

Removing an along track offset distance:

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

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 a stored flight plan:

- a) Press the **FPL** Key for 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 to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 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 to enter a distance from 1-50 nm and press the **ENT** Key. 'Activate Parallel Track?' '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 to display the 'FPL – Active Flight Plan' Page (MFD) or the Active 'Flight Plan' Window (PFD).
- 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. Push the **FMS** Knob to activate the cursor (not required on PFD).

Or:

For a stored flight plan:

- a) Press the **FPL** Key for 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 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 to display the 'FPL – Active Flight Plan' Page (MFD) or the 'Flight Plan' Window (PFD).
- 2) Press the **MENU** Key, highlight 'Hold At Present Position', and press the **ENT** Key. The 'Hold at' Window appears with the 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 **→** 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 a 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 a stored flight plan:
 - a) Press the **FPL** Key for 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 **→** 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.

Arrival Alerts

Enabling/disabling the Arrival Alert:

- 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 select the 'On/Off' Field in the 'Arrival Alert' Box.
- 4) Turn the small **FMS** Knob clockwise to turn the arrival alert On or counterclockwise to turn the alert Off.

Changing the arrival alert trigger distance:

- 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 'Distance' Field in the 'Arrival Alert' Box.
- 4) Use the **FMS** Knob to enter a trigger distance and press the **ENT** Key.

MANAGING FLIGHT PLANS

Importing and Exporting Flight Plans

Ignoring a flight plan transfer from a wireless connection:

- 1) When a flight plan transfer has been initiated from a wireless connection, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and a Connex announcement appears to the right of the MFD page name.
- 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 flight plan transfer from a wireless connection:

- 1) When a flight plan transfer has been initiated from a wireless connection, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and an Connex announcement appears to the right of the MFD page name.
- 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.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight 'Preview Flight Plan'.
- c) Press the **ENT** Key to display the 'FPL – Preview Flight Plan' Page on the MFD.

Storing 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 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.

Or:

- a) Push the **FMS** Knob to activate the cursor.
- b) Turn the **FMS** Knob to highlight 'Store?'.
- c) Press the **ENT** Key to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight 'Store Flight Plan'.
- c) Press the **ENT** Key to store the flight plan. The pending flight plan is stored and the pending annunciation is removed.

Activating a pending 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 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.

Or:

- a) Push the **FMS** Knob to activate the cursor.
- b) Turn the **FMS** Knob to highlight 'Activate?'.
- c) Press the **ENT** Key. The 'Activate Flight Plan?' window is displayed.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight 'Activate Flight Plan'.
- c) Press the **ENT** Key. 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.
Or:
 - a) Press the **MENU** Key.
 - b) Turn the **FMS** Knob to highlight 'Delete Flight Plan'.
 - c) Press the **ENT** 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 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 a 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.
- 3) An 'Invert active flight plan?' confirmation window is displayed. Press the **ENT** Key to invert and activate the flight plan. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** 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.

Deleting the Active Flight Plan

Deleting the active flight plan:

- 1) Press the **FPL** Key.
- 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 flight plan. To cancel the request, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.

Stored Flight Plan Functions

Viewing information about a stored flight plan:

- 1) Press the **FPL** Key for the MFD to display the 'FPL – Active Flight Plan' Page.
- 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) The Flight Plan Information is displayed 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 a flight plan:

- 1) For the active flight plan, press the **FPL** Key.
- 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) Open the 'Activate stored flight plan?' window:
 Press the **Activate** Softkey.
Or:
 Press the **ENT** Key. An 'Activate stored flight plan?' window will appear.
Or:
 - a) Press the **MENU** Key.
 - b) Highlight 'Activate Flight Plan' and press the **ENT** Key.
- 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) Open the 'Copy to flight plan XX?' window:
Press the **Copy** Softkey.
Or:
 - a) Press the **MENU** Key, highlight 'Copy Flight Plan'.
 - b) 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) Open the 'Delete flight plan XX?' window:
Press the **Delete** Softkey.
Or:
Press the **CLR** Key.
Or:
 - a) Press the **MENU** Key.
 - b) Highlight 'Delete Flight Plan', and press the **ENT** Key.
- 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.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Changing a Flight Plan Comment (Name):

- 1) For the active flight plan, press the **FPL** Key. Push the **FMS** Knob to activate the cursor (not required on PFD).
Or:
 For a stored flight plan:
 - a) Press the **FPL** Key for 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 to edit the comment.
- 4) Press the **ENT** Key to accept the changes.
- 5) Push the **FMS** Knob to remove the flashing cursor.

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) Repeat Step 5, until desired information has been viewed for the chosen procedure.
- 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 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 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 place the cursor in the 'Departure' Box. 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 stored flight plan:

- 1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) Turn the **FMS** Knob to highlight the desired flight plan.

- 4) 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.
- 5) 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.
- 6) Select a departure. Press the **ENT** Key.
- 7) Select a runway served by the selected departure (if required). Press the **ENT** Key.
- 8) Select a transition for the selected departure (if required). Press the **ENT** Key.
- 9) Press the **ENT** Key to load the selected departure procedure.

Removing a departure procedure from a flight plan:

- 1) If removing from the active flight plan, press the **FPL** Key for the MFD.

Or:

If removing from the stored flight plan:

- a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
- b) Push the **FMS** Knob to activate the cursor.
- c) Turn the **FMS** Knob to highlight the desired flight plan.
- d) 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 for removal:
 - a) Press the **MENU** Key, and highlight 'Remove Departure'.
 - b) Press the **ENT** Key. A confirmation window is displayed listing the departure procedure.

Or:

 - a) Push the **FMS** Knob to activate the cursor (not required on PFD).
 - b) Turn the large **FMS** Knob to highlight the departure header in the flight plan.
 - c) Press the **CLR** Key. A confirmation window is displayed listing the departure procedure.
- 3) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.
- 4) 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. The 'PROC – Arrival Loading' Page is displayed.
- 4) Use the **FMS** Knob to select an airport 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 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 a stored flight plan:

- 1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
- 2) Push the **FMS** Knob to activate the cursor.
- 3) Turn the **FMS** Knob to highlight the desired flight plan.
- 4) 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.
- 5) 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.
- 6) Select an arrival. Press the **ENT** Key.
- 7) Select a transition for the selected arrival (if required). Press the **ENT** Key.
- 8) Select a runway served by the selected arrival (if required). Press the **ENT** Key.
- 9) Press the **ENT** Key to load the selected arrival procedure.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Removing an arrival procedure from a flight plan:

- 1) If removing from the active flight plan, press the **FPL** Key for the MFD.
Or:
If removing from the stored flight plan:
 - a) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page.
 - b) Push the **FMS** Knob to activate the cursor.
 - c) Turn the **FMS** Knob to highlight the desired flight plan.
 - d) 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 for removal:
 - a) Press the **MENU** Key, and highlight 'Remove Arrival'.
 - b) Press the **ENT** Key. A confirmation window is displayed listing the arrival procedure.
Or:
 - a) Push the **FMS** Knob to activate the cursor (not required on PFD).
 - b) Turn the large **FMS** Knob to highlight the arrival header in the flight plan.
 - c) Press the **CLR** Key. A confirmation window is displayed listing the arrival procedure.
- 3) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'Cancel' and press the **ENT** Key.
- 4) Push the **FMS** Knob to remove the flashing cursor.

APPROACHES

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

Approach Service Level

- LNAV, LNAV+V, L/VNAV, LP, LP+V, LPV

Approach Service Level
- LNAV, LNAV+V, L/VNAV, LP, LP+V, LPV

Approach Service Levels

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

¹ SBAS required

² See Approach Downgrade Behavior Table

Source of Lateral and Vertical Navigation per Approach Service Level

Loss of SBAS

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

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LNAV	Approach phase not specified	SBAS not required. The approach is continued.	None	N/A
LNAV+V	Prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'. ²	Acknowledge message to display Baro VNAV Glidepath	N/A
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV ¹
LNAV/VNAV	Prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'. ²	Acknowledge message to display Baro VNAV Glidepath	N/A
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV ¹

Approach	SBAS Becomes Unavailable	Description	Action Required	Downgrade
LP	More than 1 min prior to the FAF	HSI displays approach service level in amber.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. ²	Acknowledge message to redisplay CDI with LNAV ¹	LNAV ¹
	At/after the FAF	CDI is removed. ²	Acknowledge ABORT APR message to redisplay CDI	N/A
LP+V	More than 1 min prior to the FAF	HSI displays approach service level in amber; VDI displays 'NO GP'.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in magenta; CDI is removed. VDI displays 'NO GP'. ²	Acknowledge message to redisplay CDI with LNAV ¹	LNAV ¹
	At/after the FAF	CDI is removed; VDI displays 'NO GP'. ²	Acknowledge ABORT APR message	N/A
LPV	More than 1 min prior to the FAF	HSI displays approach service level in amber.	None	N/A
	Within 1 min prior to the FAF	HSI displays downgraded approach service level in amber; VDI displays 'NO GP'. ²	Acknowledge message to display Baro VNAV Glidepath	LNAV/VNAV ¹
	At/after the FAF	HSI displays downgraded approach service level in magenta; VDI displays 'NO GP'.	None	LNAV ¹

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

² System message is generated.

Approach Degradation Behavior

Loss of GPS on a Published GPS Approach

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

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

Loading and Activating an Approach

Loading an approach into the active 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. 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 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) Enter minimums:

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

Or:

 - 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 (as reported at the destination airport), and 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 selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the **ENT** Key.

If a visual approach was 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 Airport' 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 'Transition' Field highlighted.
- 6) Turn the **FMS** Knob to highlight the desired transition, and press the **ENT** Key.

- 7) Enter Minimums:

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

Or:

- 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.
- 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 selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the **ENT** Key.

If a visual approach was 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 stored flight plan:

- 1) Press the **FPL** Key for the MFD. Turn the small **FMS** Knob to select the 'FPL – Flight Plan Catalog' Page and push the **FMS** Knob to activate the cursor.
- 2) Turn the **FMS** Knob to highlight the desired flight plan.
- 3) 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.
- 4) 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.
- 5) 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 to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.
- 6) Select a transition for the selected approach. Press the **ENT** Key.
- 7) Press the **ENT** Key to load the selected approach procedure.
If a visual approach was selected, the message 'Obstacle clearance is not provided for visual approaches' is displayed. With 'OK' highlighted, press the **ENT** Key.

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) From the 'PROC – Approach Loading' Page, press the **MENU** Key. The 'Page Menu' Window is displayed with 'Load & Activate Approach' highlighted.
- 2) Press the **ENT** Key.

When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the **ENT** Key.

Or:

Flight Instruments
EIS
Audio & CDS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

- 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 for the MFD. The 'Page Menu' Window is displayed with 'Load & Activate Approach' highlighted.
- 4) Press the **ENT** Key.

When selecting a NAVAID exclusive approach, the popup message is displayed: 'NOT APPROVED FOR GPS - GPS guidance is for monitoring only. Load approach?' With 'Yes' highlighted, press the **ENT** Key.

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

Removing an Approach

Removing an approach from the active or stored flight plan:

- 1) Open the appropriate flight plan page:
For the active flight plan, press the **FPL** Key, or turn the **FMS** Knobs to select the 'FPL – Active Flight Plan' Page.
Or:
For a stored flight plan:
 - a) Turn the **FMS** Knobs 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 Flight Plan' and press the **ENT** Key. The 'FPL – Stored Flight Plan' Page is displayed.
- 2) Remove the approach:
 - a) Press the **MENU** Key, and highlight 'Remove Approach'.
 - b) Press the **ENT** Key. A confirmation window is displayed listing the approach procedure.
 - c) With 'OK' highlighted, press the **ENT** Key.
Or:
 - a) Push the **FMS** Knob to activate the cursor if not already activated.
 - b) Turn the large **FMS** Knob to highlight the approach header in the active flight plan.
 - c) Press the **CLR** Key. A confirmation window is displayed listing the approach procedure.
 - d) With 'OK' highlighted, press the **ENT** Key.
 - e) Push the **FMS** Knob to remove the flashing cursor.

Missed Approach

Activating a missed approach in the active flight plan:

Press the Go-Around Button.

Or:

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

Or:

- 1) Press the **PROC** Key.
- 2) Turn the **FMS** Knob to highlight 'Activate Missed Approach'. (This option is selectable after the leg to the FAF becomes active and GPS is the active NAV source.)
- 3) Press the **ENT** Key.

Temperature Compensated Altitude

TEMPERATURE COMPENSATION FOR APPROACH ALTITUDES

Manually setting temperature compensation for approach waypoint altitudes:

- 1) From the 'FPL – Active Flight Plan' Page, press the **MENU** Key. The 'Page Menu' Window is displayed.
- 2) Turn the **FMS** Knob to highlight 'Temperature Compensation'.
- 3) Press the **ENT** Key. The 'Temperature Compensation' Window is displayed with the temperature highlighted.
- 4) Use the small **FMS** Knob to change the 'Temperature at <airport>' Field. The compensated altitude is computed as the temperature is selected.
- 5) Press the **ENT** Key. 'Activate Compensation?' is highlighted.
- 6) Press the **ENT** Key. The compensated altitudes for the approach are shown in the flight plan.

Cancelling temperature compensation setting for approach waypoint altitudes:

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

TEMPERATURE COMPENSATION FOR APPROACH MINIMUMS

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) If necessary, turn the large **FMS** Knob to highlight 'Select Approach'. Press the **ENT** Key.

- 3) If necessary, use the **FMS** Knob and the **ENT** Key to select the desired airport, 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 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 to enter the temperature at the destination. Press the **ENT** Key.
- 7) Press the **ENT** Key with either 'Load?' or 'Activate?' highlighted. The approach is added to the active flight plan, and the temperature compensated minimums are displayed on the PFD.

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 below the 'FPL' Field.
- 2) Turn the **FMS** Knobs to select the desired waypoint (or select from the 'Page Menu' Window '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 within the input data box.

- 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.

Receiver Autonomous Integrity Monitoring (RAIM) Prediction

In most cases performing a RAIM prediction is not necessary. However, in some cases, the selected approach may be outside the SBAS coverage area, and it may be necessary to perform a RAIM prediction for the intended approach.

Receiver Autonomous Integrity Monitoring (RAIM) is a GPS receiver function that performs a consistency check on all tracked satellites. RAIM ensures the available satellite geometry allows the receiver to calculate a position within a specified RAIM protection limit (2.0 nautical miles for enroute and 0.3 nm for approaches). During oceanic, enroute, and terminal phases of flight, RAIM is available nearly 100% of the time.

The RAIM prediction function also indicates whether RAIM is available at a specified date and time. RAIM computations predict satellite coverage within ± 15 min of the specified arrival date and time.

Because of the tighter protection limit on approaches, there may be times when RAIM is not available. The system automatically monitors RAIM and warns with an alert message when it is not available. If RAIM is not predicted to be available for the final approach course, the approach does not become active, as indicated by the messages "Approach is not active" and "RAIM not available from FAF to Map". If RAIM is not available when crossing the FAF, the missed approach procedure must be flown.



NOTE: *The system RAIM prediction capability does not meet all RAIM prediction requirements. Reference the RAIM/Fault Detection and Exclusion (FDE) Prediction Tool at flygarmin.com as required.*

Predicting RAIM availability at a selected waypoint:

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

HAZARD AVOIDANCE

DATA LINK WEATHER

ACTIVATING DATA LINK WEATHER SERVICES

Activating the SiriusXM Weather Service

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 'Aux - 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.

After SiriusXM has been contacted, it may take approximately 15 minutes until the activation occurs.

Verifying the SiriusXM Weather service activation:

- 1) Once a SiriusXM Weather account has been established, select the 'Aux - 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 Connex 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) Push the **FMS** Knob to deactivate the cursor.

Registering the system to receive Garmin Connex Weather:

- 1) Go to flygarmin.com. Locate the information for subscribing to Garmin Connex 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 Connex 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 Connex' in the menu list.
- 8) Press the **ENT** Key. The 'Connex Registration' Window appears.
- 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 'Connex Registration' Window.

WEATHER PRODUCT AGE



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

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** to show/remove the weather product age information for PFD maps.
- 4) Press the **Back** Softkey twice to return to the top-level softkeys.

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 Weather Data Link (XM or CNXT) 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', or 'Display Connex 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.
Or:
 - a) Press the **MENU** Key.
 - b) Select 'Weather Legend' and press the **ENT** Key.
- 3) Turn the **FMS** Knob to scroll through the legends if more are available than fit in the window.
- 4) To remove the Weather Legends Window, press the **Legend** Softkey, the **ENT** or the **CLR** Key, or push 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) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Weather Data Link (XM)' 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 Connex 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, push the **FMS** Knob or press the **CLR** Key.

Weather Product Map Overlays

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 push 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) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

The system can also display data link weather information on the PFD navigation maps.

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 or 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 push the **FMS** Knob to return to the 'Map - Weather Data Link (CNXT)' Page without requesting weather data.

Cancelling a Connex Data Request in Progress:

- 1) Select the 'Map - Weather Data Link (CNXT)' Page.
- 2) Press the **MENU** Key.
- 3) With 'Connex 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) Push the **FMS** Knob to return to the 'Map - Weather Data Link (CNXT)' Page.

Enabling/disabling automatic Connex Data Requests:

- 1) Select the 'Map - Weather Data Link (CNXT)' Page.
- 2) Press the **MENU** Key.
- 3) With 'Connex 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 Connex 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 'US' or 'CNDA' (Canada) 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 through a coverage option displayed in cyan on the softkey ('Off', 'US', or 'REG', or 'All').

Or:

- 1) Press the **MENU** Key.
- 2) Turn the **FMS** Knob to highlight 'Weather Setup' and press the **ENT** Key.
- 3) To enable/disable the display of NEXRAD information for the continental United States, turn the small **FMS** Knob to highlight the NEXRAD On/Off field.
 - a) Turn the small **FMS** Knob to highlight 'On' to enable the display of NEXRAD for the continental United States or 'Off' to disable.
 - b) Press the **ENT** Key.
- 4) To enable/disable the display of Regional NEXRAD information, turn the small **FMS** Knob to highlight the Regional On/Off field.
 - a) Turn the small **FMS** Knob to highlight 'On' to enable the display of Regional NEXRAD or 'Off' to disable.
 - b) Press the **ENT** Key.
- 5) When finished, push the **FMS** Knob.

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, push 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 Connex)

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.

DATALINK WEATHER PRODUCT OVERLAYS

Echo Tops (SiriusXM)

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 Connex)

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 or CNXT or FIS-B) Page.
- 2) Press the **SIG/AIR** Softkey.
- 3) To view the text of the SIGMET or AIRMET, push the **Joystick** and move the Map Pointer over the icon.
- 4) Press the **ENT** Key. The following figure shows sample SIGMET text.

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) Push the **Joystick** and pan to the desired airport.
- 3) Press the **ENT** Key. The 'WPT - 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) Push the **FMS** Knob or the **CLR** Key to return to the Weather Data Link Page.

Or:

- 1) Select the 'WPT - Weather Information' Page.
 - a) Turn the large **FMS** Knob to select the Waypoint Page Group.
 - b) Press the **WX** Softkey to select the 'WPT - Weather Information' Page.
- 2) Push 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 the METAR text must be completely scrolled through before scrolling through the TAF text.

Displaying original METAR text on the 'FPL - Active Flight Plan' Page:

- 1) Select the 'FPL - Active Flight Plan' Page on the MFD.
- 2) Push 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 'FPL - 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) Push the **Joystick** and pan to the desired METAR flag. Original METAR text appears on the map.
- 4) When finished, push 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.

Or:

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) Turn the FMS Knob to highlight 'Show VSD' or 'Hide VSD' and press the **ENT** Key.

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) Push 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 'WPT - 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) Push the **FMS** Knob or the **CLR** Key to return to the 'Map - Weather Data Link (XM)' Page.

TFRS

Displaying TFR Data:

- 1) Select the 'Map - Weather Data Link (XM or FIS-B or CNXT)' Page or 'Map - Navigation Map' Page.
- 2) Push 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 TFRs' and press the **ENT** Key. The system displays the TFR Information window.
- 5) Push 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) Push 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.

On the 'Map - Weather Data Link (FIS-B)' page, the pilot can enable/disable the FIS-B weather feature, which includes all FIS-B weather products and related softkeys on various maps.

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.

'Aux - 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.

'Aux - ADS-B Status' Page Item	Status Message	Description
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.

'Aux - ADS-B Status' Page Messages for FIS-B Weather

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 'Map - Stormscope®' Page 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.

Or:

- 1) Select the 'Map - Stormscope®' Page.
- 2) Press the **MENU** Key to display the Stormscope Page Menu. Either 'Cell Mode' or 'Strike Mode' is highlighted in cyan to indicate the mode to be selected.
- 3) Press the **ENT** Key to select the highlighted mode and remove the menu. To remove the menu without changing modes, press the **MENU** Key or the **CLR** Key, or push the **FMS** Knob.

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) Push the **FMS** Knob to remove the menu.

Selecting the 'cell' or 'strike' mode on the 'Map - Navigation Map' Page:

- 1) Press the **MENU** Key.
- 2) With 'Map Settings' selected, press the **ENT** Key.
- 3) Turn the **FMS** Knob to select the 'Weather' group and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to select the Stormscope Mode field.
- 5) Turn the small **FMS** Knob to change between 'Cell' and 'Strike' options. When the desired item is selected, press the **ENT** Key.
- 6) Push the **FMS** knob to return to the 'Map - Navigation Map' Page.

Selecting a Stormscope range on the 'Map - Navigation Map' Page:

- 1) Press the **MENU** Key.
- 2) With 'Map Settings' highlighted, press the **ENT** Key.
- 3) Turn the **FMS** Knob to highlight the select the 'Weather' group, and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to highlight the Stormscope maximum map display range distance.
- 5) Turn the small **FMS** Knob to select the Stormscope maximum map display range distance.
- 6) Press the **ENT** Key.
- 7) Push the **FMS** Knob to return to the 'Map - Navigation Map' Page.

STORMSCOPE ABNORMAL OPERATIONS

Manually clearing Stormscope cell or strike information:

- 1) Select the 'Map - Stormscope®' Page.
- 2) Press the **Clear** Softkey.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight 'Clear Lightning Data', then press the **ENT** Key.

Or:

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) Turn the **FMS** Knob to highlight 'Clear Stormscope® Lightning', then press the **ENT** Key.

Manually clearing Stormscope data on the 'Map - Navigation Map' Page:

- 1) Press the **MENU** Key.
- 2) Turn the FMS Knob to highlight 'Clear Stormscope® Lightning'.
- 3) Press the **ENT** Key.

TERRAIN DISPLAYS



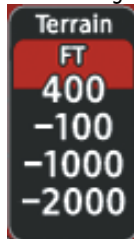
WARNING: Do not use terrain avoidance displays as the sole source of information for maintaining separation from terrain and obstacles. Garmin obtains terrain and obstacle data from third party sources and cannot independently verify the accuracy of the information.



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.

RELATIVE TERRAIN SYMBOLOGY

On-Ground Legend



In-Air Legend



Relative Terrain Legend

DISPLAYING RELATIVE TERRAIN INFORMATION

Displaying relative terrain information (MFD maps other than the terrain page):

- 1) Press the **Map Opt** Softkey (for the PFD Inset Map, press the **Map/HSI** Softkey).
- 2) Press the **TER** Softkey as needed to cycle through the terrain options, with the current selection displayed in cyan on the softkey ('Off', 'Topo' or 'REL'). 'REL' indicates relative terrain is selected.

Displaying relative terrain information (PFD Maps):

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **TER** Softkey.
- 3) Press the **TER** Softkey as needed to cycle through the terrain options, with the current selection displayed in cyan on the softkey ('Off', 'Topo' or 'REL'). 'REL' indicates relative terrain is selected.

Customizing terrain and obstacle display on the Navigation Map Page:

- 1) Select the 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, topographical terrain data ('Topo'), or select 'Off' to disable; also sets maximum map range at which terrain is shown.
 - Point Obstacle – Enables/disables the display of point obstacle data and sets maximum range at which point 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) Push the **FMS** Knob or press the **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

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 Terrain Proximity Page/Terrain-SVT/TAWS-B Page.

Showing/hiding aviation information on the terrain page:

- 1) Press the **MENU** Key.
- 2) Select 'Show Aviation Data' or 'Hide Aviation Data' (choice dependent on current state) and press the **ENT** Key.

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.

Or:

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) Select 'Show VSD' or 'Hide VSD' (choice dependent on current state) and press the **ENT** Key.

VSD Display

Selecting a VSD Mode:

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

- 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 ALERTING

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.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight the desired inhibit or enable option and press the **ENT** Key.

SYSTEM STATUS

TAWS-B

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.

TRAFFIC INFORMATION SERVICE (TIS)



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 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.

TRAFFIC DISPLAY SYMBOLOGY

TIS Symbol	Description
	Non-Threat Traffic
	Traffic Advisory (TA)
	Traffic Advisory Off Scale

TIS Traffic Symbols

DISPLAYING TRAFFIC DATA

Enabling/disabling traffic overlays (MFD navigation maps):

- 1) Select the **Map Opt** Softkey.
- 2) Select the **Traffic** Softkey. Traffic is now displayed on the navigation map.

Customizing traffic display on the 'Map - Navigation Map' Page:

- 1) Select the 'Map - Navigation Map' Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Setup' highlighted, press the **ENT** Key.
- 4) Turn the small **FMS** Knob to select the 'Traffic' Group and press the **ENT** Key.
- 5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product 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 Only - Displays Traffic Alerts 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 for each product (On/Off, range settings, etc.).
- 7) Press the **ENT** Key to select an option.
- 8) Push the **FMS** Knob or press the **CLR** Key to return to the 'Map - Navigation Map' Page with the changed settings.

Enabling/disabling traffic information on the PFD Inset Map or HSI Map:

- 1) On the PFD, press the **Map/HSI** Softkey.
- 2) Press the **Traffic** Softkey to enable/disable the display traffic information on the Inset Map or HSI Map.

'MAP - 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) Confirm TIS is in Operating Mode:

Press the **Operate** Softkey to begin displaying traffic.

Or:

- a) Press the **MENU** Key.
- b) Select 'Operate Mode' (shown if TIS is in Standby Mode) and press the **ENT** Key.

TIS ALERTS

Muting the "TIS Not Available" voice alert:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Press the **TNA Mute** Softkey. The status is displayed in the upper left corner of the 'Map - Traffic Map' Page.

Or:

- a) Press the **MENU** Key.
- b) Select "'Not Available" Mute On' (shown if TNA muting is currently off) and press the **ENT** Key.

SYSTEM STATUS

Switching between TIS modes:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Press the **Standby** or **Operate** Softkey to switch between modes. The mode is displayed in the upper right corner of the 'Map - Traffic Map' Page.

Or:

- a) Press the **MENU** Key.
- b) Select 'Operate Mode' or 'Standby Mode' (choice dependent on current state) and press the **ENT** Key.

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.

Traffic Display SYMBOLOGY

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

TAS Symbol Description

Traffic Symbol	Description
	Traffic Advisory with ADS-B directional information. Points in the direction of the intruder aircraft track.
	Proximity Advisory with ADS-B directional information. Points in the direction of the aircraft track.
	Other Non-threat traffic with ADS-B directional information. Points in the direction of the intruder aircraft track.

Traffic with ADS-B Symbology (GTX 33/335 Transponder)

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.

Symbol	Description
	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 without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

ADS-B Traffic Symbolology with GTX 345R Transponder

SYSTEM TEST

Testing the traffic system:

- 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) Turn the **Joystick** to set the range to 2/6 nm to allow for full test pattern to be displayed during test.
- 4) Ensure the **ADS-B** Softkey is disabled.
- 5) Press the **TAS STBY** Softkey.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

6) Press the **Test** Softkey.

Or:

- 1) With the Traffic system in Standby mode and the ADS-B softkey disabled, press the **MENU** Key.
- 2) Turn the small **FMS** Knob to select 'Test Mode'.
- 3) Press the **ENT** Key.

OPERATION

Changing traffic system modes 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 **TAS OPER** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic mode field.
- 4) Press the **TAS STBY** Softkey to place the system in the Standby mode. 'STANDBY' is displayed in the Traffic mode field.

Or:

- 1) With the 'Map - Traffic Map' Page displayed, press the **MENU** Key.
- 2) Turn the small **FMS** knob to highlight the desired mode.
- 3) Press the **ENT** Key.

'Map - Traffic Map' Page

Altitude Display Mode

Changing the altitude range:

- 1) On the 'Map - Traffic Map' Page, press the **ALT Mode** Softkey.
- 2) Press one of the following Softkeys:
 - **Above:** Displays Other Non-Threat and Proximity Advisory 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 Advisory 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 Advisory 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 Traffic Page, select the **Back** Softkey.
Or:
- 1) Press the **MENU** Key.
- 2) Turn the small **FMS** Knob to select one of the following (see softkey description in the previous step 2):
 - Above.
 - Normal.
 - Below.
 - Unrestricted.
- 3) Press the **ENT** Key.

'Map - Traffic Map' Page Display Range

Changing the display range on the 'Map - Traffic Map' Page:

- 1) Turn the **Joystick**.
- 2) The following range options are available:
 - 750 ft (with optional ADS-B).
 - 750 ft and 1500 ft (with optional ADS-B).
 - 1500 ft and 0.5 nm (with optional ADS-B).
 - 0.5 nm and 1 nm (with optional ADS-B).
 - 1 nm and 2 nm (with optional ADS-B).
 - 2 and 6 nm.
 - 6 and 12 nm.
 - 12 and 24 nm.
 - 24 and 40 nm.

Additional Traffic Displays

Enabling/disabling traffic information (MFD maps other than the 'Map - Traffic Map' Page):

- 1) Press the **Map Opt** Softkey.
- 2) Press the **Traffic** Softkey. Traffic is now displayed on the map.

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 only 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 (relative altitude, vertical trend) 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) Push the **FMS** Knob or **CLR** Key to return to the 'Map - Navigation Map' Page.

Enabling/disabling Inset Traffic Map:

On the PFD, press the **TFC Map** Softkey.

Or:

- 1) With the Inset Map or HSI Map displayed, press the **Map/HSI** Softkey on the PFD.
- 2) Press the **Traffic** Softkey to enable/disable the display traffic information.

Showing the HSI Traffic Map:

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **Layout** Softkey.
- 3) Press the **HSI Trfc** Softkey.

Enabling/disabling traffic overlay on PFD navigation maps:

- 1) With the Inset Map or HSI Map displayed, press the **Map/HSI** Softkey on the PFD.
- 2) Press the **Traffic** Softkey to enable/disable the display traffic information.

ADS-B TRAFFIC

ADS-B TRAFFIC DISPLAY SYMBOLOGY

Symbol	Description
	Traffic Advisory with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory without directional information.

Symbol	Description
	Traffic Advisory with ADS-B directional information is beyond the selected display range. Displayed at outer range ring at proper bearing. Arrow points in the direction of the intruder aircraft track.
	Traffic Advisory out of the selected display range without directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with ADS-B directional information. Arrow points in the direction of the aircraft track.
	Proximity Advisory without directional information.
	Other Non-Threat traffic with ADS-B directional information. Arrow points in the direction of the intruder aircraft track.
	Other Non-Threat traffic without directional information.
	Traffic located on the ground with ADS-B directional information. Arrow points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Pointed end indicates direction of travel. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

ADS-B Traffic Symbolology

OPERATION

System Test

Traffic System Test with ADS-B in

- 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.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

- 3) Ensure the **ADS-B** Softkey is disabled.
 - 4) If the optional TAS is installed, ensure the **TAS STBY** Softkey is enabled.
 - 5) Press the **Test** Softkey.
 - 6) Self test takes approximately ten seconds to complete. When completed successfully, traffic symbols are displayed and a voice alert "Traffic System Test" is heard. If the self test passes the traffic system will revert to Standby Mode and no failure annunciators will be displayed.
- Or:**
- a) Press the **MENU** Key.
 - b) Turn the small **FMS** Knob to highlight 'Test Mode'.
 - c) Press the **ENT** Key.

'Map - Traffic Map' Page

Enabling/disabling the display of ADS-B traffic:

- 1) Select the 'Map - Traffic Map' Page.
 - 2) Press the **ADS-B** Softkey.
- Or:**
- a) Press the **MENU** Key and turn the small **FMS** Knob to highlight 'ADS-B On' or 'ADS-B Off'.
 - b) Press the **ENT** Key.

Altitude Display Mode

Changing the altitude range:

- 1) On the 'Map - Traffic Map' Page, select the **ALT Mode** Softkey.
 - 2) Select 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, select the **Back** Softkey.
- Or:**

- 1) Press the **MENU** Key.
- 2) Turn the small **FMS** Knob to highlight one of the following options (see softkey description in step 2 above):
 - Above.
 - Normal.
 - Below.
 - Unrestricted.
- 3) Press the **ENT** Key.

Displaying Motion Vectors

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.

Or:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Press the **MENU** Key.
- 3) Turn the small **FMS** Knob to highlight 'Relative Motion', 'Absolute Motion' or 'Motion Vector Off'.
- 4) Press the **ENT** Key.

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.

Flight ID Display

Enabling/Disabling Flight ID Display:

On the 'Map - Traffic Map' Page, press the **FLT ID** Softkey.

Or:

- 1) Press the **MENU** Key.
- 2) Turn the small **FMS** Knob to choose 'Show Flight IDs' or 'Hide Flight IDs' (choice dependent on current state).
- 3) Press the **ENT** Key.

Displaying Additional Traffic Information

Showing additional traffic information:

- 1) Select the 'Map - Traffic Map' Page.
- 2) Push the **FMS** Knob. A cyan border appears on the first selected traffic symbol. Additional information appears in a window in the lower-left corner of the 'Map - Traffic Map' Page.
- 3) To select a different aircraft symbol, turn the **FMS** Knob to move the cyan border until another symbol is selected.
- 4) When finished, push the **FMS** Knob again to disable the traffic selection.

Traffic Map Page Display Range

Changing the display range on the 'Map - Traffic Map' Page:

- 1) Turn the **Joystick**.
- 2) The following range options are available:
 - 750 ft.
 - 750 ft and 1500 ft.
 - 1500 ft and 0.5 nm.
 - 0.5 nm and 1 nm.
 - 1 and 2 nm.
 - 2 and 6 nm.
 - 6 and 12 nm.
 - 12 and 24 nm.
 - 24 and 40 nm.

Additional Traffic Displays

Enabling/disabling traffic information (MFD maps other than the 'Map - Traffic Map' Page):

- 1) Select the **Map Opt** Softkey.
- 2) Select the **Traffic** Softkey. Traffic is now displayed on the map.

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 only 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 (relative altitude, vertical trend) 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 Inset Traffic Map:

On the PFD, press the **TFC Map** Softkey.

Or:

- 1) With the Inset Map or HSI Map displayed, press the **Map/HSI** Softkey on the PFD.
- 2) Press the **Traffic** Softkey to enable/disable the display traffic information.

Showing the HSI Traffic Map:

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **Layout** Softkey.
- 3) Press the **HSI Trfc** Softkey.

Enabling/disabling traffic overlay on PFD navigation maps:

- 1) With the Inset Map or HSI Map displayed, press the **Map/HSI** Softkey on the PFD.
- 2) Press the **Traffic** Softkey to enable/disable the display traffic information.

ADS-B SYSTEM STATUS

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.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Blank Page

AUTOMATIC FLIGHT CONTROL SYSTEM

OVERVIEW

BASIC AUTOPILOT OPERATION

- **Autopilot Engagement** — The autopilot may be engaged by pushing the **AP** Key on the AFCS Controller. PFD
- **Autopilot Engagement with Flight Director Off** — Upon engagement, the autopilot will be set to hold the current attitude of the airplane, if the flight director was not previously on.
- **Autopilot Engagement with Flight Director On** — If the flight director is on, the autopilot will smoothly pitch and roll the airplane to capture the FD command bars. The prior flight director modes remain unchanged.
- **Autopilot Disengagement** — The most common way to disconnect the autopilot is to press and release the **AP DISC** Button, which is located on the control wheel. An autopilot disconnect tone will be heard and annunciated on the PFD. The **AP DISC** Button can be used to silence the aural autopilot tone. Other ways to disconnect the autopilot include:
 - » Pressing the **AP** Key on the PFD or MFD
 - » Pressing the **GA** Button (Non E-AFCS equipped aircraft only)
 - » Operating the **MET Switch**
 - » Pulling the autopilot circuit breaker

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

AFCS PREFLIGHT TEST (PFT)

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



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

FLIGHT DIRECTOR OPERATION

ACTIVATING THE FLIGHT DIRECTOR

Control Pressed	Modes Selected			
	Lateral		Vertical	
FD Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
CWS Button	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
GA Button	Go Around (in air)	GA	Go Around (in air)	GA
ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
VNV Key	Roll Hold (default)	ROL	Vertical Path Tracking ¹	VPTH
NAV Key	Navigation ²	GPS VOR LOC	Pitch Hold (default)	PIT
BC Key	Backcourse ³	BC	Pitch Hold (default)	PIT
APR Key	Approach ²	GPS VAPP LOC	Pitch Hold (default)	PIT
HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT

¹ Valid VNV flight plan must be entered before **VNV** Key press activates flight director.

² 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.

³ The selected navigation receiver must have a valid LOC signal before **BC** Key press activates flight director.

Flight Director Activation

AFCS MODES

VERTICAL MODES

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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	¹	ALTS	
Altitude Hold	Holds the current Altitude Reference	ALT Key	ALT	XX,XXX FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	VS Key	VS	X,XXX FPM
Flight Level Change	Maintains the current aircraft airspeed while the aircraft is climbing/descending to the Selected Altitude	FLC Key	FLC	XXX KT

¹ *ALTS armed automatically when PIT, VS, FLC, 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 Mode			
GPS Arm/Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	NAV Key	GPS
VOR Enroute Arm/Capture/Track			VOR
LOC Arm/Capture/Track (No Glideslope)			LOC

Flight Director Lateral Modes

COMBINATION MODES

Combination Mode	Description	Control	Annunciation
Vertical Navigation Modes			
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	1	ALTV
VOR Approach Mode			
VOR Arm/Capture/Track	Captures and tracks VOR navigation source	APR Key	VAPP
GPS Approach Mode			
GPS Arm/Capture/Track	Captures and tracks GPS navigation source	APR Key	GPS
Glidepath	Captures and tracks the SBAS or Baro VNAV glidepath on approach	APR Key	GP
LOC Approach Mode			
LOC Arm/Capture/Track	Captures and tracks the LOC navigation source	APR Key	LOC
Glideslope	Captures and tracks the ILS glideslope on approach	APR Key	GS
Backcourse Arm/Capture/Track	Captures and tracks a localizer signal for backcourse approaches	BC Key	BC
Level Mode			
Go Around	Commands a constant pitch angle and wings level in the air	GA Button	GA
Level	Commands straight and level flight	2	LVL

¹ *ALTV is armed automatically under VPTH when VNV Target Altitude is to be captured instead of Selected Altitude.*

² *Level Mode becomes active as a function of Electronic Stability and Protection (ESP). Refer to the Additional Features section for a detailed discussion of the optional ESP feature.*

Flight Director Combination Modes

APPROACH MODES

Selecting VOR Approach Mode:

- 1) Ensure a valid VOR frequency is tuned.
- 2) Ensure that VOR is the selected navigation source (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 GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).
- 2) Ensure that GPS is the selected navigation source (use the **CDI** Softkey to cycle through navigation sources if necessary).
- 3) Press the **NAV** Key.



NOTE: Pressing the **CWS** Button while Glidepath Mode is active does not cancel the mode. The autopilot guides the aircraft back to the glidepath upon release of the **CWS** Button.

Selecting Glidepath Mode:

- 1) Ensure a GPS approach is loaded into the active flight plan. The active waypoint must be part of the flight plan (cannot be a direct-to a waypoint not in the flight plan).
- 2) Ensure that 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 (GPS) approaches provide a vertical descent angle as an aid in flying a stabilized approach. These approaches are NOT considered Approaches with Vertical Guidance (APV). Approaches that are annunciated on the HSI as LNAV or LNAV+V and LP or LP+V are flown to an MDA, until visual with the landing surface, 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:

- 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.

Selecting Glideslope Mode:

- 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.



NOTE: Pressing the **CWS** Button while Glideslope Mode is active does not cancel the mode. The autopilot guides the aircraft back to the glideslope upon release of the **CWS** Button.

Backcourse Mode (BC)



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

The mode may be selected by pressing the **BC** Key. Backcourse Mode is armed if the CDI is greater than one dot when the mode is selected. If the CDI is less than one dot, Backcourse Mode is automatically captured when the **BC** Key is pressed. Go Around (GA) Mode

Pressing the **GA** Button while in the air activates the flight director in a wings-level, pitch-up attitude, allowing the execution of a missed approach or a go around. Go Around Mode arms Selected Altitude Capture Mode automatically. Attempts to modify the aircraft attitude (i.e., with the **NOSE UP/NOSE DN** keys or **CWS** Button) result in reversion to Pitch and Roll Hold modes.

Level Mode

Level (LVL) mode also becomes active as a function of Electronic Stability and Protection (ESP). Refer to the Additional Features section for a detailed discussion of the optional ESP feature.

When the normal flight envelope thresholds have been exceeded for more than 50% of the last 20 seconds, Level mode is activated. The autopilot will engage and provide input to bring the aircraft back into straight and level flight based on zero degrees roll angle and zero feet per minute vertical speed. An aural engaging autopilot alert sounds and the lateral and vertical flight director annunciations will display "LVL." The AFCS will remain in Level mode until the pilot selects another mode.

ADDITIONAL FEATURES

SAFETAXI

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 small **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 range of distances.
- 6) Turn either **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.

SURFACEWATCH (OPTIONAL)



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



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



NOTE: When the flight plan is modified, data manually entered on the 'FPL - SurfaceWatch' Page will be cleared.



NOTE: The 'FPL - SurfaceWatch Setup' Page displays the **Map Opt** Softkey and additional options once the **Map Opt** Softkey has been pressed. The lower level **Traffic** Softkey and the **STRMSCP** Softkey are non-functional.

Entering origin/destination airport:

- 1) Select the 'FPL - SurfaceWatch Setup' Page.
- 2) Push 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 and/or destination airport.

Selecting origin/destination runway:

- 1) Select the 'FPL - SurfaceWatch Setup' Page.
- 2) Push 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) Push 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 pushing the **FMS** Knob and selecting the required takeoff or landing distance, the 'Runway Length' Field will turn amber (as seen in the following figure) if an insufficient runway length exists.

ELECTRONIC CHARTS

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



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



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



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



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



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

Selecting preferred charts source:

- 1) While viewing a chart press the **MENU** Softkey to display the 'Page Menu.'
- 2) Turn the large **FMS** Knob to highlight the 'Chart Setup' menu option and press the **ENT** Key.
- 3) Turn the large **FMS** Knob to move to the 'Preferred Charts Source' option.
- 4) Turn the small **FMS** Knob to choose between the available options (FliteCharts or ChartView).

FLITECHARTS

Selecting terminal procedures charts:

While viewing the 'Map - Navigation Map' Page, 'WPT - Airport Information' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airport' Page, press the **Charts** Softkey.

Or:

- 1) From the 'Map - Navigation Map' Page, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Chart Mode On.'
- 3) Press the **ENT** Key to display the chart.
- 4) After the chart is displayed, press the **Menu** Key and select the desired type of chart (e.g., 'Show Information Chart,' 'Show Departure Chart,' 'Show Arrival Chart,' 'Show Approach Chart,' etc.) and press the **ENT** Key to display the chart.

Selecting a chart:

- 1) While viewing the 'Map - Navigation Map' Page, 'WPT - Airport Information' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airport' Page, press the **Charts** Softkey.
- 2) Push 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.

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.

Selecting additional information:

- 1) From the 'WPT - Airport Information' Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to highlight the Airport, Runways, or Frequencies Box.
- 3) 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.
- 4) Press the **FMS** Knob again to deactivate the cursor.

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 'Chart Setup' Menu Option and press the **ENT** Key.
- 3) The 'Color Scheme' Field is selected by default. If not already selected, turn the large **FMS** Knob to move to the 'Color Scheme' Field.
- 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 'Chart Setup' Menu.

CHARTVIEW (OPTIONAL)

Selecting terminal procedures charts:

While viewing the 'Map - Navigation Map' Page, 'WPT - Airport Information' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airport' Page, press the **Charts** Softkey.

Or:

- 1) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn the large **FMS** Knob to scroll through the 'Options' Menu to 'Chart Mode On.'
- 3) Press the **ENT** Key to display the chart.
- 4) After the chart is displayed, press the **Menu** Key and select the desired type of chart (e.g., 'Show Information Chart,' 'Show Departure Chart,' 'Show Arrival Chart,' 'Show Approach Chart,' etc.) and press the **ENT** Key to display the chart.

Selecting a chart:

- 1) While viewing the 'Map - Navigation Map' Page, 'WPT - Airport Information' Page, 'FPL - Active Flight Plan' Page, or 'NRST - Nearest Airport' Page, press the **Charts** Softkey.
- 2) Push 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.

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 On' or 'Full Screen Off' option and press the **ENT** Key.

Selecting Additional Information:

- 1) From the 'WPT - Airport Information' Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to highlight the 'Airport,' 'Runways,' or 'Frequencies' Box.
- 3) 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.
- 4) Press the **FMS** Knob again to deactivate the cursor.

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 'Chart 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 'Chart Setup' Menu.

IFR/VFR CHARTS (OPTIONAL)

Selecting IFR Low, IFR High, or 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.

Or:

- 1) From the 'Map - IFR/VFR Charts' Page, press the **MENU** Key to display the 'Page Menu.'
- 2) Select 'Display VFR', 'Display IFR Low' or 'Display IFR High' to display the desired chart.
- 3) Press the **ENT** Key.

Enabling/disabling the traffic overlay:

- 1) Select the 'Map - IFR/VFR Charts' Page.
- 2) With any IFR/VFR chart displayed, press the **Map Opt** Softkey to display the map options.
- 3) Press the **Traffic** Softkey to enable/disable traffic overlaid onto the charts displayed.

SATELLITE TELEPHONE AND DATALINK SERVICES (OPTIONAL)

Registering the system for datalink services:

- 1) Using the **FMS** Knob, select the 'Aux - System Status' Page.
- 2) Touch the **LRU** Softkey, if not already selected.
- 3) Press the **FMS** Knob to activate the cursor.
- 4) Use the large **FMS** Knob to view 'GSR 1.'
- 5) Note the GSR 1 Serial Number as seen in the following figure. This number will be needed when contacting Garmin Connex to establish the account.

- 6) Also note the System ID. It is found in the Airframe Box on the 'Aux - System Status' Page (see following figure). The System ID will also be needed when contacting Garmin Connex.
- 7) Contact Garmin Connex to establish an account and receive an access code.

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.'

Creating a new contact:

- 1) With the 'Aux - Telephone' 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 is accomplished through 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 is accomplished through 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 is accomplished through the **FMS** Knob on the MFD.
- 9) Press the **Symbols** Softkey to display the "@" symbol, the period, and other special characters. Pressing the **More** Softkey will cycle through additional special characters.
- 10) Press the **ENT** Key. The **Save** Softkey is highlighted.
- 11) Press the **ENT** Key. The new contact entry is added to the list of saved contacts.

Editing a contact:

- 1) With the 'Aux - Telephone' 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 is accomplished through 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.

Flight Instruments

EIS

Audio & CNS

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Deleting a contact:

- 1) With the 'Aux - Telephone' 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.

TELEPHONE COMMUNICATION

Viewing the 'Aux - Telephone' 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 - Telephone' Page.

Internal Phone	External Phone	Description
 Idle	 Idle	Phone is Idle
 Ringing	 Ringing	Phone is ringing
 Connected	 Connected	Phone has a dial tone (off hook) or connected to another phone
 	 	Phone dialed is busy
 Dialing	 Dialing	Phone is dialing another phone
 	 	Phone has failed
 	 	Phone status not known
	 Disabled	Phone is disabled

Internal Phone	External Phone	Description
		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

Answering a call from the cockpit:

While viewing the 'Aux - Telephone' Page, press the **Answer** Softkey on the MFD.

Or:

- 1) While viewing the 'Aux - Telephone' Page, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call.'
- 3) Press the **ENT** Key.

Muting incoming call alerts:

- 1) With the 'Aux - Telephone' 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 and in the 'Phone Status' Box, "Incoming Call Alerts Disabled" is displayed.

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

Country Codes

Making an external call from the cockpit using the Iridium satellite network:

- 1) With the 'Aux - Telephone' Page displayed, press the **Phone** Softkey (if not already selected).
- 2) Press the **Dial** Softkey on the MFD.
- 3) Enter the desired telephone number (country code first) by using the **FMS** Knob on the MFD or by pressing the number softkeys 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) With the 'Aux - Telephone' Page displayed, press the **Phone** Softkey (if not already selected).
- 2) 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.

Or:

- 1) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Put Current Call On Hold.'
- 3) Press the **ENT** Key.

TEXT MESSAGING (SMS)

Viewing the 'Aux - 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' Page.
- 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
	A reply has been sent for this text message

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

Text Message Symbols

Enabling/disabling incoming text message pop-up alerts:

- 1) With the 'Aux - Text Messaging' Page displayed, press the **MENU** Key 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. The notification, "New Message Popups Disabled" displays in the 'Notices' Window.

Replying to a text message:

While viewing the text message, press the **Reply** Softkey.

Or:

- 1) Press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Reply To Message.'
- 3) Press the **ENT** Key.

Sending a new text message:

- 1) While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey.

Or:

- a) While viewing the 'Aux - Text Messaging' Page, press the **MENU** Key to display the 'Page Menu.'
 - b) Turn either **FMS** Knob to place the cursor on 'Draft New Message.'
 - c) Press the **ENT** Key.
- 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 is accomplished through use of the **FMS** Knob on the MFD and by use of the 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. Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted.

Or:

Press the **Save** Softkey to save the message in the Outbox for sending at a later time.

Or:

Press the **Cancel** Softkey to delete the message.

Sending a new text message/email to a saved contact:

- 1) With the 'Aux - Telephone' 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 either the **Text EML** Softkey to send to the email address saved for the contact or the **Text PHN** Softkey to send to the phone number saved for the contact. The cursor is placed in the 'To' Field. Confirm the contact you wish to send a message to by pressing the **ENT** Key.
- 4) Enter the desired message, then press the **ENT** Key.
- 5) Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted. Select 'No' to return to the message entry field.

Or:

Press the **Save** Softkey to save the message as a draft.

Or:

Press the **Cancel** Softkey to delete the message.

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. The 'Predefined SMS Text Message' Window is now displayed.

Or:

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'Draft New Predefined Message.'
- c) Press the **ENT** Key. The 'Predefined SMS Text Message' Window is now displayed.
- 5) The cursor is displayed in the 'Title' Field. Enter the desired message title.
Entry is accomplished through use of the **FMS** Knob on the MFD and by use of the 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.



NOTE: *In order to send a predefined text message, as in the following procedure, a predefined text message must first be created using the previous procedure: 'Creating a predefined text message.'*

Sending a predefined text message:

- 1) While viewing the 'Aux - Text Messaging' Page, press the **New** Softkey after a predefined text message has already been drafted as in the previous procedure.
- 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 is accomplished through use of the **FMS** Knob on the MFD and by use of the 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.
- 7) Press the **ENT** Key.
- 8) Confirm you wish to send the message by pressing the **ENT** Key with 'Yes' highlighted. Select 'No' to return to the message entry field.

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 messages. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

- 1) If the Inbox is not already displayed, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Hide Outbox Messages.'
- 3) Repeat step 1, then turn either **FMS** Knob to place the cursor on 'Hide Draft Messages.'
- 4) Press the **ENT** Key.
- 5) The message box selected for viewing is indicated at the bottom left of the list window.

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. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

- 1) If the Outbox is not already displayed, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Hide Inbox Messages.'
- 3) Repeat step 1, then turn either **FMS** Knob to place the cursor on 'Hide Draft Messages.'
- 4) Press the **ENT** Key.
- 5) The message box selected for viewing is indicated at the bottom left of the list window.

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. After pressing each softkey, the green annunciation below the applicable softkey will extinguish.

Or:

- 1) If the Draft messages are not already displayed, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Hide Inbox Messages.'
- 3) Repeat step 1, then turn either **FMS** Knob to place the cursor on 'Hide Outbox Messages.'
- 4) Press the **ENT** Key.
- 5) The message box selected for viewing is indicated at the bottom left of the list window.

Viewing messages sorted by type:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Type** Softkey (if not already selected).

Or:

- 1) If not already sorted by type, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Sort By Type.'
- 3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing messages sorted by date/time:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Time** Softkey (if not already selected).

Or:

- 1) If not already sorted by date/time, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Sort By Date / Time.'
- 3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing messages sorted by address:

While viewing the 'Aux - Text Messaging' Page, press the **Arrange** Softkey, then press the **Address** Softkey (if not already selected).

Or:

- 1) If not already sorted by address, press the **MENU** Key to display the 'Page Menu.'
- 2) Turn either **FMS** Knob to place the cursor on 'Sort By Address.'
- 3) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing the content of a text message:

- 1) While viewing 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 **View** Softkey.

Or:

Press the **ENT** Key.

Or:

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'View Selected Message.'
- c) Press the **ENT** Key. The message content is displayed.
- 4) To close the text message, press the **Close** Softkey.

Or:

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'Close Message.'
- c) Press the **ENT** Key.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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.

Or:

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'Mark Selected Message As Read.'
- c) Press the **ENT** Key. 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.

Or:

- a) Press the **MENU** Key to display the 'Page Menu.'
- b) Turn either **FMS** Knob to place the cursor on 'Delete Selected Message.'
- c) Press the **ENT** Key. A confirmation window is displayed.

- 5) With cursor highlighting 'Yes,' press the **ENT** Key. The message is now deleted.

Deleting all messages:

- 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 select 'Delete All Messages in List.'
- 3) Press the **ENT** Softkey. A confirmation window is displayed.
- 4) With cursor highlighting 'YES,' press the **ENT** Key. All messages are now deleted.

Viewing the 'Aux - Connex 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 'Aux - Connex Setup' Page.

Changing the Bluetooth Name:

- 1) While viewing the 'Aux - Connex 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 - Connex 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 - Connex 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 paired device:

- 1) While viewing the 'Aux - Connex 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 paired device from the List of Paired Devices:

- 1) While viewing the 'Aux - Connex 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.

SIRIUSXM SATELLITE RADIO (OPTIONAL)

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. The Audio Radio ID (XM Weather), the Data Radio ID (XM Radio), or both, must be provided to SiriusXM Satellite Radio to activate the entertainment subscription.

It is not required to activate both the entertainment and weather service subscriptions separately with the SiriusXM Datalink Receiver. Either service can be activated. SiriusXM Satellite Radio uses the coded IDs to send an activation signal that, when received by the SiriusXM Datalink Receiver, allows it to play entertainment programming.

These IDs are located:

- On the label on the back of the SiriusXM Datalink Receiver.
- On the 'Aux - XM Information' Page on the MFD.
- On the XM Satellite Radio Activation Instructions included with the unit.

Contact the installer if the Data Radio ID and the Audio Radio ID cannot be located.

Activating the SiriusXM Satellite Radio services:

- 1) After gathering the Audio Radio ID and the Data Radio ID, contact SiriusXM and complete subscription activation.
- 2) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 3) Turn the small **FMS** Knob to select the 'Aux - XM Radio' Page.
- 4) Select the **Info** Softkey to display the 'Aux - XM Information' Page.
- 5) Verify the desired services are activated.
- 6) Select the **Lock** Softkey. A confirmation window is displayed.
- 7) Turn the large **FMS** Knob to highlight 'Yes.'
- 8) To complete activation, press the **ENT** Key.

If SiriusXM Weather services have not been activated, all the weather product boxes are blank on the 'Aux - XM Information' Page. The 'Service Class' refers to the groupings of weather products available for subscription.

Selecting the 'Aux - XM Radio' Page:

- 1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 2) Turn the small **FMS** Knob to select the 'Aux - XM Radio' Page.
- 3) If not already selected, press the **Radio** Softkey to show the 'Aux - XM Radio' Page where audio entertainment is controlled.

Selecting a channel from the 'Channels' List:

- 1) While on the 'Aux - XM Radio' Page, press the **Channel** Softkey.

- 2) Press the **CH +** Softkey to go up through the list of channels, or move down the list with the **CH –** Softkey.

Or:

- 1) From the 'Aux - XM Radio' Page, press the **FMS** Knob to highlight the 'Channels' 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 'Aux - XM Radio' Page, press the **Channel** Softkey.
- 2) Press the **Direct CH** Softkey. The channel number in the 'Active Channel' Box is highlighted.
- 3) Press 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.

Selecting a category:

- 1) While on the 'Aux - XM Radio' Page, press the **Category** Softkey.
- 2) Press the **CAT +** and **CAT -** softkeys to cycle through the categories.

Or:

- 1) Press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to select the 'Categories' Field.
- 3) Using the small **FMS** Knob, highlight the desired category and press the **ENT** Key. Selecting 'All Categories' places all channels in the list.

Setting a preset channel number:

- 1) On the 'Aux - XM Radio' Page, while listening to an active channel, press the **Presets** Softkey to access the first five preset channels (**Preset 1 - Preset 5**).
- 2) Press 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**). Pressing the **More** Softkey repeatedly cycles through the preset channels.
- 3) Press any one of the (**Preset 1 - Preset 15**) softkeys to assign a number to the active channel.
- 4) Press the **Set** Softkey on the desired channel number to save the channel as a preset.

Adjusting the volume:

- 1) With the 'Aux - XM Radio' Page displayed, press the **Volume** Softkey.
- 2) Press the **VOL –** Softkey to reduce volume or press the **VOL +** Softkey to increase volume. Once the **VOL** Softkey is pressed, the volume can also be adjusted using the small **FMS** Knob. Volume can also be adjusted with the **Audio Panel Volume** Knob when **MUS1** or **MUS2** buttons are pressed.

ELECTRONIC CHECKLISTS (OPTIONAL)



NOTE: Garmin is not responsible for the content of checklists. Checklists are created by the aircraft manufacturer. Modifications or updates to the checklists are coordinated through the aircraft manufacturer. The user cannot edit these checklists.

Accessing and navigating checklists:

- 1) From any page on the MFD, press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'CHKLST' Page Group. (Note the 'CHKLST' Page Group only displays when the checklist database has been successfully loaded to the system.)
- 2) Touch the **Group** Softkey to select the 'Group' Field.
- 3) Turn the **FMS** Knob to select the desired Group and press the **ENT** Key.
- 4) Turn the **FMS** Knob to select the desired checklist and press the **ENT** Key. The first checklist item is selected with white text surrounded by a cyan box.
- 5) Press the **ENT** Key or the **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.
- 6) 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 been checked, '*Checklist Not Finished*' will be displayed in amber text.
- 7) 'Go To Next Checklist?' will be highlighted by the cursor. Press the **ENT** Key to advance to the next checklist.

Accessing emergency procedures:

- 1) From any page on the MFD (except the 'EIS' Page Group), press the **Checklist** Softkey or turn the large **FMS** Knob to select the 'CHKLST' Page Group.
- 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, **Check** Softkey, or press the **FMS** Knob 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.
- 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 been checked, '*Checklist Not Finished*' will be displayed in amber 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.

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 the 'Aux - Video' Page.

Control of the 'Aux - Video' Page can also be accessed through the 'Page Menu.'

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.
- 3) 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.

Adjusting the video settings:

- 1) With the 'Aux - Video' Page displayed, press the **Setup** Softkey.
- 2) Press the **Contrast** - or **Contrast +** Softkey, to adjust display contrast in five percent increments from 0 to 100%.
- 3) Press the **Bright** - or **Bright +** Softkey, to adjust display brightness in five percent increments from 0 to 100%.
- 4) Press the **SAT** - or **SAT +** Softkey, 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.

ELECTRONIC STABILITY AND PROTECTION (OPTIONAL)



NOTE: ESP is designed to be a safety enhancement feature. ESP is not a full authority, envelope protection system.



NOTE: ESP is designed to discourage exceeding the normal flight envelope. It is not designed or capable of performing the necessary recovery procedures due to encounters with adverse flight conditions and environments.



NOTE: Refer to the current version of the pertinent flight manual to determine approval of ESP functionality.

Enabling/disabling ESP:

- 1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 2) Turn the small **FMS** Knob to select the 'Aux - System Setup' Page.
- 3) 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.

ESP is automatically enabled at system initialization.

DATABASE MANAGEMENT



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

Viewing database information:

- 1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 2) Turn the small **FMS** Knob to select the 'Aux - System Status' Page.
- 3) Touch the softkey corresponding to the display (**MFD1** or **PFD1**) for which the database information will be viewed.
- 4) If not already activated, press the **FMS** Knob to activate the flashing cursor in the 'MFD1 Database' or the 'PFD1 Database' Window.
- 5) Scroll to display the appropriate database information by turning the **FMS** Knob or pressing the **ENT** Key until the applicable database information is shown.

SCHEDULER

The system's Scheduler feature can be used to enter and display reminder messages (e.g., "Switch fuel tanks", "Overhaul", etc.) in the 'Alerts' Window on the PFD. Scheduler messages appear in the 'Alerts' Window on the PFD and cause the **Alerts** Softkey label to change to a flashing 'Message' label. Pressing the **Message** Softkey opens the 'Alerts' Window and acknowledges the scheduler message. The softkey reverts to the "Alerts" label. Pressing the **Alerts** Softkey again removes the 'Alerts' Window from the display and the scheduler message is deleted from the message queue.

Entering a scheduler message:

- 1) Select the 'Aux - Utility' Page.
- 2) Push the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the first empty field within the 'Scheduler' Box.
- 4) Use the **FMS** Knob to enter text within the 'Message' Field 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 'Type' Field.
- 6) Turn the small **FMS** Knob to select set the message alert 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 message, 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-MMM-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) Push the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the 'Message' 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 to confirm message deletion.

Flight
Instruments

EIS

Audio & CNS

Flight
Management

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

ABNORMAL OPERATION

REVERSIONARY MODE



NOTE: The system alerts the pilot when backup paths are utilized by the LRUs. Refer to the Appendices for further information regarding system-specific alerts.

In the event of a display 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 IAU-display Ethernet interface is cut off. Thus, the IAU can no longer communicate with the remaining display, and the NAV and COM functions provided to the failed display by the IAU are flagged as invalid on the remaining display. The system reverts to backup paths for the ADAHRS, 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 be manually activated at any time by pressing the Audio Panel's red **DISPLAY BACKUP** Button. Pressing this button again deactivates reversionary mode.

NAV1 and COM1 Flagged Invalid (provided by the failed PFD)



DISPLAY BACKUP Button
Manually Activates/Deactivates Reversionary Mode on All Displays
Reversionary Mode (Failed PFD)

Flight Instruments

ABNORMAL GPS CONDITIONS

The annunciations listed in the following table can appear on the HSI when abnormal GPS conditions occur.

EIS

Audio & CNS

Flight Management

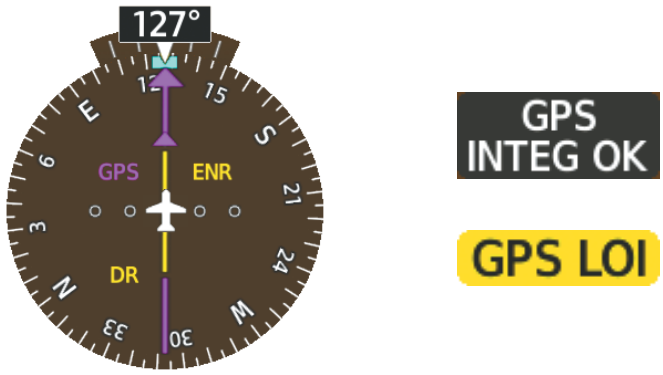
Annunciation	Location	Description
GPS LOI	Right of HSI	Loss of Integrity Monitoring–GPS integrity is insufficient for the current phase of flight
GPS INTEG OK	Right of HSI	Integrity OK–GPS integrity has been restored to within normal limits (annunciation displayed for 5 seconds)
DR	Lower left of aircraft symbol	Dead Reckoning–System is using projected position rather than GPS position to compute navigation data and sequence active flight plan waypoints

Hazard Avoidance

AFCs

Additional Features

Abnormal GPS Conditions Annunciated on HSI



Abnormal Operation

Annun/Alerts

Appendix

Index

Example HSI Annunciations

In Dead Reckoning Mode the CDI is removed from the display when GPS is the selected navigation source. Verify the following amber items when operating in Dead Reckoning Mode as they become increasingly inaccurate over time.

- Current Track Indicator
- Distances in the Bearing Information Windows
- Wind Data
- GPS bearing pointers
- Ground Speed
- Desired track (DTK)

GARMIN SVT TROUBLESHOOTING

SVT is intended to be used with traditional attitude, heading, obstacle, terrain, and traffic inputs. SVT is disabled when valid attitude or heading data is not available for the display. In case of invalid SVT data, the PFD display reverts to the standard blue-over-brown attitude display.

SVT becomes disabled without the following data resources:

- Attitude data
- Heading data
- GPS position data
- 4.9 Arc-second Terrain data
- Obstacle data
- TAWS function is not available, in test mode, or failed
- The position of the aircraft exceeds the range of the terrain database.

SVT IN REVERSIONARY MODE

SVT can be displayed on the Multifunction Display (MFD) in Reversionary Mode. If it is enabled when switching to Reversionary Mode, SVT may take up to 30 seconds to be displayed. The standard, non-SVT PFD display will be shown in the interim.

GI 275

MANUAL SHUTDOWN

Turning off the Standby ADI when the backup battery is installed:

From any page, open the menu and touch **System > Power**.

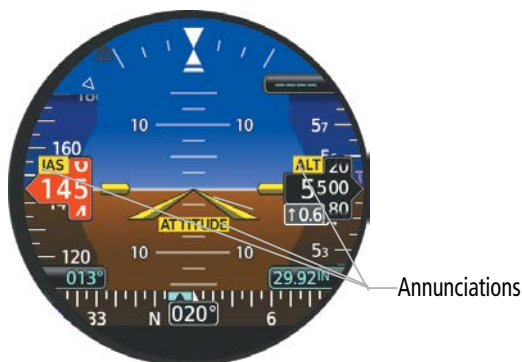
ADAHRS SOURCES

A data failure condition is annunciated by 'X's over instruments, miscompare flags, or no compare flags when an ADAHRS source is lost. Data source switching is not automatic. Reversionary sensor selection is annunciated near the relevant data field or at the top of the display.

Manually switching AHRS or ADC sensors:

- 1) Press and hold the knob to open the menu.
- 2) Select the **ADI Options** or **Options** Button.
- 3) Select the **Sensors** Button.
- 4) Select the **AHRS** or **ADC** Button, then the desired **AHRS** or **ADC** Source.

COMPARATOR ANNUNCIATIONS



GI 275 Comparator Annunciations

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Comparator Annunciation	Comparator Type	Condition
ALT	MISCOMPARE	Altitude Sensors Disagree
IAS	MISCOMPARE	Airspeed Sensors Disagree
ATTITUDE	MISCOMPARE	Attitude Sensors Disagree
ALT	NO COMPARE	No data from atleast one altitude sensor
IAS	NO COMPARE	No data from atleast one airspeed sensor
ATTITUDE	NO COMPARE	No data from atleast one attitude sensor

GI 275 Comparator Annunciations

BACKUP BATTERY

The GI 275 Standby ADI has a backup battery installed to enable device functional-ity even with a total loss of aircraft power. When on the ground and aircraft power is lost, an “External power lost. Shutting down in x” countdown begins with an option to Stay On or Pwr Off. The unit must be manually shut down after aircraft power is lost and the Stay On Button is selected. If airborne and power is lost, an “External power lost.” message is displayed.

The battery must be tested every 392 days using the instructions provided in Airplane Main-tenance Manual for legal flight under IFR



GI 275 Battery Menu

The ‘Battery Status’ Screen displays:

- Remaining battery charge %
- Time to full charge (if charging)
- Minimum battery backup time
- Battery status (temperature, voltage, current)

Viewing backup battery status:

From any page, open the menu and select System > Battery.

Turning off the ADI when the backup battery is installed:

From any page, open the menu and select System > Power.

Turning on the ADI when the backup battery is installed:

Touch the inner knob.



GI 275 Battery Power-Off Menu

Status Annunciations

Battery status annunciations appear on the upper left portion of the ADI.

STANDBY TIME

- Green: 60+ minutes
- Yellow: Less than 60 minutes, but greater than 15 minutes
- Red: Less than 15 minutes

Annunciation(s)	Explanation
  	System running on battery
  	Battery charging
	Battery fault

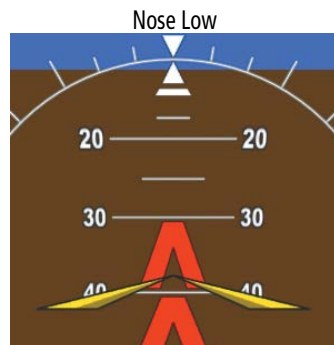
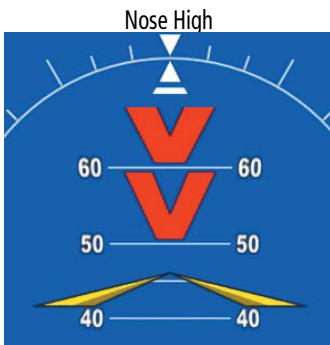
GI 275 Battery Status Annunciations

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.

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 their softkeys are disabled when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- PFD Inset Map
- Outside Air Temperature (OAT)
- Wind data
- Selected Heading indication
- Selected Course indication
- Transponder Status Box
- System Time
- PFD Setup Menu
- Minimum Altitude Alert indication
- Vertical Deviation, Glideslope, and Glide-path Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude
- True Airspeed
- Windows displayed in the lower right corner of the PFD:
- References Window
- Nearest Airports
- Flight Plan
- Alerts
- Procedures



Pitch Attitude Warnings

ABNORMAL AUDIO & CNS OPERATION

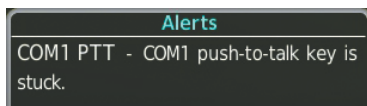
AUDIO PANEL FAIL-SAFE OPERATION

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.

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 annunciation on the Audio Panel flashes as long as the PTT key remains stuck. If in split COM mode (**MIC1** and **MIC2** selected), the annunciation will flash above the MIC key that has the stuck PTT switch.



Stuck Microphone Alert

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, a red X may appear on the frequency display.



COM Tuning Failure

TRANSPONDER FAILURE

If the active transponder fails, a red X will appear in the Transponder Data Box on the PFD and a XPDR Fail system message is displayed.



Transponder Fail Indication

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

DEAD RECKONING

The system will revert to Dead Reckoning (DR) Mode if the system is no longer using GPS for position fixing. In DR Mode, the system uses its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft's current estimated position. It is important to note that estimated navigation data supplied by the system in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation.

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

DR mode is indicated on the system by the appearance of the letters “DR” displayed in amber on the HSI below and to the left of the aircraft symbol, and on top of the aircraft symbol on map displays. The CDI deviation bar is displayed in amber, but is removed from the display after 20 minutes in DR mode. The autopilot will remain coupled in DR mode as long as the lateral deviation guidance is available (20 min). Lastly, but at the same time, a ‘GPS NAV LOST’ alert message appears on the PFD. Normal navigation using GPS/SBAS source data resumes automatically once a valid GPS solution is restored.

As a result of operating in DR mode, all data that is dependent upon GPS is displayed as amber text to denote degraded navigation source information. The accuracy of all bearing and distance information on nearest pages (airports, airspaces, and waypoints) and waypoint information pages is questionable, and is displayed in amber. If the VSD Inset is enabled, ‘VSD Not Available’ will be displayed. Airspace alerts continue to function, but with degraded accuracy. Also, while the system is in DR mode, SVT and terrain alerting functions are disabled.

OVERSPEED PROTECTION



NOTE: Overspeed protection is not active in ALT, GS, or GP modes.

While Pitch Hold, Vertical Speed, Flight Level Change, Vertical Path Tracking, or an altitude capture mode is active, airspeed is monitored by the flight director. Overspeed protection is provided to limit the flight director's pitch command in situations where the flight director cannot acquire and maintain the mode reference for the selected vertical mode without exceeding Vne.

When Overspeed Protection is active, the Airspeed Reference appears in a box above the Airspeed Indicator, flashing an amber ‘MAXSPD’ annunciation. Engine power should be reduced and/or the pitch reference adjusted to slow the aircraft. The annunciation disappears when the overspeed condition is resolved.

UNDERSPEED PROTECTION

Underspeed Protection is available when the optional Electronic Stability and Protection (ESP) system is installed and the autopilot is on. It is designed to protect the airplane from stalls. When the aircraft reaches a predetermined airspeed, an amber MINSPD annunciation will appear above the airspeed indicator.

For airplanes that have ESP installed, the AFCS can detect and protect against underspeed situations while the autopilot is engaged. It is designed to discourage aircraft operation below minimum commandable airspeeds.

ALTITUDE-CRITICAL MODES (ALT, GS, GP, GA, FLC)

As the aircraft slows, within 5 to 10 seconds from reaching stall warning, an aural “AIR-SPEED” alert will sound. If the aircraft decelerates to stall warning, the lateral and vertical flight director modes will change from active to armed, and the autopilot will provide input causing the aircraft to pitch down and the wings to level.

An aural “AIRSPEED” alert will sound every five seconds and a red “UNDERSPEED PROTECT ACTIVE” annunciation will appear to the right of the vertical speed indicator. The pitch down force will continue until the aircraft reaches a pitch attitude at which IAS equals the IAS at which stall warning turns off, plus two knots.

When airspeed increases (as a result of adding power/thrust) to above the IAS at which stall warning turns off, plus two knots, the autopilot will cause the aircraft to pitch up until recapturing the vertical reference. The vertical and lateral flight director modes will change from armed to active. The pitch attitude may be very high as the aircraft climbs back to the desired altitude. This high pitch angle and rate of climb is intended to minimize time spent below the desired altitude.

NON-ALTITUDE CRITICAL MODES (VS, VNAV, PIT, LVL)

When the airspeed trend vector reaches a predetermined airspeed, a single aural “AIR-SPEED” will sound, alerting the pilot to the impending underspeed condition. If the aircraft decelerates to an IAS below the minimum commandable autopilot airspeed, a red “UNDERSPEED PROTECT ACTIVE” annunciation will appear to the right of the vertical speed indicator. The vertical flight director mode will change from active to armed, and the autopilot will cause the aircraft to pitch down until reaching a pitch attitude at which IAS equals the minimum commandable autopilot airspeed.

When airspeed increases (as a result of adding power/thrust) to an IAS above the minimum commandable autopilot airspeed, the autopilot will cause the aircraft to pitch up until recapturing the vertical reference. The vertical flight director mode will change from armed to active.

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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.

Mitigating suspected autopilot failure or trim failure:

- 1) Firmly grasp the control wheel.
- 2) Press and hold the **AP DISC** Button. 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** Button.

REVERSIONARY MODE

In the event of a PFD failure, the MFD automatically goes into reversionary mode. The autopilot will disconnect and the aural disconnect alert will sound continuously until canceled with the **AP DISC** Button.

In the event of an MFD failure, the PFD automatically goes into reversionary mode and the autopilot will continue to operate in previously selected modes. Autopilot and flight director mode selection is available with the AFCS keys on the bezel of the PFD.

DATALINK TROUBLESHOOTING

For troubleshooting purposes, check the 'LRU Information' Box on the 'Aux - System Status' Page for Iridium Receiver (GSR 56), Wireless Transceiver (FS 510), or SiriusXM Datalink Receiver (GDL 69) status, serial number, and software version number. If a failure has been detected in the LRU, the status is marked with a red 'X.'

Viewing the 'Aux - System Status' Page:

- 1) Turn the large **FMS** Knob to select the 'Aux' Page Group.
- 2) Turn the small **FMS** Knob to select the 'Aux - System Status' Page.
- 3) Press the **FMS** Knob to activate the flashing cursor in the 'LRU Information' Window.
- 4) Scroll to display the appropriate LRU information by turning the **FMS** Knob or pressing the **ENT** Key until the applicable database information is shown.

QUICK TROUBLESHOOTING

- Ensure the installed hardware has an active subscription or account (e.g., SiriusXM subscription).
- Perform a quick check of the circuit breakers to ensure that power is applied to the applicable hardware.
- If a failure still exists, the following messages may provide insight as to the possible problem:

Message	Message Location	Description
CHECK ANTENNA	'Aux - XM Information' Page (MFD)	Datalink Receiver antenna error; service required
UPDATING	'Aux - XM Information' Page (MFD)	Datalink Receiver updating encryption code
NO SIGNAL	'Aux - XM Information' Page (MFD)	Loss of signal; signal strength too low for receiver
LOADING	'Aux - XM Radio' Page (MFD)	Acquiring channel audio or information
OFF AIR	'Aux - XM Radio' Page (MFD)	Channel not in service
-----	'Aux - XM Radio' Page (MFD)	Missing channel information
ACTIVATION REQUIRED	'Aux - XM Information' Page (MFD)	SiriusXM subscription is not activated
DETECTING ACTIVATION	'Aux - XM Information' Page (MFD)	SiriusXM subscription is activating.
WAITING FOR DATA...	'Aux - XM Information' Page (MFD)	SiriusXM subscription confirmed downloading data.

SiriusXM Datalink Receiver (GDL 69A) Messages

Flight
Instruments

EIS

Audio & CNS

Flight
Management

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

ANNUNCIATIONS & ALERTS

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

SYSTEM ANNUNCIATIONS



NOTE: Upon power-on, certain windows remain invalid as system equipment begins to initialize. All windows should be operational within one minute of power-on. If any window continues to remain flagged, the system should be serviced by a Garmin-authorized repair facility.

System Annunciation	Comment
	Air Data, Attitude and Heading Reference System is aligning.
	Display system is not receiving attitude information from the ADAHRS.
	Air Data, Attitude, and Heading calibration incomplete or configuration module failure.
	GPS information is either not present or is invalid for navigation use. Note that ADAHRS utilizes GPS inputs during normal operation. ADAHRS operation may be degraded if GPS signals are not present (see pertinent flight manual).

	System Annunciation	Comment
Flight Instruments		Display system is not receiving airspeed input from the air data computer.
EIS		
Audio & CNS		Display system is not receiving vertical speed input from the air data computer.
Flight Management		
Hazard Avoidance		Display system is not receiving valid heading input from the ADAHRS or magnetometer.
AFCS		Display system is not receiving altitude input from the air data computer.
Additional Features		Display system is not receiving valid OAT information from the air data computer.
Abnormal Operation		Display system is not receiving valid transponder information.
Annun/Alerts	Other Various Red X Indications	A red 'X' through any other display field (such as engine instrumentation fields) indicates the field is not receiving valid data.

System Annunciations

NEAREST AIRSPACE

	Message	Comments
Appendix	INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
Index	ARSPC AHEAD – Airspace ahead – less than 10 minutes.	Special use airspace is ahead of aircraft track. The aircraft current ground track penetrates the airspace within 10 minutes.

Message	Comments
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.

Airspace Messages

FLIGHT PLANNING

VERTICAL SITUATION DISPLAY (VSD)

Message	Description
'Loading...'	VSD is loading data due to a range change, full/half switch, or first being selected for display.
'Flight Plan Not Available'	Flight Plan mode is selected and there is not a flight plan loaded with at least one leg.
'Flight Plan mode unavailable because aircraft off course and active leg over 200 NM'	All of the following are true: - Flight Plan mode is selected - The active leg is greater than 200 nm - The aircraft is outside the swath
'Aircraft Beyond Active Leg'	Flight Plan mode is selected and the aircraft's position, as projected on the flight plan, is past the end of the active leg.
'VSD Not Available'	At least one of the following is true: - Valid terrain database not available - 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 is old, disable and enable VSD'	The system has encountered a delay and VSD data has failed to update for 2 seconds or more. This message may be momentarily displayed and then removed as the delay is overcome. In the event the message persists, it is recommended to disable and enable VSD.

VSD System Messages

MANAGING FLIGHT PLANS

Under certain conditions, some messages may appear when a flight plan is imported or exported.

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 the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.

Flight Plan Import/ Export Results	Description
'Flight plan contains invalid waypoint(s)'	One or more imported flight plan waypoints is/are invalid or locked (this may occur if waypoints in the flight plan were removed in a recent database cycle). The imported flight plan can be deleted or it can be viewed and edited to remove invalid waypoints prior to use.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

Flight Plan Import/Export Messages

FIS-B WEATHER ANNUNCIATIONS

FIS-B Weather Status Banner Annunciation	Description
FIS-B WEATHER UNAVAILABLE	Current aircraft position is outside the FIS-B Coverage area.
NOT RECEIVING WEATHER DATA	GTX 345R is currently offline or not receiving FIS-B Weather data from the antenna.

FIS-B Weather Status Annunciation

TERRAIN ANNUNCIATIONS

TERRAIN-SVT/ TAWS-B ANNUNCIATIONS

Alert Type	PFD/Terrain-SVT Page Alert Annunciation	MFD Pop-Up Alert (except Terrain-SVT Page)	Voice Alert
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Line Clearance (RLC)	TERRAIN	WARNING – WIRE	"Warning; Wire, Wire"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"

Flight Instruments	Alert Type	PFD/Terrain-SVT Page Alert Annunciation	MFD Pop-Up Alert (except Terrain-SVT Page)	Voice Alert
EIS	Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
	Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Audio & CNS	Imminent Line Impact Caution (ILI)	TERRAIN	CAUTION – WIRE	"Caution, Wire, Wire"
Flight Management	Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
	Reduced Required Line Clearance Caution (RLC)	TERRAIN	CAUTION – WIRE	"Caution, Wire, Wire"
Hazard Avoidance	Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
AFCs	Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"

Terrain-SVT Alerts Summary

Additional Features	Alert Type	PFD/TAWS-B Page Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
Abnormal Operation	Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	"Pull Up"
Annun/Alerts	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"
Appendix	Reduced Required Line Clearance Warning (RLC)	PULL UP	WARNING – WIRE	"Wire, Wire; Pull Up, Pull Up"
Index	Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD – PULL-UP	"Terrain Ahead, Pull Up; Terrain Ahead, Pull Up"

Alert Type	PFD/TAWS-B Page Alert Annunciation	MFD Pop-Up Alert (except TAWS-B Page)	Voice Alert
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	DON'T SINK	"Don't Sink"

TAWS-B Alerts Summary

Alert Type	PFD/ Terrain- SVT Page 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" ¹
Excessively degraded GPS signal; or Out of database coverage area.	TER N/A	None	"Terrain System Not Available" ¹
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

¹ "Terrain System Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.

Terrain-SVT System Status Annunciations

Alert Type	PFD/TAWS-B Page 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"

Alert Type	PFD/TAWS-B Page Alert Annunciation	TAWS-B Page Center Banner Annunciation	Voice Alert
TAWS-B FLTA Alerting Inhibited	TAWS INH	None	None
No GPS position	TAWS N/A	NO GPS POSITION	"TAWS Not Available" ¹
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

¹ "TAWS Available" will be heard when sufficient GPS signal is received, or Terrain database coverage area re-entered.

TAWS-B System Status Annunciations

TIS ANNUNCIATIONS

'Map - Traffic Map' Page Center Banner Annunciation	Description
NO DATA	Data is not being received from the transponder. ¹
DATA FAILED	Data is being received from the transponder, but a failure is detected in the data stream. ¹
FAILED	The transponder has failed. ¹
UNAVAILABLE	TIS is unavailable or out of range.

¹ Contact a service center or Garmin dealer for corrective action.

TIS Failure Annunciations

Flight Instruments	'Map - Traffic Map' Page Mode Annunciation	'Map - Traffic Map' Page Center Banner Annunciation	Traffic Overlay Status Icon (Navigation Maps)	Description
EIS	DATA FAILED	TRFC FAIL		Data is being received from the transponder, but a failure is detected in the data stream. ¹
Audio & CNS	NO DATA	TRFC FAIL		Data is not being received from the transponder. ¹
Flight Management	OPERATING	None		TIS is operating and is receiving traffic data from a data link.
	OPERATING	UNAVAILABLE		TIS is operating, but the traffic service is currently unavailable or is out of reception range.
Hazard Avoidance	STANDBY	STANDBY		TIS is in Standby Mode.
AFCs	UNIT FAILED	TRFC FAIL		The transponder has failed. ¹

¹ Contact a service center or Garmin dealer for corrective action.

TIS Modes and Status Annunciations

Additional Features	Traffic Status Banner Annunciation	Description
Abnormal Operation	TA OFF SCALE	A Traffic Advisory is outside the selected display range. ¹ Annunciation is removed when traffic comes within the selected display range
Annun/Alerts	TA X.X ± XX ↓	System cannot determine bearing of Traffic Advisory. ² Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending)
Appendix	AGE MM:SS	Appears if traffic data is not refreshed within 6 seconds. If after another 6 seconds data is not received, traffic is removed from the display. The quality of displayed traffic information is reduced as the age increases.

Traffic Status Banner Annunciation	Description
TRFC COAST	The displayed data is not current (6 to 12 seconds since last message). The quality of displayed traffic information is reduced when this message is displayed.
TRFC RMVD	Traffic is removed because it is too old for coasting (12 to 60 seconds since last message). Traffic may exist within the selected display range, but it is not displayed.
TRFC FAIL	Traffic data has failed.
NO TRFC DATA	Traffic has not been detected.
TRFC UNAVAIL	The traffic service is unavailable or out of range.

¹ Shown as symbol on 'Map - Traffic Map' Page.

² Shown in center of 'Map - Traffic Map' Page.

TIS Traffic Status Annunciations

TRAFFIC ANNINCATIONS

TAS TRAFFIC ANNUNCATIONS

Mode	Traffic Mode Annunciation ('Map - Traffic Map' Page)	Traffic Display Status Icon (Other Maps)
Traffic System Test Initiated	TEST ("TEST MODE" shown in center of page)	
Operating	OPERATING	
Standby	STANDBY (also shown in white in center of page)	
Traffic System Failed ¹	FAIL	

Traffic Modes

Flight InstrumentFIS

Audio & CNS

Flight Management

Hazard avoidanceAFC

Additional Features

Abnormal Operation

TAS Traffic Status Annunciations

Annun/Alerts

Appendix

Index

ADS-B Mode	Traffic Mode Annunciation ('Map - Traffic Map' Page)	'Map - Traffic Map' Page Center Banner Annunciation	Traffic Display Status Icon (Other Maps)
ADS-B Traffic Off	ADS-B: OFF	ADS-B TRFC OFF	
ADS-B Traffic Not Available	ADS-B: N/A	NO TRK/HDG	
ADS-B Failed ¹	ADS-B: FAIL	FAILED	

ADS-B Modes

'Map - 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.

Traffic Failure Annunciations

Traffic Status Banner Annunciation	Description
TA OFF SCALE	A Traffic Advisory is outside the selected display range. ¹ Annunciation is removed when traffic comes within the selected display range.
TA X.X ± XX ↓	System cannot determine bearing of Traffic Advisory. ² Annunciation indicates distance in nm, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending).
TRFC FAIL	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.

¹ Shown as symbol on 'Map - Traffic Map' Page.² Shown in center of 'Map - Traffic Map' Page.

Traffic Status Annunciations

AFCS STATUS ALERTS

The annunciations in the following table (listed in order of increasing priority) can appear on the PFD above the airspeed and attitude indicators. Only one annunciation may occur at a time and messages are prioritized by criticality.

Alert Condition	Annunciation	Description
Aileron Mistrim Right	AIL→	Roll servo providing sustained force in the indicated direction
Aileron Mistrim Left	←AIL	
Elevator Mistrim Down	↓ELE	Pitch servo providing sustained force in the indicated direction - May indicate a failure of the pitch trim servo or trim system
Elevator Mistrim Up	↑ELE	
Roll Failure	ROLL	Roll axis control failure; AP inoperative
Pitch Trim Failure (or stuck MET Switch)	PTRM	If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move MET Switches separately to unstick
Pitch Failure	PTCH	Pitch axis control failure; AP inoperative
System Failure	AFCS	AP and MET 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 Button during servo initialization and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-on tests). Power must be cycled to the servos to remedy the situation.
	PFT	Preflight system test failed; aural alert sounds at failure

AFCS Status Alerts

SURFACEWATCH ANNUNCIATIONS

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, or landing on, a runway with a distance less than what was entered by the crew.
CHECK RUNWAY	"Check Runway"	Issued when the aircraft is taking off from, or landing on, a runway different than that entered by the crew.
NOT A RUNWAY	"Not a Runway"	Issued when the aircraft is landing on a non-runway (e.g., a taxiway).

SurfaceWatch Alert Annunciations

CAS ANNUNCIATIONS

Red annunciation window text signifies warnings, amber signifies cautions, white signifies advisories, and green signifies safe. See the current version of the pertinent flight manual for a list of CAS messages and for recommended pilot action.

WARNING ANNUNCIATIONS

CAS Window Text	Audio Alert
CO LVL HIGH	Repeating Chime
HIGH VOLTS	
LOW VOLTS	
OIL PRESSURE	
USP ACTIVE	

CAUTION ANNUNCIATIONS

CAS Window Text	Audio Alert
LOW FUEL L	Single Chime
LOW FUEL R	
LOW VACUUM ¹	
PROP HEAT	
STBY BATT	

¹ Aircraft without Standby ADI installed.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

ADVISORY ANNUNCIATIONS

CAS Window Text	Description	Audio Alert
AP AIL DISC	Autopilot aileron trim disconnected.	None
ESP CONFIG	ESP config error. Config service req'd.	
ESP CONFIG VALID	ESP is correctly configured.	
ESP DEGRADE	ESP IAS mode is inoperative.	
ESP FAIL	ESP is inoperative.	
ESP OFF	ESP selected off.	

SAFE ANNUNCIATIONS

Annunciation Window Text	Audio Alert
PROP HEAT	None

Display Inhibits

Inhibits prevent certain CAS messages from being displayed during the following conditions:

If two alert levels of the same message are active simultaneously (e.g., L FUEL QTY warning and L FUEL QTY caution) only the higher alert level is displayed.

If a GEA or GIA fails, all CAS messages depending on sensors associated with that LRU are automatically inhibited. Inhibits cannot be activated by invalid sensor data.

VOICE ALERTS

Voice Alert	Description
"Airspeed" ¹	Underspeed condition is impending or active.
"Minimums, minimums"	The aircraft has descended below the preset barometric minimum descent altitude.
"Vertical track"	The aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"Traffic"	Played when a Traffic Advisory (TA) is issued (TIS and ADS-B).
"Traffic Not Available"	The aircraft is outside the Traffic Information Service (TIS or ADS-B) coverage area.
"Traffic, Traffic"	Played when a Traffic Advisory (TA) is issued (TAS system).

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Voice Alert	Description
"Traffic System Test"	Played during a pilot-initiated self test (GTX 345 only).
"TAS System Test Passed"	Played when the TAS system passes a pilot-initiated self test. (GTS 800 without GTX 345)
"TAS System Test Failed"	Played when the TAS system fails a pilot-initiated self test. (GTS 800 without GTX 345)
"One o'clock" through "Twelve o'clock" or "No Bearing"	Played to indicate bearing of traffic from own aircraft.
"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	Played to indicate altitude of traffic relative to own aircraft.
"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"	Played to indicate distance of traffic from own aircraft.

¹ Only applicable to aircraft with optional ESP.

AUDIO ALERTING SYSTEM TEST

The system issues audio alert tones when specific system conditions are met. Should the #1 GIA fail, audio and voice alerts are not generated. The annunciation tone may be tested from the Aux - System Status Page.

Testing the system annunciation tone:

- 1) Use the **FMS** Knob to select the 'Aux - System Status' Page.
 - 2) Select the **ANN Test** Softkey.
- Or:
- 1) Press the **MENU** Key.
 - 2) Highlight 'Enable Annunciator Test Mode' and press the **ENT** Key.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

SYSTEM MESSAGES

This section describes various system messages. Certain messages are issued due to an LRU or an LRU function failure. Such messages are normally accompanied by a corresponding red ‘X’ annunciation.



NOTE: This section provides information regarding system messages that may be displayed by the system. Knowledge of the aircraft, systems, flight conditions, and other existing operational priorities must be considered when responding to a message. Always use sound pilot judgment. The current version of the pertinent flight manual takes precedence over any conflicting guidance found in this section.

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	GDC1 is reporting the altitude error correction is unavailable.
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC1 is reporting the airspeed error correction is unavailable.
ADC1 SERVICE – ADC1 needs service. Return unit for repair.	The GDC1 should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
AHRS1 CAL – AHRS1 calibration version error. Svc req’d.	The #1 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 #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check the current version of the pertinent flight manual limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.

Message	Comments
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS1 SERVICE – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS1 TAS – AHRS1 not receiving airspeed.	The #1 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
APR ADVISORY – SBAS VNAV not available. Using Baro VNAV.	SBAS not available. The system is calculating the VNAV profile using BARO VNAV.
APR DWNGRADE – Approach downgraded.	Use LNAV minima when approach is downgraded.
APR INACTV – Approach is not active.	The system notifies the pilot the loaded approach is not active. Activate approach when required.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
AUDIO MANIFEST – Audio software mismatch, communication halted.	The GMA has incorrect software installed. The system should be serviced.
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.
CO DET SRVC – The carbon monoxide detector needs service.	A failure in the carbon monoxide detector has been detected. The detector may still be available. The system should be serviced when possible.
CO DET FAIL – The carbon monoxide detector is inoperative.	A failure in the carbon monoxide detector has been detected. The system should be serviced.

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

	Message	Comments
Flight Instruments	COM #[1, 2] INOP - CAL – Check COM calibration.	COM1 and/or COM2 calibration version error. Check COM calibration.
EIS	COM #[1, 2] INOP - CRNT – Check COM current.	COM1 and/or COM2 current is low. Check COM current.
Audio & CNS	COM #[1, 2] INOP - INTRL – Com internal fault.	COM1 and/or COM2 has an internal fault.
	COM #[1, 2] INOP - SYNTH – COM synthesizer lock fault.	COM1 and/or COM2 has a synthesizer lock fault.
Flight Management	COM #[1, 2] INOP - VOLT – Check COM voltage.	COM1 and/or COM2 voltage is low. Check COM voltage.
	COM #[1, 2] REDUCED TX POWER – COM synthesizer lock fault.	COM1 and/or COM2 has a reduced transmission power.
Hazard Avoidance	COM1 CONFIG – COM1 config error. Config service req'd.	The COM1 configuration settings do not match backup configuration memory. The system should be serviced
AFCs	COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
Additional Features	COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
Abnormal Operation	COM1 MANIFEST – COM1 software mismatch, communication halted.	COM 1 has incorrect software installed. The system should be serviced.
Annun/Alerts	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.
	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.
Appendix	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.
Index	COM2 CONFIG – COM2 config error. Config service req'd.	The COM2 configuration settings do not match backup configuration memory. The system should be serviced

Message	Comments
COM2 MANIFEST – COM2 software mismatch, communication halted.	COM 2 has incorrect software installed. The system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	The COM2 external push-to-talk switch is stuck in the enable (or “pressed”) position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or “pressed”) position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 SERVICE – COM2 needs service. Return unit for repair.	The system has detected a failure in COM2. COM2 may still be usable. The system should be serviced when 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.
CONFIRM BARO QFE – Confirm BARO QFE Reference Elevation	Confirm BARO QFE Reference Elevation.
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.
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.
DATABASE CHANGE – Verify user modified procedures.	This occurs when a stored flight plan contains procedures that have been manually edited. This alert is issued only after an navigation database update. Verify that user-modified procedures in stored flight plans are correct and up to date.
DATABASE CHANGE – Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify use of airways in stored flight plans and reload airways as needed.

Flight Instruments
EIS
Audio & CDS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

	Message	Comments
Flight Instruments	DATABASES EXPIRED – Restart avionics to activate standby databases.	The databases in the system have expired. Restart the system to move the standby databases to active status.
EIS	DATABASES MISMATCHED – Restart displays to correct mismatch.	The GDUs have different database versions or regions. Restart the system to move the standby databases to active status.
Audio & CNS	DB ERR – Database error exists.	Database verification error. Reload databases with new data card. If problem persists, delete databases and reload with a new card.
Flight Management	DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFD and MFD have different navigation database versions or types 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.
Hazard Avoidance	DB MISMATCH – Obstacle database mismatch.	The PFD and MFD have different obstacle database versions or types 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.
AFCS	DB MISMATCH – Terrain database mismatch.	The PFD and MFD have different terrain database versions or types 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.
Additional Features	DIG GMA1 MANIFEST – DIG GMA 1 software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
Abnormal Operation	DME CHECK RANGE – DME range disagreement. Check position sensors.	A failure or disagreement has been detected in a DME receiver. Check position sensors.
Annun/Alerts	FAILED PATH – A data path has failed.	A data path connected to the GDU or the GIA has failed.
Appendix	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.

Index

Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-on, the system detects that a stored flight plan waypoint is locked. This occurs when a 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.
FPL WPT MOVE – Flight plan waypoint moved.	The system has detected that a waypoint coordinate has changed due to a new navigation database update. Verify that stored flight plans contain correct waypoint locations.
FS 510 MANIFEST – FS 510 software mismatch.	Incorrect software version. The system should be serviced.
FS510 CARD ERROR – FS510 not detected in MFD Bottom Slot.	The FS 510 Wireless Transceiver card was removed from the bottom card slot of the MFD. The card needs to be reinserted.
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1. The system should be serviced.
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1. The receiver may still be available. The system should be serviced when possible.
G/S2 FAIL – G/S2 is inoperative.	A failure has been detected in glideslope receiver 2. The system should be serviced.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 2. The receiver may still be available. The system should be serviced when possible.
GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The ADAHRS 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 failure has been detected in the GDL 69A SXM. The receiver is unavailable. The system should be serviced.
GDL69 MANIFEST – GDL software mismatch, communication halted.	The GDL 69A SXM has incorrect software installed. The system should be serviced.

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

	Message	Comments
Flight Instruments	GEA #1 CM INOP - COMM – Check GEA config module connection.	There is a problem with the GEA 1 config module connection. Check the connection.
EIS	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.
Audio & CNS	GEA #1 INOP - CAL – Check GEA rigging.	There is a problem with the GEA 1 rigging. Check the rigging.
Flight Management	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 INOP - INTRL – GEA internal fault.	GEA 1 has an internal fault. The system should be serviced.
Hazard Avoidance	GEA #1 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 INOP - TEMP – Check GEA cooling arrangement.	The GEA 1 has insufficient cooling. If the problem persists, the system should be serviced.
AFCS	GEA #1 INOP - VOLT – Check GEA voltages.	The GEA 1 voltage is low. Check GEA voltages.
Additional Features	GEA #1 INSPECT REQD – Redundant power supply is not present.	GEA 1 backup power source is not connected. The system should be serviced.
Abnormal Operation	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 ADAHRS operation. Heading is flagged as invalid.
Annun/Alerts	GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
Appendix	GIA #[1, 2] INOP - CRNT – Check GIA current.	GIA1 and/or GIA2 current is low. Check GIA current.
Index	GIA #[1, 2] INOP - SERL – Check GIA Serial Communication.	The GIA1 and/or GIA2 communication is inoperative. They system should be serviced.

Message	Comments
GIA #[1, 2] INOP - VOLT – Check GIA voltages.	The GIA1 and/or GIA2 voltage is low. Check GIA voltages.
GIA #[1, 2] OVER TEMP – Check GIA temperature.	GIA 1 and/or GIA 2 is reporting an over-temperature condition.
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA1 COOLING – GIA1 over temperature.	The GIA1 temperature is too high. If problem persists, the system should be serviced.
GIA1 MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 1 has incorrect software installed. The system should be serviced.
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 self-test has detected a problem in the unit. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 COOLING – GIA2 over temperature.	The GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 temperature too low.	The GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 MANIFEST – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	The GIA2 self-test has detected a problem in the unit. The system should be serviced.
GMA1 AUX MANIFEST – GMA 1 AUX software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

	Message	Comments
Flight Instruments	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.
EIS	GMA1 INSPECTION REQUIRED – Redundant power supply is not present.	GMA1 backup power source is not connected. The system should be serviced.
Audio & CNS	GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
Flight Management	GMA1 MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
Hazard Avoidance	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.
AFCs	GMU1 MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
Additional Features	GPS #[1, 2] INOP - CAL – Calibration Fault.	GPS 1 and/or GPS 2 calibration version error. Check GPS calibration.
Abnormal Operation	GPS #[1, 2] INSPECT RQRD - BATT – Check GPS Battery.	The GPS battery needs to be checked.
Annun/Alerts	GPS NAV LOST – Loss of GPS navigation. Enable GPS sensors.	Enable GPS sensors to continue to use GPS.
Appendix	GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
Index	GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
	GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
	GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
	GRS1 MANIFEST – GRS1 software mismatch, communication halted.	The ADAHRS has incorrect software installed. The system should be serviced.
	GTS CONFIG – GTS config error. Config service req'd.	GTS 800 configuration settings do not match those of the GDU configuration. The system should be serviced.

Message	Comments
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 ADAHRS 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, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
INVALID ADM – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.
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.
LOSS OF GPS NAVIGATION – Poor Satellite Coverage.	Loss of GPS navigation due to insufficient/poor satellite coverage.
LOW BANK ACTIVE – Disengage for approach.	Low Bank mode active, disengage Low Bank Mode to continue the approach.
LOW BANK ACTIVE – Disengage for RNP less than 1.0.	Low Bank mode active, disengage Low Bank Mode to continue the approach.
LRG MAG VAR – Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.

	Message	Comments
Flight Instruments	LRU CARD1 ERR – LRU card 1 is invalid.	The SD card in the top card slot of the LRU is invalid.
EIS	LRU CARD1 REM – LRU card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the LRU. The SD card needs to be reinserted.
Audio & CNS	LRU CARD2 ERR – LRU card 2 is invalid.	The SD card in the bottom card slot of the LRU is invalid.
	LRU CARD2 REM – LRU card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the LRU. The SD card needs to be reinserted.
Flight Management	LRU CARD3 ERR – LRU card 3 is invalid.	The internal SD micro card of the LRU is invalid.
	LRU CARD3 REM – LRU card 3 was removed. Reinsert card.	The internal SD micro card was removed. The SD card needs to be reinserted.
Hazard Avoidance	LRU CONFIG – LRU config error. Config service req'd.	The LRU configuration settings do not match backup configuration memory. The system should be serviced.
	LRU COOLING – LRU has poor cooling. Reducing power usage.	The LRU is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
AFCS	LRU DB ERR – LRU multiple database errors exists.	The LRU detected a failure in more than one database. If problem persists, the system should be serviced.
Additional Features	LRU DB ERR – LRU obstacle database error exists.	The LRU detected a failure in the obstacle database. Reload the database with new data card. If problem persists, delete database and reload with a new card.
Abnormal Operation	LRU DB ERR – LRU terrain database error exists.	The LRU detected a failure in the terrain database. Reload the database with new data card. If problem persists, delete database and reload with a new card.
	LRU DB ERR – LRU terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Annun/Alerts	LRU FAN FAIL – LRU internal fan failure. Unit needs service.	The LRU cooling fan has failed. The system should be serviced.
Appendix	LRU REPLACEMENT – [LRU name].	The system has detected an LRU replacement. Perform LRU replacement software or full configuration loading procedure.
	LRU SERVICE – LRU needs service. Return unit for repair.	The LRU self-test has detected a problem. The system should be serviced.
Index	LRU SOFTWARE – LRU mismatch, communication halted.	LRU has different software versions installed. The system should be serviced.

Message	Comments
LRU TERRAIN DSP – LRU Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the LRU is missing or invalid.
LRU VOLTAGE – LRU has low voltage. Reducing power usage.	LRU voltage is low. The system should be serviced.
MANIFEST – MFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – PFD1 software mismatch, communication halted.	
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 CARD1 ERR – MFD1 card 1 is invalid.	The SD card in the top card slot of the MFD is invalid.
MFD1 CARD1 REM – MFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the MFD. The SD card needs to be reinserted.
MFD1 CARD2 ERR – MFD1 card 2 is invalid.	The SD card in the bottom card slot of the MFD is invalid.
MFD1 CARD2 REM – MFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the MFD. The SD card needs to be reinserted.
MFD1 CARD3 ERR – MFD1 card 3 is invalid.	The internal SD micro card of the MFD is invalid.
MFD1 CARD3 REM – MFD1 card 3 was removed. Reinsert card.	The internal SD micro card was removed. 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
Flight Instruments	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.
EIS	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.
Audio & CNS	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 missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Flight Management	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.
Hazard Avoidance	MFD1 MANIFEST – MFD1 software mismatch, communication halted.	The MFD has incorrect software installed. The system should be serviced.
	MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
AFCs	MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
Additional Features	NAV #[1-2] INOP - CAL – Check NAV calibration.	NAV1 and/or NAV2 calibration version error. Check NAV calibration.
	NAV #[1-2] INOP - CONFIG – Check NAV Software and Config.	The NAV1 and/or NAV2 configuration settings do not match backup configuration memory. The system should be serviced
Abnormal Operation	NAV #[1-2] INOP - INTRL – NAV internal fault.	NAV1 and/or NAV2 has an internal fault.
Annun/Alerts	NAV #[1-2] INOP - SERL – Check NAV Serial Communication.	The NAV1 and/or NAV2 communication is inoperative. They system should be serviced.
Appendix	NAV #[1-2] INOP - SYNTH – NAV synthesizer lock fault.	The NAV1 and/or NAV2 has a synthesizer lock fault.
Index	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-MAGNETIC UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-on.
NON WGS84 WPT – Do not use GPS for navigation to [xxxx]	The position of the selected waypoint [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.
NO RUNWAY POSITION DATA – Inhibit SurfaceWatch. No runway position data.	Inhibit SurfaceWatch.
PFD1 BACKLIGHT CALIBRATION – PFD1 calibration lost. Return for repair.	The PFD1 backlight calibration cannot be found or is invalid. The system should be serviced.
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
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.
PFD1 CARD1 ERR – PFD1 card 1 is invalid.	The SD card in the top card slot of the specified PFD is invalid.
PFD1 CARD2 ERR – PFD1 card 2 is invalid.	The SD card in the bottom card slot of the specified PFD is invalid.

Flight Instruments
EIS
Audio & CDS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

	Message	Comments
Flight Instruments	PFD1 CARD3 ERR – PFD1 card 3 is invalid.	The internal SD micro card of the PFD is invalid.
EIS	PFD1 CARD1 REM – PFD1 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.
Audio & CNS	PFD1 CARD2 REM – PFD1 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.
Flight Management	PFD1 CARD3 REM – PFD1 card 3 was removed. Reinsert card.	The internal SD micro card was removed. The SD card needs to be reinserted.
Hazard Avoidance	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 DB ERR – PFD1 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.
AFCs	PFD1 DB ERR – PFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
	PFD1 DB ERR – PFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Additional Features	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.
Abnormal Operation	PFD1 MANIFEST – PFD1 software mismatch, communication halted.	The PFD has incorrect software installed. The system should be serviced.
Annun/Alerts	PFD1 SERVICE – PFD1 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.
Appendix	PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
Index	SCHEDULER [#] – <message>.	Message criteria entered by the user.

Message	Comments	
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.	Flight Instruments
SLCT MAG – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to Magnetic.	EIS
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.	Audio & CWS
SLCT NON-MAG – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to True.	Flight Management
STEEP TURN – Steep turn ahead.	A steep turn (known as a normal bank turn, with more than 90 degrees of directional change) is 15 seconds ahead. Prepare to turn.	Hazard Avoidance
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.	AFCS
SURFACEWATCH DISABLED – Too far north/south.	The SurfaceWatch system has been disabled.	Additional Features
SURFACEWATCH FAIL – Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.	Abnormal Operation
SURFACEWATCH FAIL – Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.	Annun/Alerts
SURFACEWATCH FAIL – One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.	Appendix
SURFACEWATCH INHIBITED – Surfacewatch inhibited.	The SurfaceWatch system has been inhibited.	Index
SVT DISABLED – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.	
SVT DISABLED – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution is not currently installed.	
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.	TAWS is disabled because the audio configuration is invalid. The system should be serviced.	

	Message	Comments
Flight Instruments	TERRAIN DISABLED – Terrain Awareness DB resolution too low.	TAWS is disabled because a terrain database of sufficient resolution is not currently installed.
EIS	TIMER EXPIRD – Timer has expired.	The system notifies the pilot the timer has expired.
Audio & CNS	TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
Flight Management	TRN AUD FAIL – Trn Awareness audio source unavailable	Terrain Awareness audio is unavailable. The system should be serviced.
	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.
Hazard Avoidance	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.
AFCS	VNV UNAVAILABLE – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
Additional Features	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.
Abnormal Operation	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.
Annun/Alerts	XPDR1 ADS-B NO POS – Transponder: ADS-B is not transmitting position.	The transponder is not able to receive position information.
Appendix	XPDR1 ADS-B NO TX – Transponder: ADS-B out has failed.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
Index	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.	Flight Instruments
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.	EIS
XPDR1 CSA FAIL – Traffic: ADS-B In traffic alerting has failed.	ADS-B traffic alerting is unavailable.	Audio & CNS
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.	Flight Management
XPDR1 FAULT – Datalink: ADS-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.	Hazard Avoidance
XPDR1 GND TEST – Transponder: Ground test mode active.	Transponder ground test active.	
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.	AFCS
XPDR1 PRES ALT – Transponder: ADS-B no pressure altitude.	Unable to provide pressure altitude information.	Additional Features
XPDR1 SERVICE – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.	Abnormal Operation
XPDR1 TEST MODE – Transponder: Test mode active.	Transponder test mode active.	Annun/Alerts
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.	Appendix

STANDBY ADI (GI 275) SYSTEM MESSAGES

Message	Comments
ADC Miscompare	ADC data from one or more units is not within tolerances of the other ADC units.
ADC missing	ADC data from one or more units is missing.
AHRS 1/2: Magnetic model outdated	While on the ground, any interfaced AHRS reports magnetic model out of date; magnetic model database needs to be updated.
AHRS Miscompare	AHRS data from one or more units is not within tolerances of the other AHRS units.
AHRS Missing	AHRS data from one or more units is missing.
AHRS 1/2 not receiving GPS aiding	AHRS 1/2 reports not receiving any GPS data, the unit is configured for one or more Garmin SBAS GPS units.
Backlight calibration lost	While on the ground, the unit cannot read LED calibration data, or is detected as corrupt.
Battery operation warning	A battery fault is detected; battery is unavailable.
Battery unavailable: Capacity test	Battery capacity test if overdue or failed; battery unavailable, capacity test is required.
Battery unavailable: Communication lost	Battery communication is lost.
Battery warning: Charge inhibited	A charge-inhibiting battery fault is detected.
Gps 1/2 inoperative	The indicated GPS source failed, or input data not received.
Key Stuck: Key knob is stuck	System detects stuck knob(s); the knob is stuck down.
Max Temp Exceeded	Expansion Board has exceeded temperature threshold.
Service required	The system or unit requires service; appears only when the aircraft is on ground.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Message	Comments
Service soon	- Any interfaced AHRS reports not receiving ADC data. - An ADC reports configuration error. - SSEC is not expected to be configured and an ADC reports that SSEC is configured. - While on the ground, interfaced Unit(s) have different software version. - SDI check has failed. - While on the ground, the configuration CRC of an AHRS or ADC LRU does not match the unit's stored configuration CRC. - The system or unit detects an internal fault but continues to function; appears only when the aircraft is on ground. - When on the ground, external LRU reports configuration module needs service.
System is in Battery Mode	System is operating in battery mode.
USB and WiFi Unavailable	While on internal battery operation, the unit conserves energy by disabling these functions.

Flight Instruments
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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APPENDIX

DATABASE MANAGEMENT

Database information is obtained from third party sources. Inaccuracies in the data may be discovered from time to time. Garmin communicates this information by issuing a Database Alert. These notifications are available on flygarmin.com.

Garmin requests the flight crew report any observed discrepancies related to database information. These discrepancies could come in the form of an incorrect procedure; incorrectly identified terrain, obstacles and fixes; or any other displayed item used for navigation or communication in the air or on the ground.

Go to flygarmin.com and select Aviation Data Error Report.

A 32 GB Supplemental Data (SD) card (including FS 510 Wireless Transceiver card when used as a storage device) is required to perform database updates. Only cards provided by Garmin or the OEM should be used. In the event there is a file corruption problem with the SD card or Wireless Transceiver card, it may be necessary to reformat the card. This can cause an issue when formatting using Mac OS, where the newly formatted device will not be recognized by the avionics system. When using a Macintosh computer to format the SD card or Wireless Transceiver card, Garmin recommends using the SD Memory Card Formatter application made available by the SD Association as a download from sdcard.org. When running the application, use the Quick Format option.



NOTE: Use of SD cards that are not Garmin or OEM provided may cause system malfunctions when left in the MFD after the databases are loaded.

Databases may be loaded through Garmin Pilot™ and Wireless Transceiver. When loading databases through Garmin Pilot™ and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system and the Wireless Transceiver card inserted in the bottom SD slot of the MFD.

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.

The cycles and dates for both standby and active databases are displayed on the 'Aux – Databases' Page on the MFD. Any active databases with expiration dates in the past will be

highlighted with amber text. When an expired active database has a standby database that is ready to become effective, a cyan double-sided arrow will be displayed between the database cycles. When this arrow is visible, it indicates the standby and active databases in that row will be switched on the next power cycle, activating the current standby database. Databases can also be manually selected (or deselected) by highlighting a list item and pressing the **ENT** Key, provided a valid, verified standby database is present.

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

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

UPDATING DATABASES WITH SD CARD OR WIRELESS TRANSCEIVER CARD

All databases are updated through a single SD card or Wireless Transceiver card in the bottom slot of the MFD. When the card is inserted, the databases on the card will be copied to standby and synchronized across all powered, configured units. After update, the card is removed and the databases are stored on the system. When in standby, databases are not immediately available for use, but stored to be activated at a later time.

Database updates can be obtained by following the instructions detailed in the 'Aviation Databases' section of the Garmin website (flygarmin.com). Once the updated files have been downloaded from the website, a personal computer equipped with an appropriate SD card reader is used to unpack and program the new databases onto an existing SD card. When database files are loaded to the SD card, any previously loaded database files of the same type residing on the SD card will be overwritten. This includes loading a database of a different coverage area or data cycle than that currently residing on the SD card. Equipment required to perform the update is as follows:

- » PC with Window Vista or later/Mac with OS X 10.9 or later
- » SD card Reader: SanDisk SDDR-93, SanDisk SDDR-99, Verbatim #96504, or equivalent.
- » Garmin SD card reader for Wireless Transceiver cards.
- » Updated databases obtained from the Garmin website.
- » Garmin or OEM provided 32 GB SD card or Wireless Transceiver card.

Update Databases:

- 1) Download and install the databases on an SD card or Wireless Transceiver.
- 2) Put the card in the bottom SD card slot of the MFD.
- 3) Turn the system ON.
- 4) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.

- 5) Turn the large **FMS** Knob and select 'Aux'.
 - 6) Turn the small **FMS** Knob and select 'Databases'.
 - 7) Database synchronization will begin. 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.
 - 8) Verify the correct database cycle information is shown in the 'Standby' Column.
 - 9) Remove and reapply power to the system.
 - 10) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.
 - 11) Turn the large **FMS** Knob and select 'Aux'.
 - 12) Turn the small **FMS** Knob and select 'Databases'.
 - 13) Verify the standby databases transferred and are now in the 'Active' Column.
 - 14) 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) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

 - c) Turn the small **FMS** Knob as necessary to select the additional titles.
 - d) Repeat steps a through c for additional databases to be transferred.
 - e) Remove and reapply power to the system.
 - f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.
 - g) Turn the large **FMS** Knob and select Aux.
 - h) Turn the small **FMS** Knob and select Databases.
 - i) Verify the standby databases transferred and are now in the 'Active' Column.
 - 15) 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.
- Or:**
- Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.

Flight
Instruments

EIS

Audio & CWS

Flight
Management

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

- 16) 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 WITH GARMIN PILOT / WIRELESS TRANSCEIVER

In order to load databases through Garmin Pilot™ and the Wireless Transceiver, the Wireless Transceiver must be enabled on the system 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 the system is enabled it will automatically connect to the preferred device. If the preferred device has not been selected or is not available, the system will automatically connect to the first of any available, paired devices. 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 bluetooth device, the mobile device should connect automatically to the Wireless Transceiver. If the mobile device is connected to another bluetooth device, then the Wireless Transceiver will not connect automatically.

Update Databases from any MFD page (except the 'Aux - Databases' Page):

- 1) Insert the Wireless Transceiver 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 > Connex > Database Concierge**.
- 5) Turn the large **FMS** Knob and select 'Aux'.
- 6) Turn the small **FMS** Knob and select the 'Connex 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 the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.
- 9) In the 'Paired Devices' Window on the 'Connex 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 shown below 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 - Connex Setup' Page.
- 12) The following window will appear. Database update progress may be monitored on the mobile device.
- 13) When the transfer is complete, the following screen will appear.
- 14) Press the **Close** Softkey.
- 15) 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 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) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

- c) Turn the small **FMS** Knob as necessary to select the additional titles.
- d) Repeat steps a through c for additional databases to be transferred.
- e) Remove and reapply power to the system.
- f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.
- g) Turn the large **FMS** Knob and select Aux.
- h) Turn the small **FMS** Knob and select Databases.
- i) Verify 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.

Or:

Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. 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 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:



NOTE: The system will only provide a WIFI connection if new databases have been detected for download on Garmin Pilot via a valid Bluetooth connection. If 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 bluetooth device, the mobile device should connect automatically to the Wireless Transceiver. If the mobile device is connected to another bluetooth device, then the Wireless Transceiver will not connect automatically.

- 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 start-up screen.
- 4) On the mobile device, start Garmin Pilot and touch **Home > Connex > Database Concierge**.

- 5) Turn the large **FMS** Knob and select 'Aux'.
- 6) Turn the small **FMS** Knob and select the 'Connex 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 the mobile device is enabled via Bluetooth in the Bluetooth settings on the mobile device.
- 9) In the 'Paired Devices' Window on the 'Connex 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/Activ** 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 - Connex 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, they will appear in the Standby Column.
- 16) Database synchronization will begin. Monitor the 'Sync Status' on the 'Aux-Databases' Page. Wait for all databases to complete synchronizing, 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.
- 17) Remove and reapply power to the system.
- 18) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
- 19) Turn the large **FMS** Knob and select 'Aux'.
- 20) Turn the small **FMS** Knob and select 'Databases'.
- 21) Verify the standby databases transferred and are now in the 'Active' Column.
- 22) 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) To select the database for transfer, press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active.

Flight Instruments
EIS
Audio & CWS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

Or:

Press the **Menu** Key and select 'Swap Standby and Active' using the small **FMS** Knob and press the **ENT** Key. A cyan double-sided arrow will appear indicating the standby database will become active. Press the **ENT** Key or the **FMS** Knob to exit.

- c) Turn the small **FMS** Knob as necessary to select the additional titles.
- d) Repeat steps a through c for additional databases to be transferred.
- e) Remove and reapply power to the system.
- f) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the start-up screen.
- g) Turn the large **FMS** Knob and select Aux.
- h) Turn the small **FMS** Knob and select Databases.
- i) Verify the standby databases transferred and are now in the 'Active' Column.

- 23) 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.

Or:

Press the **Menu** Key and select 'View Details' using the small **FMS** Knob and press the **ENT** Key. Press the **ENT** Key or the **FMS** Knob to exit.

- 24) 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.

DELETING DATABASES

If databases are not properly loading or functioning, and an attempt has been made to load the databases using a new SD card or Wireless Transceiver card, it may be necessary to delete the databases from the system.

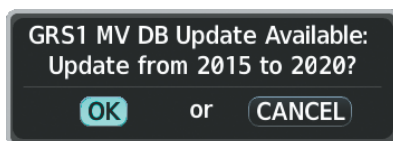
Deleting databases:

- 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.
- 8) Remove and reapply power to the system.
- 9) Press the **ENT** Key or the right-most softkey on MFD display to acknowledge the startup screen.
- 10) Turn the large **FMS** Knob and select Aux.
- 11) Turn the small **FMS** Knob and select Databases.
- 12) 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 the AHRS. If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page.



GRS1 Magnetic Field Variation Database Update Prompt

Loading 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 system is ready for use.

SOFTKEY FUNCTION

PFD SOFTKEYS

Level 1	Level 2	Level 3	Description
CAS			Displays the scroll key. Only selectable when the number of CAS messages exceeds the capacity of the display window.
	CAS Up		Scroll up list of CAS messages.
	CAS Down		Scroll down list of CAS messages.
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.

	Level 1	Level 2	Level 3	Description
Flight Instruments			Inset Trfc	Replaces the Inset Map with a dedicated traffic display.
			HSI Trfc	Replaces the HSI Map with a dedicated traffic display.
EIS		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
Audio & CNS		Traffic		Displays traffic information on PFD Map.
Flight Management		TER		- Topo: Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on PFD Map. - REL: Displays relative terrain information on the PFD Map. - Off: Removes terrain.
Hazard Avoidance		WX LGND		Displays/removes the name of the selected weather data provider (SiriusXM) and the weather product icon and age box (for enabled weather products).
AFCS		NEXRAD		Displays XM NEXRAD weather and coverage on PFD Map (subscription optional).
Additional Features		METAR		Displays METAR information on Inset Map (subscription optional).
		Lightning		Adds/removes the display of SiriusXM or Connexxt lightning information (based on weather data source selection) on the PFD Map.
Abnormal Operation			LTNG Off	Disables lightning function on PFD Map. The softkey annunciator is green when the lightning function is off.
			Datalink	Selects the datalink weather source for the PFD Map.
Annun/Alerts			STRMSCP	Adds or removes the display of Stormscope information on the PFD Map. The softkey annunciator is green when the function is on. When the function is off, the annunciator is gray.
Appendix	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.
Index			Terrain	Enables synthetic terrain depiction.

Level 1	Level 2	Level 3	Description
		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.
		Wire	Displays power lines on the synthetic vision display.
	Wind		Displays the wind option softkeys.
		Off	Wind information not displayed.
		Option 1	Headwind/Tailwind and crosswind arrows with numeric components.
		Option 2	Total wind direction arrow and numeric speed.
		Option 3	Total wind direction arrow with digital numeric direction and speed.
	DME		Displays 'DME Information' Window (optional).
	Bearing 1		Cycles the Bearing 1 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, ADF/frequency, and Off.
	Bearing 2		Cycles the Bearing 2 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, ADF/frequency, and Off.
	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.
		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 FMS, 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.

	Level 1	Level 2	Level 3	Description
Flight Instruments		Standby		Selects transponder Standby Mode (transponder does not reply to any interrogations).
EIS		On		Activates transponder (transponder replies to identification interrogations).
Audio & CNS		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.
Flight Management			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.
Hazard Avoidance		Ident		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
AFCS	Ident			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
	TMR/REF			Displays 'Timer/References' Window.
	Nearest			Displays 'Nearest Airports' Window.
Additional Features	Alerts or Message			Displays the 'Alerts' Window when pressed. System generated messages cause the Alerts Softkey label to change to a flashing 'Message' label. Pressing the Message Softkey opens the 'Alerts Window, acknowledges the message, and the softkey reverts to the 'Alerts' label.
Abnormal Operation				

PFD Softkeys

MFD SOFTKEYS

	Level 1	Level 2	Level 3	Level 4	Description
Annun/Alerts	Engine				Displays second-level engine softkeys for EIS configuration.
Appendix		Engine			Displays default EIS display.
		Lean			Displays EIS lean display and lean softkeys.
Index			CYL SLCT		Allows selection of engine cylinder to view additional information.
			Assist		Enables/disables leaning assist mode.

Level 1	Level 2	Level 3	Level 4	Description	Flight Instruments
	System			Displays system oil pressure and temperature, fuel calculations, electrical system information and system softkeys.	
		RST Fuel		Resets calculated fuel remaining to default and resets fuel used to zero.	EIS
		GAL REM		Press to display the fuel totalizer softkeys	Audio & CNS
			-10 GAL	Press to decrease remaining fuel quantity in 10-gallon increments.	Flight Management
			-1 GAL	Press to decrease remaining fuel quantity in 1-gallon increments.	
			+1 GAL	Press to increase remaining fuel quantity in 1-gallon increments.	Hazard Avoidance
			+10 GAL	Press to increase remaining fuel quantity in 10-gallon increments.	
			35 GAL	Sets remaining fuel to 35 gallons (172 only).	AFCS
			53 GAL	Sets remaining fuel to 53 gallons (172 only).	
			64 GAL	Sets remaining fuel to 64 gallons (182/206 only).	Additional Features
			87 GAL	Sets remaining fuel to 87 gallons (182/206 only).	Abnormal Operation
Map Opt				Displays the different map softkey selectable features.	Annun/Alerts
	Traffic			Displays traffic information on the 'Map - Navigation Map' Page.	Appendix
	Inset			Displays second level softkeys for the VSD Inset.	Index
		Off		Removes VSD Inset from 'Map - Navigation Map' Page.	
		VSD		Displays VSD Inset profile information of terrain/obstacles along the current track, vertical track vector, and selected altitude. - 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	Level 4	Description
Flight Instruments	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.
EIS				
Audio & CNS				
Flight Management	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.
Hazard Avoidance				
AFCS	STRMSCP			Displays Stormscope information on Navigation Map (optional).
Additional Features	NEXRAD			Displays XM NEXRAD weather and coverage on 'Map - Navigation Map' Page (optional).
	XM LTNG			Displays XM lightning information on the 'Map - Navigation Map' Page (optional).
	METAR			Displays METAR information on Inset Map (subscription optional).
Abnormal Operation	Legend			Displays legends for the displayed XM Weather products (optional).
Annun/Alerts	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.
Appendix	Charts			When available, displays optional airport and terminal procedure charts.
Index	CHRT Opt			Displays chart display settings softkeys (if available).
		ROT CCW		Rotates chart 90 degrees counter clockwise.

Level 1	Level 2	Level 3	Level 4	Description
		ROT CW		Rotates chart 90 degrees clockwise.
		All		Displays the entire chart.
		Header		Displays the chart header.
		Plan		Displays the approach plan view.
		Profile		Displays the approach profile view.
		Minimums		Displays the approach minimums.
		Fit WDTN		Chart zoom adjusted to fill width of display.
		Full SCN		When the annunciator bar is green, full screen mode is enabled. The annunciator bar is grey when in split screen mode.
	SYNC			Displays the chart associated with the current phase of flight.
	Info			Returns to the selected airport information chart (Airport Diagram, Alternate Minimums, Climb/Descent Table, Diverse Vector Area, Hot Spot, INOP Components, LAHSO, and Takeoff Minimums).
	DP			Displays departure procedure chart.
	STAR			Displays standard terminal arrival procedure chart.
	APR			Displays approach procedure chart.
	WX			Displays weather information.
	NOTAM			Displays NOTAM information for selected airport, when available.
Checklist				When available, displays optional checklists.

MFD ‘Map - Navigation Map’ Page Softkeys

STANDBY ADI DISPLAY BACKLIGHTING

The standby ADI has a built-in photocell to detect ambient lighting conditions and adjusts its display brightness accordingly. The standby ADI is integrated with an individual standby ADI dimmer bus control and will respond to associated dimmer bus changes. If automatic or dimming bus brightness changes are inadequate, display brightness can be adjusted for the Standby ADI directly.

Adjusting display backlighting:

- 1) From any page, open the menu and select **Backlight**
- 2) Use the arrow buttons or turn the Inner Knob to adjust the display brightness offset.
- 3) Select the **Back** Button to save settings.

SYMBOLS

PFD NAVIGATION STATUS BOX AND MFD DATA BAR SYMBOLS

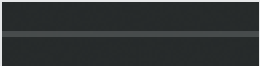
Symbol	Description	Symbol	Description
	Active Leg		Left Holding Pattern
	Direct-to		Vector to Final
	Right Procedure Turn		Right DME Arc/Radius to Fix Leg
	Left Procedure Turn		Left DME Arc/Radius to Fix Leg
	Right Holding Pattern		

PFD Navigation Status Box Symbols

MAP DISPLAY SYMBOLS

Land Symbols

The following items are configured on the land menu:

Land Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
User Waypoint		25	1000
Highways and Roads		(see below)	
- Interstate Highway (Freeway)		50	400
- International Highway (Freeway)		50	400
- US Highway (National Highway)		15	150
- State Highway (Local Highway)		2.5	100
- Local Road (Local Road)	N/A	4	25
Railroad		7.5	25

Land Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Large City (> 200,000)		100	1000
Medium City (> 50,000)		50	400
Small City (> 5,000)		25	100
State/Province		400	1000
River/Lake		75	100
Latitude/Longitude (LAT/LON)		1	1000

Land Symbol Information

Aviation Symbols

The following items are configured on the aviation menu:

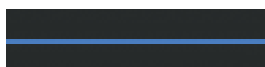
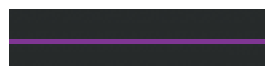
Aviation Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Large Airport (Longest Runway ≥ 8100 ft)		100	1000
Medium Airport (8100 ft > Longest Runway ≥ 5000 ft, or Longest Runway < 5000 ft with control tower)		50	400
Small Airport (Longest Runway < 5000 ft without a control tower)		25	150
Taxiways (SafeTaxi)	See Additional Features	1.5	5
Runway Extension		7.5	150
Intersection (INT)		25	40
Non-directional Beacon (NDB)		25	50
VOR (VOR, VOR/DME, DME, VORTAC, TACAN)		50	250
- VOR Compass Rose On/Off		N/A	N/A

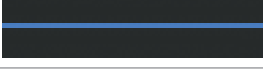
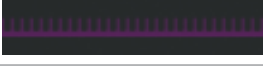
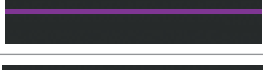
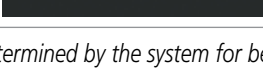
Aviation Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Visual Reporting Point (VRP)		25	40
Temporary Flight Restriction (TFR)		250	1000
VNAV Constraints (manually modified)('Show All' also displays auto-designated and published constraints)		1000	1000

Aviation Symbol Information

Airspace Symbols

The following items are configured on the airspace menu:

Airspace Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Class B Airspace Altitude Label (ceiling/floor)		Variable ¹	
Class C Airspace Altitude Label (ceiling/floor)			
Class D Airspace Altitude Label (ceiling)			
CL B/TMA/AWY	(see below)		
- Class B (CL B) and Terminal Manoeuvring Area (TMA) ²		50	150
- Airway (AWY) ²			
CL C/CTA	(see below)		
- Class C Airspace (CL C)		50	100
- Control Area (CTA) ²			

Airspace Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
CL A/D	(see below)		
- Terminal Radar Service Area (TRSA), Controlled Traffic Region (CTR) ² , and Class A (CL A) ²		10	100
- Class D			
- Aerodrome Traffic Zone (ATZ) ²			
- Traffic Information Zone (TIZ) ²			
Restricted and Prohibited Areas (Restricted)		50	100
Military Operations Areas (MOA (Military))		50	250
Other	(see below)		
- ADIZ		50	250
- Alert			
- Class E ²			
- Class G ²			
- Temporary ²			
- Danger, Warning, Unknown, Special Rules ² , and Training ²			

¹ Label placement and range is determined by the system for best display and minimal clutter

² Not located in the United States

Airspace Symbol Information

Airway Symbols

The following items are configured on the airways menu:

Airway Symbol Name	Symbol	Default Range (nm)	Maximum Range (nm)
Low Altitude Airway (V Routes and T Routes)		50	100
High Altitude Airway (J Routes and Q Routes)		50	100

Airways Symbol Information

Additional Map Display Items

The icons in the following table will be displayed when specific map functions are conducted or the heading or GPS solution is invalid:

Symbol Name	Description	Symbol
ARTCC Frequency or FSS Frequency	Displayed when using the Nearest Frequencies function	
Map Pointer	Displayed when panning (see Using Map Displays in Flight Management)	
Measuring Pointer	Displayed when measuring bearing and distance (see Using Map Displays in Flight Management)	
No heading aircraft icon	Replaces the normal aircraft icon when aircraft GPS location is valid, but the heading is invalid.	
Dead reckoning aircraft icon	'DR' text displayed over the aircraft icon when the GPS solution is invalid (see Abnormal Operations in Flight Management)	

Miscellaneous Map Display Symbols

FLIGHT PLANNING SYMBOLS

Flight Plan Symbol Name	Description	Symbol
Course Leg	Course leg currently flown	
	A future course leg in the current phase of flight	
	A course leg in either a previously flown course leg, or a future course leg not in the current phase of flight	
Heading Leg	Heading leg currently flown	
	Future heading leg	
Roll Steering Path ¹	Turning path currently flown	
	Turning path for the next flight plan leg	
	Turning path beyond the next flight plan leg	
Turn Anticipation Arc	Displayed when sequencing to the next flight plan leg via a fly-by waypoint, a lead turn is created, adjusting for groundspeed	
Fly-Over Waypoint	Displayed as a fly-over waypoint	
Along Track Waypoint	Displayed when an along track waypoint is created	
Flight Path Fix	A fix that terminates: manually, at a specified altitude, or at a specified distance or radial when flying a heading	
Top of Descent (TOD) and Bottom of Descent (BOD)	When vertically navigating, the system will display where the aircraft will begin complete the descent	
Parallel Track Waypoint	Displayed when a parallel track is created	

¹ Roll Steering Path transitions between two disconnected legs (i.e. holding), some procedure turn segments, parallel track segments, or after some fly-over waypoints.

Flight Plan Symbols on Map

OBSTACLE SYMBOLS

Unlighted Obstacle		Lighted Obstacle		Obstacle Location
< 1000' AGL	> 1000' AGL	< 1000' AGL	> 1000' AGL	
				Red obstacle is above or within 100 ft below the aircraft altitude.
				Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
				White obstacle is more than 1000 ft below aircraft altitude.

Relative Point Obstacle Symbols and Colors

Wire Obstacle	Wire Obstacle Location
	Red wire obstacle is at or above the aircraft altitude.
	Yellow wire obstacle is between the aircraft altitude to within 250 feet below the aircraft altitude.
	White wire obstacle is more than 250 ft below the aircraft altitude.

Relative Wire Obstacles and Colors

Unlighted Wind Turbine Obstacle	Lighted Wind Turbine Obstacle	Wind Turbine Obstacle Location
		Red obstacle is above or within 100 ft below the aircraft altitude.
		Yellow obstacle is between 100 ft and 1000 ft below the aircraft altitude.
		White obstacle is more than 1000 ft below aircraft altitude.

Relative Wind Turbine Obstacles and Colors

Potential Impact Area Examples	Alert Type	Example Annunciation
 or 	Warning	TAWS-B Warning PULL UP Terrain-SVT Warning TERRAIN
 or 	Caution	TERRAIN

Terrain-SVT and TAWS-B Potential Impact Area with Annunciations

Flight
Instruments

EIS

Audio & CNS

Flight
Management

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

A

ADF

- ADF/DME Tuning 28
- Toggleing Frequencies 28
- Volume 28
- Volume level 28

ADS-B 108, 111

ADS-B Traffic

- ADS-B System Overview
- Traffic Description 106
- Operation
- Altitude Display Mode 108
- Displaying Additional Traffic Information 110
- Displaying Motion Vectors 109
- System Test 107
- Traffic Map Page Display Range 110

AIRMET 88

Airport

- Information 37
- Nearest 37

Airspace

- Nearest 41, 156
- Smart 42
- Symbols 210

Airways

- Collapsing / Expanding 50
- In a Flight Plan 48
- On the Map 212

Along Track Offset 54

Altimeter

- Altitude Selection (Bug) 3
- Barometric Setting 3
- STD Baro 3

Altitude Constraints 51

- Enabling VNV Guidance 52

Annunciations

- System 155, 172
- Test tone 171

Approaches

- Activating 73
- Degradation Behavior 70
- Loading 71, 72, 73
- Removing 74

Approach Modes 117

Approach Service Levels 69

Arrival Alerts 57

Arrivals 66, 67

Audio Alerting System 171

Audio Panel Fail-Safe Operation 149

Automatic Direction Finder (ADF) 6

Automatic Flight Control System (AFCS)

- AFCS Modes 115
- AFCS Preflight Test (PFT) 113
- AFCS Status Alerts 168

Auxiliary Video 139

Aviation Symbols 209

Avidyne TAS600 Traffic

- Additional Traffic Displays 110

B

Backcourse Mode (BC) 118

Baro QFE 51, 52

Basic Autopilot Operation 113

Bearing/Distance, Measuring 33

C

ChartView 123

Closest Point 54, 55

Cloud Tops 88

Combination Modes 116

COM Tuning Failure 149

Connex Weather 80, 83

- Lightning 87

Flight Instrument	Course Selection 5	Flight Path Angle (FPA) 52
	Crew Alerting System (CAS) Annunciations 169	Flight Plan Map 45
EIS	Inhibits 170	Flight Planning
	Cylinder Head Temperature (CHT) 22	Activating a Flight Plan Leg 53
Audio & CNS	D	Adding Airways 48
	Database Management 140	Adding Waypoints 46, 47
Flight Management	Datalink Troubleshooting 152	Along Track Offsets 54
	DB Mismatch 193	Closest Point to Reference 54
Hazard Avoidance	Dead Reckoning Mode 150	Comment Changes 64
	Departures	Creating 45
AFCS	Loading 65	Deleting 61, 63
	Removing 66	Importing/Exporting 58, 60, 61
Additional Features	Direct-To 42, 43	Origin 45
	Display Backlighting	Parallel Track 55
Abnormal Operation	Standby ADI 207	Split Screen 44
	E	Stored Flight Plan 62
Annun/Alerts	Electrical	Symbols on Map 213
	Battery 21	Views 44
Appendix	Electronic Charts 120	LiteCharts 121
	Electronic Checklists 138	Fly-By/Fly-Over Waypoint 48
Index	Electronic Stability and Protection (ESP) 140	Fuel
	Emergency Frequency 149	Calculations 23
	Engine Manifold Pressure	Quantity 25
	182T 15	Range
	T182T 17	Ring 24
	T206H 19	Fuel Flow Indicator 14, 15, 17, 19
	Exhaust Gas Temperature (EGT) 22	Fuel Range Ring 24
	F	G
	Fault Detection and Exclusion (FDE) 77	Garmin Connex Weather 80, 83
	FIS-B Weather	Global Positioning System (GPS)
	Status 92	Receiver Autonomous Integrity Monitoring (RAIM) Prediction 77
	Flight Director Operation 114	Satellite-Based Augmentation System (SBAS) 78
	Flight ID, Traffic 109	Go Around (GA) Mode 118

H

- Heading
 - Selection (Bug) 5
- Holding
 - User Defined 55
- HSI Map 33, 35
- HW Mismatch 181

I

- IFR/VFR Charts 124
- Imminent Obstacle Impact (IOI) 160, 161
- Importing and Exporting Flight Plans 58
- Inset Map 33
- Intersection
 - Information 38
 - Nearest 38
- Inverting a Flight Plan 61

L

- Land Symbols 208
- Lateral Modes 115
- Level Mode 118

M

- Map
 - Airways 212
 - Declutter 35
 - Orientation 31, 45
 - Panning 32
 - Range 32
 - Settings 31, 32, 34, 35, 36, 212
 - Symbols 34, 208, 212
 - Topography 33
- Measure Bearing and Distance 33
- Minimums 170
- Missed Approach 75
- Mode Selection Softkeys 29

N

- Navigation Data Bar 31, 208
- Navigation Status Box 208
- NDB
 - Information 38
 - Nearest 38
- Nearest
 - Airport 37
 - Airspace 41, 156
 - Intersection 38
 - NDB 38
 - User Waypoint 38
 - VOR 38
 - VRP 38
- Nearest Airports, Frequency Tuning 27
- NEXRAD 87

O

- Obstacles 176
- Oil, Engine
 - Pressure 25
 - Temperature 25
- Overspeed Protection 150

P

- Parallel Track 55
- Pending Flight Plan 58, 59, 60
- PFD Map
 - HSI Map 33, 35
- Pitch Hold Mode (PIT) 115

Q

- QFE Constraints 51

R

- Required Obstacle Clearance (ROC)
 - 159, 160, 161
- Reserve Fuel 24
- Reversionary Mode 152

S

SafeTaxi 119
Satellite Telephone and Datalink Services 124
SBAS 78, 181
 Loss While on an Approach 69
Scheduler/Scheduled Messages 141–142
SiriusXM Satellite Radio 136
SiriusXM Weather
 Activating SiriusXM Weather Service 79
 City Forecast 89
 Icing 91
Smart Airspace 42
Softkeys
 PFD 201
Software License Agreement 15
Split Screen
 Flight Plan Views 44
Standby database 195
Stormscope Lightning Detection System
 Additional Stormscope Displays 94
 Stormscope Abnormal Operations 95
 Using the Stormscope Page 94
Stuck Microphone 149
Surface Analysis 89
SurfaceWatch 119, 169
Symbols 34, 208
Synthetic Vision Technology (SVT) 187
 Pathways 10
 Troubleshooting 144
System
 Message advisories 172

T

TA 170
Telephone Communication 126
Temperature Compensated Approach Altitudes 75
Temperature Compensated Minimums 75
Terrain 176
Terrain Displays
 Displaying Relative Terrain Information 96
 Relative Terrain Symbolology
 Potential Impact Area with Annunciations 215
 System Status 99
 TAWS-B 99
Text Messaging (SMS) 128
Topography (TOPO) 34
Traffic Advisory 170, 171
Traffic Information Service (TIS)
 Displaying Traffic Data 99
 System Status 101
 Traffic Display Symbolology 99
Turbine Inlet Temperature (TIT) 21

U

User-Defined Holding Pattern 55, 56, 57
User Waypoints
 Creating 38
 Information 38

V

- Vector-To-Final 73
- Vertical Modes 115
- Vertical Navigation Direct-to 53
- Vertical Navigation Modes 117
- Vertical Navigation (VNV) in Flight Plan 52
- Vertical Situation Display (VSD) 52, 157
- Vertical Speed Target (VS TGT) 52
- Vertical Track 170
- VOR
 - Information 38
 - Nearest 38
- VRP
 - Information 38
 - Nearest 38

W

- Warning Annunciations 169
- Waypoints
 - Airports 36
 - Fly-Over 48
 - Information 38
 - Nearest Airports 37
 - Nearest (Non-Airport) 38
 - Selection Submenu 42
 - User Waypoints 38
- Weather Legend 83
- Wireless transceiver 196
- Wireless Transceiver 196

Flight Instrument
EIS
Audio & CNS
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

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