G1000® Integrated Flight Deck

Cockpit Reference Guide for the Piper PA-28-181 Archer

GARMIN

WARNING: Do not use the terrain avoidance feature as the sole means of navigation and terrain separation. The terrain avoidance feature is only to be used as and aid to terrain avoidance. Garmin obtains terrain database content from third party sources and is not able to independently verify the accuracy of the terrain data.

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

WARNING: Do not use GPS-derived geometric altitude for compliance with air traffic control altitude requirements in the National Airspace System (NAS) or internationally. The primary barometric altimeter must be used for compliance with all air traffic control altitude regulations, requirements, instructions, and clearance.

WARNING: Do not use outdated database information. Databases used in the system must be updated regularly in order to ensure that the information remains current.

WARNING: Do not use basemap (land and water data) information for primary 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 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 within range of the aircraft. Due to lack of equipment, poor signal reception, and/or inaccurate information from aircraft or ground stations, traffic may be present that is not represented on the display.

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

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

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

⚠ *WARNING:* The Garmin system, as installed in this aircraft, has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical.

⚠ *WARNING:* Do not use the system until carefully reviewing, and gaining a thorough understanding of all aspects of the system's Pilot's Guide documentation and the Airplane Flight Manual. Do not attempt to learn system operational procedures while the aircraft is in the air. For safety reasons, system operational procedures must be learned on the ground.

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

WARNING: To reduce the risk of unsafe operation, carefully review and understand all aspects of the Pilot's Guide documentation and the Airplane Flight Manual. Thoroughly practice basic operation prior to actual use. During flight operations, carefully compare indications from the system to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety purposes, always resolve any discrepancies before continuing navigation.

WARNING: Do not use the system to attempt to penetrate a thunderstorm. The illustrations in this guide are only examples. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Aeronautical Information Manual (AIM) recommend avoiding any thunderstorm identified as severe of giving intense radar echo by at least 20 miles.

WARNING: Lamp(s) inside this product contain mercury (HG) and must be recycled or disposed of according to local, state, or federal laws. For more information, refer to our website at www.garmin.com/aboutGarmin/ environment/disposal.jsp.

WARNING: Because of variation in the earth's magnetic field, operating the system within the following areas could result in loss of reliable attitude and heading indications. North of 72° North latitude at all longitudes. South of 70° South latitude at all longitudes. North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada). North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada). North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia). South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).

WARNING: Do not 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.

CAUTION: The PFD and MFD displays use a lens coated with a special anti-reflective coating that is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coatings.

CAUTION: The system does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and the pilot's authority to operate this device under FAA/FCC regulations.

NOTE: When using Stormscope, there are several atmospheric phenomena in addition to nearby thunderstorm 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 cleaned.

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

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

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

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

NOTE: *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 if the air or on the ground. Go to FlyGarmin.com and select Aviation Data Error Report.*

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 G1000 system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the G1000 Pilot's Guide for this aircraft.*

Blank Page

Part Number	Change Summary
190-01460-00	Initial release

Revision	Date of Revision	Affected Pages	Description
A	April, 2013	All	Production release

Blank Page

GARMIN.

Blank Page

FLIGHT INSTRUMENTS

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** Softkey.

2) Press the **STD BARO** Softkey to set standard barometric pressure.

CHANGE ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

1) Press the **PFD** Softkey to display the second-level softkeys.

2) Press the **ALT UNIT** 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.

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

CHANGE NAVIGATION SOURCES

1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the light blue 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 light blue tuning box over the NAV2 standby frequency.

3) Press the **CDI** Softkey a third time to return to GPS.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH GPS

1) Press the **OBS** Softkey to select OBS Mode.

2) Turn a **CRS** Knob to select the desired course to/from the waypoint. Press the **CRS** Knob to synchronize the Selected Course with the bearing to the next waypoint.

3) Press the **OBS** Softkey again to disable OBS Mode.

GENERIC TIMER

1) Press the **TMR/REF** Softkey, then turn the large **FMS** Knob to select the time field (hh/mm/ss). Turn the **FMS** Knobs to set the desired time, then press the **ENT** Key. The UP/DOWN field is now highlighted.

2) Turn the small **FMS** Knob to display the UP/DOWN window. Turn the **FMS** Knob to select 'UP' or 'DOWN', then press the **ENT** Key. 'START?' is now highlighted.

3) Press the **ENT** Key to START, STOP, or RESET the timer (if the timer is counting DOWN, it will start counting UP after reaching zero). Press the **CLR** Key or the **TMR/REF** Softkey to remove the window.

CONFIGURE VSPEED BUGS INDIVIDUALLY

1) Press the **TMR/REF** Softkey.

2) Turn the large **FMS** Knob to highlight the desired Vspeed.

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.

TURN ALL VSPEED BUGS ON OR OFF

1) Press the **TMR/REF** Softkey.

2) Press the **MENU** Key.

3) Turn the **FMS** Knob to highlight the desired option.

4) Press the **ENT** Key. Press the **TMR/REF** Softkey to remove the window.

SET BAROMETRIC MINIMUM DESCENT ALTITUDE

1) Press the **TMR/REF** Softkey.

2) Turn the large **FMS** Knob to highlight the OFF/BARO/TEMP COMP field to the right of 'MINIMUMS'.

3) Turn the small **FMS** Knob clockwise to select BARO or TEMP COMP.

4) Press the **ENT** Key.

5) Use the small **FMS** Knob to enter the desired altitude.

6) Press the **ENT** Key.

7) To remove the window, press the **CLR** Key or the **TMR/REF** Softkey.

DISPLAYING WIND DATA

1) Press the **PFD** Softkey.

2) Press the **WIND** Softkey to display wind data below the Selected Heading.

3) Press one of the **OPTN** softkeys to change how wind data is displayed.

4) To remove the Wind Data Window, press the **OFF** Softkey.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

GARMIN

Blank Page

ENGINE INDICATION

ENGINE DISPLAY

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Engine Display   **Engine Display when Engine Page is Displayed**

①	**Tachometer (RPM)**	Displays propeller speed in revolutions per minute (rpm)
②	**Exhaust Gas Temperature (EGT)**	Displays the exhaust gas temperature of the hottest cylinder in °F

(3) **Fuel Flow Indicator
(FFLOW GPH)**   Displays fuel flow in gallons per hour (gph)

(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) **Alternator Current
(ALTR AMPS)**   Displays each alternator current in amperes

(7) **Voltage
(VOLTS)**   Displays the bus voltage

(8) **Battery Current
(BATT AMPS)**   Displays the battery current in amperes

(9) **Fuel Quantity Indicator
(FUEL QTY GAL)**   Displays the amount of fuel in gallons (gal) for each
side of a standard fuel tank.

ENGINE PAGE

Press the **ENGINE** Softkey or turn the large **FMS** Knob and select the EIS - Engine Page.

Engine Page

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

1	**Tachometer (RPM)**	Displays propeller speed in revolutions per minute (rpm)
2	**Exhaust Gas Temperature (EGT °F)**	Displays the exhaust gas temperature in °F
3	**Fuel Flow Indicator (FFLOW GPH)**	Displays fuel flow in gallons per hour (gph)
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	**Fuel Quantity Indicator (FUEL QTY GAL)**	Displays the amount of fuel in gallons (gal) for each side of a standard fuel tank.

GARMIN.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

⑦	**Fuel Calculations Group (FUEL CALC)**	Displays calculated fuel used (GAL USED), endurance (ENDUR), and range (in nautical miles, RANGE NM), and fuel efficiency (in nautical miles per gallon, NMPG) based on the displayed fuel remaining (GAL REM) and the fuel flow totalizer
⑧	**Engine Hours (TACH TIME)**	Displays the total time in hours the engine has been in service
⑨	**Exhaust Gas Temperature (EGT °F)**	Displays exhaust gas temperatures for all cylinders in °F
⑩	**Electrical Group (ELECTRICAL)**	Displays alternator (ALTR AMPS) and battery (BATT AMPS) currents in amperes and bus voltage (VOLTS)

Electrical

Alternator Current

Bus Voltage

Ammeter

Electrical Group

GARMIN.

Exhaust Gas Temperature

Exhaust Gas (EGT) temperature readout for each cylinder is shown at the top of the graph. Cylinders with EGTs in the normal range appear in white. The temperature readout is replaced with white dashes if the temperature exceeds the normal range.

*Exhaust Gas
Temperatures*

Exhaust Gas Temperatures (Normal Range)

*Normal Temperature
Range Exceeded*

Exhaust Gas Temperatures (Normal Range Exceeded)

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

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), endurance (ENDUR), range (in nautical miles, RANGE NM), and fuel efficiency (in nautical miles per gallon, NMPG) 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:

On the Engine Page, use the **DEC FUEL** and **INC FUEL** softkeys to obtain the desired fuel remaining (GAL REM).

Resetting the fuel totalizer:

On the Engine Page, press the **RST FUEL** Softkey; this resets displayed fuel remaining (GAL REM) to the maximum fuel capacity for the aircraft and fuel used to zero. Pressing the **TABS** Softkey resets the fuel remaining quantity to the filler neck tabs quantity.

FUEL CALC		
GAL REM	47	Set Fuel Remaining
GAL USED	1	Calculated Fuel Used
ENDUR	4:44	Calculated Endurance
RANGE NM	465	Calculated Range
NMPG	9.9	Fuel Efficiency

Fuel Calculations Group

A map feature related to the EIS Fuel Calculations is the Fuel Range Ring, which graphically illustrates the aircraft's remaining range based on the endurance (ENDUR), heading, groundspeed, and 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 yellow circle.

The Fuel Range Ring shifts position in relation to the aircraft according to 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.

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.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GARMIN

Blank Page

NAV/COM/TRANSPONDER/AUDIO PANEL

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

ENTER A TRANSPONDER CODE

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 key in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Five seconds after the fourth digit has been entered, the transponder code becomes active.

DME TUNING

1)   Press the **DME** Softkey.

2)   Turn the large **FMS** to select the DME source field.

3)   Turn the small **FMS** Knob to select the desired Nav radio.

4)   Press the **ENT** Key to complete the selection.

SELECTING A COM RADIO

Transmit/Receive

Press the **COM1 MIC**, **COM2 MIC**, or **COM3 MIC** Key (optional COM, if installed) on the audio panel.

Receive Only

Press the **COM1**, **COM2**, or **COM3** Key (optional COM, if installed) on the audio panel.

SELECTING A NAV RADIO

1)   To begin navigating using a navigation radio, press the **CDI** Softkey on the PFD to select VOR1/LOC1 (NAV1) or VOR2/LOC2 (NAV2).

2)   Press the **NAV1**, **NAV2, DME,** or **ADF** Key on the audio panel to select or deselect the navigation radio audio source. All radio keys can be selected individually or together.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GARMIN

NAV/COM TUNING

1) Press the small tuning knob to select the desired radio for tuning. A light blue box highlights the radio frequency to be tuned.

2) Turn the respective tuning knobs to enter the desired frequency into the standby frequency field. The large knob enters MHz and the small knob enters kHz.

3) Press the **Frequency Transfer** Key to place the frequency into the active frequency field.

DIGITAL CLEARANCE RECORDER AND PLAYER

> *NOTE: Only the audio for the selected **COM MIC** Key is recorded. Audio is not recorded for COM3 MIC.*

- Pressing the **PLAY** Key once plays the latest recorded memory block, then returns to normal operation.
- Pressing the **MKR/MUTE** Key while playing a memory block stops play.
- Pressing the **PLAY** Key during play begins playing the previously recorded memory block. Each subsequent press of the **PLAY** Key begins playing the next previously recorded block.

Blank Page

GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation using the MFD

1) Press the **Direct-to** (▶) Key on the MFD.

2) Enter the waypoint identifier.

3) Press the **ENT** Key to confirm the identifier. The 'Activate?' field is highlighted.

4) If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 5.

5) Turn the large **FMS** Knob to place the cursor over the 'VNV' altitude field.

6) Enter the desired altitude.

7) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 9.

8) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.

9) Press the **ENT** Key. The cursor is now flashing in the VNV offset distance field.

10) Enter the desired offset distance before (-) the waypoint.

11) Press the **ENT** Key. The 'Activate?' field is highlighted.

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

Direct-to Navigation using the PFD

1) Press the **Direct-to** Key (▶) on the PFD.

2) Turn the large **FMS** Knob to place the cursor in the desired selection field.

3) Turn the small **FMS** Knob to begin selecting the desired identifier, location, etc.

4) Press the **ENT** Key.

5) The cursor is now flashing on 'ACTIVATE?'. If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 6.

6) Turn the large **FMS** Knob to place the cursor over the 'ALT' altitude field.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

7) Turn the small **FMS** Knob to enter the desired altitude.

8) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 10.

9) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.

10) Press the **ENT** Key. The cursor is placed in the 'OFFSET' field.

11) Turn the small **FMS** Knob to enter the desired target altitude offset from the selected Direct-to.

12) Press the **ENT** Key to highlight 'Activate?' or turn the large **FMS** Knob to highlight the 'CRS' field.

13) Turn the small **FMS** Knob to enter the desired course to the waypoint.

14) Press the **ENT** Key to highlight 'ACTIVATE?'.

15) Press the **ENT** Key again to activate the Direct-to.

ACTIVATE A STORED FLIGHT PLAN

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

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

3) Turn the large **FMS** Knob to highlight the desired flight plan

4) Press the **ACTIVE** Softkey. The confirmation window is now displayed.

5) With 'OK' highlighted, press the **ENT** Key to activate the flight plan. To cancel the flight plan activation, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

ACTIVATE A FLIGHT PLAN LEG

1) From the Active Flight Plan Page, press the **FMS** Knob to activate the cursor and turn the large **FMS** Knob to highlight the desired waypoint.

2) Press the **ACT LEG** Softkey.

OR

Press the **MENU** Key, select the 'Activate Leg' option from the page menu and press the **ENT** Key. This step must be used when activating a leg from the PFD.

3) With 'Activate' highlighted, press the **ENT** Key.

STOP NAVIGATING A FLIGHT PLAN

1) Press the **FPL** Key to display the Active Flight Plan Page.

2) Press the **MENU** Key to display the Page Menu Window.

3) Turn the large **FMS** Knob to highlight 'Delete Flight Plan' and press the **ENT** Key. With 'OK' highlighted, press the **ENT** Key to deactivate the flight plan. This will not delete the stored flight plan, only the active flight plan.

VERTICAL NAVIGATION (VNAV)

The navigation database only contains altitudes for procedures that call for "Cross at" altitudes. If the procedure states "Expect to cross at," the altitude is not in the database. In this case the altitude may be entered manually.

NOTE: *Temperature Compensated (TEMP COMP) altitudes are depicted as slanted text.*

	DTK	DIS	ALT	
KARLA	221°	11.7NM	13000FT	*Large White Text*
COVIE	221°	9.0NM	12400FT	
▸ LEMYN	220°	8.0NM	9900FT	*Large Light Blue Text*
Approach – KDFW-RNAV 17LGPS LPV				
RIVET iaf	259°	18.8NM	4000FT	*Small Light Blue Text*
DRAAK	176°	3.3NM	2000FT	
INWOD	176°	3.2NM	3000FT	*Small Light Blue Subdued Text*
MENOL faf	176°	3.9NM	2300FT	
RW17L map	176°	5.3NM		
990FT	174°	0.8NM	990FT	*Small White Text with Altitude Restriction Bar*
POLKE				

Insertion Point Indicator

5000FT *Cross AT or ABOVE 5,000 ft*

2300FT *Cross AT 2,300 ft*

3000FT *Cross AT or BELOW 3,000 ft*

Altitudes associated with approach procedures are "auto-designated". This means the system will automatically use the altitudes loaded with the approach for giving vertical flight path guidance outside the FAF. Note these altitudes are displayed as small light blue text.

Altitudes associated with arrival procedures are "manually-designated". This means the system will not use the altitudes loaded with the arrival for giving vertical flight path guidance until designated to do so by the pilot. Note that these altitudes are initially displayed as white text. These altitudes may be "designated" by placing the cursor over the desired altitude and pressing the **ENT** Key. After designation, the text changes to light blue.

Altitudes that have been designated for use in vertical navigation may also be made "non-designated" by placing the cursor over the desired altitude and pressing the **CLR** Key. The altitude is now displayed only as a reference. It will not be used to give vertical flight path guidance. Other displayed altitudes may change due to re-calculations or rendered invalid as a result of manually changing an altitude to a non-designated altitude.

> **NOTE:** Making course changes greater than 90° during a descent with vertical guidance may cause excessive and rapid movement of the vertical deviation indicator, and SVT Pathways.

The system updates vertical path guidance continuously using ground speed and the calculated distance to the Bottom of Descent (BOD). Due to turn anticipation guidance (turn-smoothing), distance to the BOD can be affected by course changes greater than approximately 5 degrees. Ground speed can be affected by factors such as shifts in wind direction, aircraft power management, pitch angle, and course changes. Abrupt and/or substantial changes to either the distance to the BOD, ground speed, or both can cause similarly abrupt/substantial changes in vertical path guidance.

Because of turn-smoothing, changes to both distance to the BOD and ground speed tend to be more extreme when the BOD is also a waypoint that marks a large course change. These speed and distance changes will be accounted for in the computed required vertical path and reflected in the vertical guidance indications.

	White Text	**Light Blue Text**	**Light Blue Subdued Text**
Large Text	Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. This altitude is provided as a reference and is not designated to be used in determining vertical flight path guidance.	Altitude has been entered by the pilot. Altitude is designated for use in giving vertical flight path guidance. Altitude does not match the published altitude in navigation database or no published altitude exists.	The system cannot use this altitude in determining vertical flight path guidance.
Small Text	Altitude is not designated to be used in determining vertical flight path guidance. Altitude has been retrieved from the navigation database and is provided as a reference.	Altitude is designated for use in giving vertical flight path guidance. Altitude has been retrieved from the navigation database or has been entered by the pilot and matches a published altitude in the navigation database.	The system cannot use this altitude in determining vertical flight path guidance.

Flight Instruments | EIS | Nav/Com/XPDR/Audio | GPS Nav | Flight Planning | Procedures | Hazard Avoidance | Additional Features | Abnormal Operation | Annun/Alerts | Appendix | Index

Blank Page

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

FLIGHT PLANNING

WEIGHT PLANNING

All procedures apply to the MFD and the Control Unit unless otherwise stated.

Entering Weight Parameters

The Weight Planning Page is displayed after system power-up. If it is necessary to return to this page, turn the large **FMS** Knob to select the 'AUX' page group. Turn the small **FMS** Knob to select the Weight Planning Pge.

1) Press the **EMPTY WT** Softkey to place the cursor in the Basic Empty Weight field.

2) Enter the desired aircraft empty weight.

3) Press the **ENT** Key. The cursor is now over the 'PILOT & STORES' field.

4) Enter the desired weight of Pilot & Stores.

5) Press the **ENT** Key.

6) Continue repeating these steps until all desired weights have been entered.

Entering Fuel Parameters

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

2) Turn the large **FMS** Knob to place the cursor in the 'FUEL ON BOARD' field.

3) Turn the small **FMS** Knob to enter the desired fuel quantity.

4) Press the **ENT** Key. The cursor is now in the 'FUEL RESERVES' field.

5) Turn the small **FMS** Knob to enter the desired reserve fuel quantity.

6) Press the **FMS** Knob to remove the cursor.

7) Press the **ENT** Key.

TRIP PLANNING

1) Turn the large **FMS** Knob to select the 'AUX' page group.

2) Turn the small **FMS** Knob to select the Trip Planning Page.

3) The current 'PAGE MODE' is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, press the **AUTO** or **MANUAL** Softkey.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

4) For Direct-to planning:

   a) Press the **WPTS** Softkey and verify that the starting waypoint field indicates 'P.POS' (present position).

   b) If necessary, press the **MENU** Key and select 'Set WPT to Present Position' to display 'P.POS'.

   c) Press the **ENT** Key and the flashing cursor moves to the ending waypoint field.

   d) Enter the identifier of the ending waypoint and press the **ENT** Key to accept the waypoint.

   Or:

   For point-to-point planning:

   a) Enter the identifier of the starting waypoint.

   b) Once the waypoint's identifier is entered, press the **ENT** Key to accept the waypoint. The flashing cursor moves to the ending waypoint.

   c) Again, enter the identifier of the ending waypoint.

   d) Press the **ENT** Key to accept the waypoint.

   Or:

   For flight plan leg planning:

   a) Press the **FPL** Softkey (at the bottom of the display).

   b) Turn the small **FMS** Knob to select the desired flight plan (already stored in memory), by number.

   c) Turn the large **FMS** Knob to highlight the 'LEG' field.

   d) Turn the small **FMS** Knob to select the desired leg of the flight plan, or select 'CUM' to apply trip planning calculations to the entire flight plan. Selecting 'FPL 00' displays the active flight plan. If an active flight plan is selected, 'REM' will be an available option to display planning data for the remainder of the flight plan.

> *NOTE: The page mode must be set to 'MANUAL' to perform the following steps.*

5) Turn the large **FMS** Knob to highlight the departure time (DEP TIME) field.

> *NOTE: The departure time on the Trip Planning Page is used for preflight planning. Refer to the Utility Page for the actual flight departure time.*

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

6) Enter the departure time. Press the **ENT** Key when finished. Departure time may be entered in local or UTC time, depending upon system settings.

7) The flashing cursor moves to the ground speed (GS) field. Enter the ground speed. Press the **ENT** Key when finished. Note that in 'automatic' page mode, ground speed is provided by the system.

8) The flashing cursor moves to the fuel flow field. Enter the fuel flow. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel flow is provided by the system.

9) The flashing cursor moves to the fuel onboard field. Enter the fuel onboard. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel onboard is provided by the fuel totalizer.

10) The flashing cursor moves to the calibrated airspeed (CALIBRATED AS) field. Enter the calibrated airspeed. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, calibrated airspeed is provided by the system.

11) The flashing cursor moves to the altitude (IND ALTITUDE) field. Enter the altitude. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, altitude is provided by the system.

12) The flashing cursor moves to the barometric setting (PRESSURE) field. Enter the desired baro setting. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, the baro setting is provided by the setting entered on the PFD.

13) The flashing cursor moves to the air temperature (TOTAL AIR TEMP) field. Enter the desired air temperature. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, air temperature is provided by the system outside air temperature.

CREATE A USER WAYPOINT DEFINED BY LATITUDE & LONGITUDE

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.

    a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.

    b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.

7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.

8) Turn the small **FMS** Knob to select LAT/LON (latitude and longitude).

9) Press the **ENT** Key.

CREATE A USER WAYPOINT DEFINED BY RADIALS FROM OTHER WAYPOINTS

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.

    a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.

    b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.

7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.

8) Turn the small **FMS** Knob to select RAD/RAD (radial/radial).

9) Press the **ENT** Key.

10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

    a) When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.

    b) Turn the large **FMS** Knob to select the desired waypoint.

    c) Press the **ENT** Key.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) Repeat step 10 to enter the next waypoint name.

14) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field for the second waypoint. Enter the desired radial from the reference waypoint.

15) Press the **ENT** Key.

16) Press the **FMS** Knob to remove the flashing cursor.

CREATE A USER WAYPOINT DEFINED BY A RADIAL & DISTANCE FROM ANOTHER WAYPOINT

1) Turn the large **FMS** Knob on the MFD to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

3) Press the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.

   a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.

   b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.

7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.

8) Turn the small **FMS** Knob to select RAD/DIS (radial/distance).

9) Press the **ENT** Key.

10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

   a) When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.

   b) Turn the large **FMS** Knob to select the desired waypoint.

   c) Press the **ENT** Key.

   Or:

   a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

   b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

   c) Turn the large **FMS** Knob to select the desired waypoint.

   d) Press the **ENT** Key.

   Or:

   a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

   b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) The cursor is now displayed in the 'DIS' (distance) field. Enter the desired distance from the reference waypoint.

14) Press the **ENT** Key.

15) Press the **FMS** Knob to remove the flashing cursor.

CREATE A USER WAYPOINT USING THE MAP POINTER

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

2) Press the **ENT** Key. The User Waypoint Information Page is displayed with the captured position.

> *NOTE: If the pointer has highlighted a map database feature, one of three things happens upon pressing the* **ENT** *Key: 1) information about the selected feature is displayed instead of initiating a new waypoint, 2) a menu pops up allowing a choice between 'Review Airspaces' or 'Create User Waypoint', or 3) a new waypoint is initiated with the default name being the selected map item.*

3) Enter a user waypoint name (up to six characters).

4) Press the **ENT** Key to accept the selected name.

5) If desired, define the type and location (i.e., LAT/LON, RAD/RAD or RAD/DIS) of the waypoint.

6) Press the **ENT** Key to accept the new waypoint.

7) If desired, change the storage method of the waypoint to "TEMPORARY" or "NORMAL" by moving the cursor to "TEMPORARY" and pressing the **ENT** Key to check or uncheck the box.

8) Press the **FMS** Knob to remove the flashing cursor.

9) Press the **GO BACK** Softkey to return to the map page.

DELETE A USER WAYPOINT

1) Turn the large **FMS** Knob to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

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

4) Turn the large **FMS** Knob to the place the cursor in the 'USER WAYPOINT LIST' field.

5) Turn the small **FMS** Knob to highlight the desired waypoint.

6) Press the **DELETE** Softkey.

7) The message 'Would you like to delete the user waypoint?' is displayed. With 'YES' highlighted, press the **ENT** Key.

CREATE A FLIGHT PLAN

> *NOTE: When creating a flight plan in the Active Flight Plan Window, the first leg is activated automatically after it is created.*

Creating an active flight plan:

1) Press the **FPL** Key.

2) Press the **FMS** Knob to activate the cursor (only on MFD).

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 departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The active flight plan is modified as each waypoint is entered.

5) Repeat step numbers 3 and 4 to enter each additional flight plan waypoint.

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

Creating a stored flight plan:

1) Press the **FPL** Key.

2) Turn the small **FMS** Knob clockwise to display the Flight Plan Catalog Page.

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

4) 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).

5) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key.

6) Repeat step numbers 4 and 5 to enter each additional flight plan waypoint.

7) When all waypoints have been entered, press the **FMS** Knob to return to the Flight Plan Catalog Page. The new flight plan is now in the list.

IMPORT 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 on the MFD to display the Active Flight Plan Page on the MFD.

3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

4) Press 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.

If an empty flight plan 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 a list of the 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 existing or empty flight plan, and again press the **IMPORT** Softkey.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.

8) Press the **ENT** Key.

INSERT A WAYPOINT IN THE ACTIVE FLIGHT PLAN

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

2) If necessary, press the **FMS** Knob to activate the cursor.

3) Turn the large **FMS** Knob to highlight the desired flight plan waypoint. The new waypoint is inserted before the highlighted waypoint (shown by the insertion point indicator).

4) Turn the small **FMS** Knob. The Waypoint Information Window is now displayed.

5) Enter the new flight plan waypoint by one of the following:

    a) Enter the user waypoint identifier, facility, or city.

    b) Press the **ENT** Key.

        Or:

    a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

    b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

    c) Turn the large **FMS** Knob to select the desired waypoint.

    d) Press the **ENT** Key.

        Or:

    a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

    b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

    c) Turn the large **FMS** Knob to select the desired waypoint.

    d) Press the **ENT** Key.

        Or:

    a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

    b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

    c) Turn the large **FMS** Knob to select the desired user waypoint.

    d) Press the **ENT** Key.

6) Press the **ENT** Key again to "accept" the waypoint.

ENTER AN AIRWAY IN A FLIGHT PLAN

1) Press the **FPL** Key.

2) Press the **FMS** Knob to activate the cursor (not required on the PFD).

3) Turn the large **FMS** Knob to highlight the waypoint after the desired airway entry point. The airway is inserted before the highlighted waypoint (as shown by the insertion point indicator). If this waypoint is not a valid airway entry point, a valid entry point should be entered at this time.

4) Turn the small **FMS** Knob one click clockwise and press the **LD AIRWY** Softkey, or press the **MENU** Key and press "Load Airway". The Select Airway Page is displayed. The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when an acceptable airway entry waypoint has been chosen (the waypoint ahead of the cursor position as indicated by the insertion point indicator).

5) Turn the **FMS** Knob to select 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.

6) Turn the **FMS** Knob to select the desired airway exit point from the list, and press the **ENT** Key. 'LOAD?' is highlighted.

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

CREATING A USER-DEFINED HOLD AT AN ACTIVE FLIGHT PLAN WAYPOINT

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).

2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the waypoint for the hold.

3) Press the **MENU** Key, highlight 'Hold At Wpt', and press the **ENT** Key. The HOLD AT window appears with the course field highlighted.

4) Use the **FMS** Knobs to edit the entry 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 'DIST' 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 add the hold into the flight plan.

CREATING A USER-DEFINED HOLD AT THE AIRCRAFT PRESENT POSITION

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active 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 Length mode highlighted.

3) Use the small **FMS** Knob to select 'TIME' or 'DIST' length mode, and press the **ENT** Key.

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

5) Use the small **FMS** Knob to select 'RIGHT' or 'LEFT' turn direction, and press the **ENT** Key.

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

7) Press the **ENT** Key while 'ACTIVATE?' is highlighted to immediately activate the hold.

REMOVING A USER-DEFINED HOLD (CREATED AT THE AIRCRAFT P.POS)

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).

2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the PPOS-H waypoint.

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 active flight plan. Select 'CANCEL' and press the **ENT** Key to cancel the removal of the holding pattern.

REMOVING A USER-DEFINED HOLD (CREATED AT AN ACTIVE WAYPOINT)

1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).

2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the HOLD waypoint.

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 active flight plan. Select 'CANCEL' and press the **ENT** Key to cancel the removal of the holding pattern.

INVERT AN ACTIVE FLIGHT PLAN

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

2) Press the **MENU** Key to display the Page Menu.

3) Turn the large **FMS** Knob to highlight 'Invert Flight Plan'.

4) Press the **ENT** Key. The original flight plan remains intact in its flight plan catalog storage location.

5) With 'OK' highlighted, press the **ENT** Key to invert the flight plan.

REMOVE A DEPARTURE, ARRIVAL, APPROACH, OR AIRWAY FROM A FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

Or, for a stored flight plan:

a) Press the MFD **FPL** Key and turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

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

d) Press the **EDIT** Softkey.

2) Turn the large **FMS** Knob to highlight the title for the approach, departure, arrival, or airway to be deleted. Titles appear in white directly above the procedure's waypoints.

3) Press the **CLR** Key to display a confirmation window.

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

STORE A FLIGHT PLAN

1) After creating a flight plan on either the PFD or MFD, it may be saved by pressing the **MENU** Key.

2) Turn the large **FMS** Knob to highlight 'Store Flight Plan' and press the **ENT** Key.

3) With 'OK' highlighted, press the **ENT** Key to store the flight plan.

EDIT A STORED FLIGHT PLAN

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

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

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

4) Press the **EDIT** Softkey.

5) Turn the large **FMS** Knob to place the cursor in the desired location.

6) Enter the changes, then press the **ENT** Key.

7) Press the **FMS** Knob to return to the Flight Plan Catalog Page.

DELETE A WAYPOINT FROM THE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

   Or, for a stored flight plan:

   a) Press the **FPL** Key of the MFD and turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

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

   d) Press the **EDIT** Softkey.

2) Turn the large **FMS** Knob to highlight the waypoint to be deleted.

3) Press the **CLR** Key to display a 'REMOVE (Wpt Name)?' confirmation window.

4) With 'OK' highlighted, press the **ENT** Key to remove the waypoint. To cancel the delete request, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

5) Once all changes have been made, press the **FMS** Knob to remove the cursor.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

INVERT AND ACTIVATE A STORED FLIGHT PLAN

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

2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

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

5) Press the **INVERT** Softkey. 'Invert and activate stored flight plan?' is displayed.

6) With 'OK' highlighted, press the **ENT** Key. The selected flight plan is now inverted and activated. The original flight plan remains intact in its flight plan catalog storage location.

COPY A FLIGHT PLAN

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

2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

4) Turn the large **FMS** Knob to highlight the flight plan to be copied.

5) Press the **COPY** Softkey. A 'Copy to flight plan #?' confirmation window is displayed.

6) With 'OK' highlighted, press the **ENT** Key to copy the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

DELETE A FLIGHT PLAN

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

2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

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

4) Turn the large **FMS** Knob to highlight the flight plan to be deleted.

5) Press the **DELETE** Softkey. A 'Delete flight plan #?' confirmation window is displayed.

6) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

GRAPHICAL FLIGHT PLAN CREATION

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

2) Press the **Joystick** to activate the map pointer. Use the **Joystick** to move the pointer to the desired point on the map to be inserted as a waypoint in the flight plan.

3) The default insertion point is at the end of the flight plan. If the selected waypoint is to be placed anywhere other than the end of the flight plan, press the **FMS** Knob to activate the cursor. Waypoints are inserted *ABOVE* the cursor (as indicated by the insertion point indicator). Turn the large **FMS** Knob to select the desired insertion point.

4) Press the **LD WPT** Softkey. The selected waypoint is inserted at the selected point. The default user waypoint naming is USR000, USR001, USR002, and so on.

5) To change the user waypoint name, follow the procedure for modifying a user waypoint.

EXPORT 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 on the Control Unit to display the Active Flight Plan Page on the MFD.

3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.

4) Press 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.

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

PROCEDURES

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

LOAD AND ACTIVATE A DEPARTURE PROCEDURE

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'SELECT DEPARTURE'.

3) Press the **ENT** Key. The cursor is displayed in the 'DEPARTURE' field with a list of available departures.

4) Turn the large **FMS** Knob to highlight the desired departure.

5) Press the **ENT** Key. A list of runways may be displayed for the departure. If so, turn either **FMS** Knob to select the desired runway.

6) Press the **ENT** Key. The cursor is displayed in the 'TRANSITION' field with a list of available transitions.

7) Turn the large **FMS** Knob to highlight the desired transition.

8) Press the **ENT** Key.

9) With 'LOAD?' highlighted, press the **ENT** Key. The departure is active when the flight plan is active.

ACTIVATE A DEPARTURE LEG

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

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

3) Turn the large **FMS** Knob to highlight the desired waypoint within the departure.

4) Press the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.

5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AN ARRIVAL PROCEDURE

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'SELECT ARRIVAL'.

3) Press the **ENT** Key. The cursor is displayed in the 'ARRIVAL' field with a list of available arrivals.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

4) Turn the large **FMS** Knob to highlight the desired arrival.

5) Press the **ENT** Key. A list of transitions is displayed for the selected arrival.

6) Turn either **FMS** Knob to select the desired transition.

7) Press the **ENT** Key. A list of runways may be displayed for the selected arrival.

8) Turn the large **FMS** Knob to highlight the desired runway.

9) Press the **ENT** Key.

10) With 'LOAD?' highlighted, press the **ENT** Key.

11) The arrival becomes part of the active flight plan.

ACTIVATE AN ARRIVAL LEG

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

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

3) Turn the large **FMS** Knob to highlight the desired waypoint within the arrival.

4) Press the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.

5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AND/OR ACTIVATE AN APPROACH PROCEDURE

> *NOTE: If certain GPS parameters (SBAS, RAIM, etc.) are not available, some published approach procedures for the desired airport may not be displayed in the list of available approaches.*

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'SELECT APPROACH'.

3) Press the **ENT** Key. A list of available approaches for the destination airport is displayed.

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

5) Press the **ENT** Key. A list of available transitions for the selected approach procedure is now displayed.

6) Turn either **FMS** Knob to select the desired transition. The "Vectors" option assumes vectors will be received to the final course segment of the approach and will provide navigation guidance relative to the final approach course.

7) Press the **ENT** Key. The cursor moves to the MINIMUMS field.

8) If desired, the DA/MDA for the selected approach procedure may be entered and displayed on the PFD. Turn the small **FMS** Knob in the direction of the green arrow to change the display from OFF to BARO.

9) Press the **ENT** Key. The cursor moves to the altitude field. Turn the small **FMS** Knob to enter the published DA/MDA for the selected approach procedure.

10) Press the **ENT** Key. 'LOAD? or ACTIVATE?' is now displayed with 'LOAD?' highlighted.

11) Turn the large **FMS** Knob to select either 'LOAD?' or 'ACTIVATE?'.

Selecting 'LOAD?' enters the selected approach procedure into the active flight plan, but is not currently active. Selecting 'ACTIVATE?' enters the selected approach procedure into the active flight plan and is immediately activated.

12) Press the **ENT** Key.

ACTIVATE AN APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'ACTIVATE APPROACH'.

3) Press the **ENT** Key.

ACTIVATE A VECTOR TO FINAL APPROACH FIX

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'ACTIVATE VECTOR-TO-FINAL'.

3) Press the **ENT** Key.

4) The final approach course becomes the active leg.

ACTIVATE A MISSED APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.

2) Turn the large **FMS** Knob to highlight 'ACTIVATE MISSED APPROACH'.

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

4) With 'ACTIVATE' highlighted, press the **ENT** Key.

Or:

Press the go-around button:

TEMPERATURE COMPENSATED ALTITUDE

A temperature compensated altitude can be computed and used at the FAF of a loaded approach. A temperature compensated altitude is displayed in slanted text.

Enabling temperature compensated altitude:

1) From the Active Flight Plan Page, press the **MENU** Key. The Page Menu is displayed.

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

3) Press the **ENT** Key. The TEMPERATURE COMPENSATION Window is displayed.

4) Use the small **FMS** Knob to select the temperature at the <airport>. 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.

Disabling temperature compensated altitude:

1) From the Active Flight Plan Page, press the **MENU** Key. The Page Menu 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. The temperature compensated altitude at the FAF is cancelled.

Hazard Avoidance

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

HAZARD AVOIDANCE

Customizing THE HAZARD DISPLAYS ON THE NAVIGATION MAP

1) With the Navigation Map Page displayed, press the **MENU** Key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.

2) Press the **ENT** Key. The Map Setup Menu is displayed. Turn the small **FMS** Knob to select 'Weather' to customize the display of weather features. Select 'Traffic' to customize the display of traffic.

3) Press the small **FMS** Knob to return to the Navigation Map Page.

SIRIUSXM WEATHER (OPTIONAL)

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

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

Displaying SiriusXM Weather on the Navigation Map Page

1) Press the **MAP** Softkey.

2) Press the **NEXRAD** or **XM LTNG** Softkey to display the desired weather. Press the applicable softkey again to remove weather data from the Navigation Map Page.

Display METAR and TAF information on the Airport Information Page

1) Turn the large **FMS** Knob to select the WPT Page Group.

2) Turn the small **FMS** Knob to select the Airport Information Page.

3) Press the **WX** Softkey to display METAR and TAF text (METAR and TAF information is updated every 12 minutes).

Displaying Weather on the SiriusXM Weather Data Link Page

1) Turn the large **FMS** Knob to select the Map Page Group.

2) Turn the small **FMS** Knob to select the SiriusXM Weather Data Link Page.

3) Press the available softkeys to select the desired SiriusXM Weather product.

4) Press the **LEGEND** Softkey to view the legends for the selected products. If necessary, turn either **FMS** Knob to scroll through the list. Press the small **FMS** Knob or the **ENT** Key to return to the map.

Map Panning Information – SiriusXM Weather Data Link Page

1) Push in the **Joystick** to display the panning arrow.

2) Move the **Joystick** to place the panning arrow on AIRMETs, TFRs, METARs, or SIGMETs.

3) Press the **ENT** Key to display pertinent information for the selected product.

Note that pressing the **ENT** Key when panning over an AIRMET or a SIGMET displays an information box that shows the text of the report. Panning over an airport with METAR information does not display more information but allows the user to press the **ENT** Key and select that Airport's Information Page to display the text of the report. Pressing the **ENT** Key when panning over a TFR displays TFR specific information.

Enabling/disabling winds aloft data display in Profile View:

1) Select the 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 Profile Group and press the **ENT** Key

5) Turn the large **FMS** Knob to select 'Profile Winds'.

6) Turn the small **FMS** Knob to select 'On' or 'Off'.

7) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

> *NOTE: NEXRAD data cannot be displayed at the same time as terrain, echo tops, turbulence, or icing data is displayed.*

SiriusXM Weather Products and Symbols

Wx Product Status Icons	Description
US 3m CN 6m	**NEXRAD** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
5m	**ECHO TOP** - The age of the displayed data is shown at the right. Not displayed when CLOUD TOP is displayed.
12m	**CLOUD TOP** - The age of the displayed data is shown at the right. Not displayed when ECHO TOP is displayed.
3m	**XM LIGHTNING** - The age of the displayed data is shown at the right.
2m	**CELL MOVEMENT** - The age of the displayed data is shown at the right.
SIGMET 2m AIRMET 5m	**SIGMET & AIRMET** - The age of the displayed data for each is shown at the right.
US 8m CN 8m	**METAR** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
4m 68m 24 HR	**SURFACE ANALYSIS with CITY FORECAST** - The upper symbol depicts Surface Analysis. The lower symbol depicts City Forecast. The age of the displayed data for each is shown at the right. The selected forecast period is shown at the bottom.
4m	**FREEZING LEVEL** - The age of the displayed data is shown at the right.
US 8m CN 12m 3000FT	**WINDS ALOFT** - Available for the US and Canada. The age of the displayed data for each is shown at the right. The altitude selection is shown at the bottom.
3m	**COUNTY WARNING** - The age of the displayed data is shown at the right.
4m	**CYCLONE WARNING** - The age of the displayed data is shown at the right.
2m	**AIREP** - The age of the displayed data is shown at the right.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Wx Product Status Icons	Description
8m	**PIREP** - The age of the displayed data is shown at the right. Urgent Pireps are displayed in yellow.
68m 21000FT	**TURBULENCE** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
4m 6000FT	**ICING POTENTIAL** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
No Status Icon	**TFR**- Depicted as an area outlined in yellow

TRAFFIC ADVISORY SYSTEM (TAS)

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

⚠️ **WARNING:** *Do not rely solely upon the display of traffic information to accurately depict all of the traffic 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. .*

Traffic Symbol	Description
◈	Non-Threat Traffic (intruder is beyond 5 nm and greater than 1200' vertical separation)
◇	Proximity Advisory (PA) (intruder is within 5 nm and less than 1200' vertical separation)
●	Traffic Advisory (TA) (closing rate, distance, and vertical separation meet TA criteria)
◑	Traffic Advisory Off Scale

Traffic Symbol Description

Displaying Traffic on the Traffic Map Page

1) Turn the large **FMS** Knob to select the Map Page Group.

2) Turn the small **FMS** Knob to select the Traffic Map Page.

3) Press the **NORMAL** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.

4) Press the **ALT MODE** Softkey to change the altitude volume. Select the desired altitude volume by pressing the **BELOW**, **NORMAL**, **ABOVE**, or **UNREST** (unrestricted) Softkey. The selection is displayed in the Altitude Mode field.

5) Press the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.

6) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

System Self Test

1) With the Traffic Map Page displayed, set the range to 2/6 nm.

2) Press the **STANDBY** Softkey.

3) Press the **TEST** Softkey.

4) Self test takes approximately eight seconds to complete. When completed successfully, traffic symbols are displayed and a voice alert "TAS System Test OK" is heard. If the self test fails, the system reverts to Standby Mode and a voice alert "TAS System Test Fail" is heard.

Displaying Traffic on the Navigation Map

1) Ensure the TAS system is operating. With the Navigation Map displayed, press the **MAP** Softkey.

2) Press the **TRAFFIC** Softkey. Traffic is now displayed on the map.

GARMIN

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

TERRAIN AND OBSTACLE PROXIMITY

> *NOTE: Terrain data is not displayed when the aircraft is outside the installed terrain database coverage area.*

Displaying Terrain and Obstacles on the Terrain Proximity 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.

3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** Softkeys. When the **ARC** Softkey is pressed, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.

4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Displaying Terrain and Obstacles on the Navigation Map

1) With the Navigation Map displayed, press the **MAP** Softkey.

2) Press the **TERRAIN** Softkey. Terrain and obstacle proximity will now be displayed on the map.

3) Terrain and obstacles may be displayed in the Profile View by selecting the **PROFILE** Softkey.

GARMIN

Hazard Avoidance

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

TERRAIN-SVS

✓ *NOTE: Terrain-SVS is only available when the Synthetic Vision Technology (SVT) option is installed and the TAWS-B option has not been installed.*

✓ *NOTE: Terrain data is not displayed when the aircraft is outside the installed terrain database coverage area.*

Display Terrain on the TERRAIN-SVS Page

1) Turn the large **FMS** Knob to select the Map Page Group.

2) Turn the small **FMS** Knob to select the Terrain-SVS Page.

3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is pressed, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.

4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.

2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".

3) Press the **ENT** Key.

Terrain-SVS Inhibit

Inhibit Terrain

While the Terrain-SVS Page is displayed, press the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.

2) Turn the small **FMS** Knob to select 'Inhibit Terrain'.

3) Press the **ENT** Key.

Enable Terrain

While the Terrain-SVS Page is displayed, press the **INHIBIT** Softkey.

Or:

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.

2) Turn the small **FMS** Knob to select 'Enable Terrain'.

3) Press the **ENT** Key.

> ✓ *NOTE: If Terrain-SVS alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.*

TERRAIN AWARENESS & WARNING SYSTEM (TAWS-B) DISPLAY (OPTIONAL)

> ⚠ *WARNING: Do not use the terrain avoidance feature as the sole means of navigation and terrain separation. The terrain avoidance feature is only to be used as and aid to terrain avoidance. Garmin obtains terrain database content from third party sources and is not able to independently verify the accuracy of the terrain data.*

> ✓ *NOTE: Terrain data is not displayed when the aircraft is outside the installed terrain database coverage area.*

> ✓ *NOTE: TAWS-B operation is only available when the G1000 is configured for a TAWS-B installation.*

Manual System Test

1) While the TAWS-B Page is displayed, press the **MENU** Key.

2) Turn the small **FMS** Knob to select 'Test TAWS'.

3) Press the **ENT** Key. During the test 'TAWS TEST' is displayed in the center of the TAWS-B Page.

When all is in working order, "TAWS System Test, OK" is heard.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Display Terrain on the TAWS-B Page

1) Turn the large **FMS** Knob to select the Map Page Group.

2) Turn the small **FMS** Knob to select the TAWS-B Page.

3) If desired, press the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is pressed, a radar-like 120° view is displayed. Press the **360** Softkey to return to the 360° default display.

4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the TAWS-B Page is displayed, press the **MENU** Key.

2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".

3) Press the **ENT** Key.

TAWS Inhibit

NOTE: If TAWS-B alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.

Inhibit TAWS

While the TAWS-B Page is displayed, press the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.

2) Turn the small **FMS** Knob to select 'Inhibit TAWS'.

3) Press the **ENT** Key.

Enable TAWS

While the TAWS-B Page is displayed, press the **INHIBIT** Softkey.

Or:

1) While the TAWS-B Page is displayed, press the **MENU** Key.

2) Turn the small **FMS** Knob to select 'Enable TAWS'.

3) Press the **ENT** Key.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

ADDITIONAL FEATURES

SYNTHETIC VISION (OPTIONAL)

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

⚠️ *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.*

Synthetic Vision Technology (SVT) functionality is offered as an optional enhancement to the G1000 Integrated Flight Deck System.

SVT is primarily comprised of a computer-generated forward-looking, attitude aligned view of the topography immediately in front of the aircraft from the pilot's perspective. SVT information is shown on the primary flight display (PFD).

SVT offers a three-dimensional view of terrain and obstacles. Terrain and obstacles that pose a threat to the aircraft in flight are shaded yellow or red.

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

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

Displaying SVT Terrain

1) Press the **PFD** Softkey.

2) Press the **SYN VIS** Softkey.

3) Press the **SYN TERR** Softkey.

4) Press the **BACK** Softkey to return to the previous page.

Displaying Pathways

1) Press the **PFD** Softkey.

2) Press the **SYN VIS** Softkey.

3) If not already enabled, press the **SYN TERR** Softkey.

4) Press the **PATHWAY** Softkey.

5) Press the **BACK** Softkey to return to the previous page.

Displaying Heading on the Horizon

1) Press the **PFD** Softkey.

2) Press the **SYN VIS** Softkey.

3) If not already enabled, press the **SYN TERR** Softkey.

4) Press the **HRZN HDG** Softkey.

5) Press the **BACK** Softkey to return to the previous page.

Displaying Airport Signs

1) Press the **PFD** Softkey.

2) Press the **SYN VIS** Softkey.

3) If not already enabled, press the **SYN TERR** Softkey.

4) Press the **APTSIGNS** Softkey.

5) Press the **BACK** Softkey to return to the previous page.

TERMINAL PROCEDURE CHARTS

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

SafeTaxi®

SafeTaxi® is an enhanced feature that gives greater map detail as the map range is adjusted in on the airport. The airport display on the map reveals runways with numbers, taxiways identifiers, and airport landmarks including ramps, buildings, control towers, and other prominent features. Resolution is greater at lower map ranges. The aircraft symbol provides situational awareness while taxiing.

Pressing the **DCLTR** Softkey (declutter) once removes the taxiway markings and airport identification labels. Pressing the **DCLTR** Softkey twice removes VOR station ID, the VOR symbol, and intersection names if within the airport plan view. Pressing

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

the **DCLTR** Softkey a third time removes the airport runway layout, unless the airport in view is part of an active route structure. Pressing the **DCLTR** Softkey again cycles back to the original map detail.

The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams provide the pilot with situational awareness by displaying the aircraft position in relation to taxiways, ramps, runways, terminals, and services. This information should not be used by the pilot as the basis for maneuvering the aircraft on the ground. This database is updated on a 56-day cycle.

ChartView (Optional)

ChartView resembles the paper version of Jeppesen terminal procedures charts. The charts are displayed in full color with high-resolution. The MFD depiction shows the aircraft position on the moving map in the plan view of most approach charts and on airport diagrams.

The ChartView database is updated on a 14-day cycle. If the ChartView database is not updated within 70 days of the expiration date, ChartView will no longer function.

FliteCharts®

FliteCharts® resemble the paper version of AeroNav Services terminal procedures charts. The charts are displayed with high-resolution and in color for applicable charts. The MFD depiction shows the aircraft position on the plan view of most approach charts and on airport diagrams.

The FliteCharts database contains procedure charts for the United States only. This database is updated on a 28-day cycle. If not updated within 180 days of the expiration date, FliteCharts will no longer function.

View Charts from the Navigation Map Page

1) Press the **SHW CHRT** Softkey when displayed.

   Or:

   Move the map pointer to point to a desired point on the map and press the **SHW CHRT** Softkey.

2) Press the **DP, STAR, APR, WX,** and **NOTAM** softkeys to access charts for departures, arrivals, approaches, weather and NOTAMs Note that NOTAMS are only available with ChartView.

3) Press the **GO BACK** Softkey to return to the previous page.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

View Charts from the Active Flight Plan Page

1) While viewing the Active Flight Plan Page, press the **FMS** Knob to activate the cursor.

2) Turn the large **FMS** Knob to select the departure airport, destination airport, departure, arrival, or approach.

3) Press the **SHW CHRT** Softkey. The appropriate chart is displayed, if available for the item selected.

4) Press the **GO BACK** Softkey to return to the previous page.

Change Day/Night View

1) While viewing a 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 between the 'FULL SCREEN' and 'COLOR SCHEME' Options.

4) Turn the small **FMS** Knob to choose between the 'On' and 'Off' Full Screen Options.

5) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.

6) In Auto Mode, turn the large **FMS** Knob to select the percentage field and change percentage with the small **FMS** Knob. The percentage of change is the day/night crossover point based on backlighting intensity.

7) Press the **FMS** Knob when finished to remove the Chart Setup Menu.

AIRPORT DIRECTORY

The Aircraft Owners and Pilots Association (AOPA) or AC-U-KWIK Airport Directory database offers detailed information regarding services, hours of operation, lodging options, and more for various airports. This information is viewed on the WPT-Airport Information Page.

The Airport Directory databases are revised every 56 days. The Airport Directory is always available for use after the expiration date. Check fly.garmin.com for the current database.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

View Airport Directory Information

While viewing the WPT-Airport Information Page, if necessary, press the **INFO-1** Softkey to change the softkey label to display **INFO-2**. Airport information is displayed on the right half of the display.

SIRIUSXM RADIO ENTERTAINMENT

The XM Radio Page provides information and control of the audio entertainment features of the SiriusXM Satellite Radio.

Selecting the XM Radio Page

1) Turn the large **FMS** Knob to select the Auxiliary Page Group.

2) Turn the small **FMS** Knob to select XM Radio.

3) Press the **RADIO** Softkey to show the XM Radio Page where audio entertainment is controlled.

Active Channel and Channel List

The Active Channel Box on the XM Radio Page displays the currently selected channel. The Channels List Box of the XM Radio Page shows a list of the available channels for the selected category.

Selecting a Category

The Category Box of the XM Radio Page displays the currently selected category of audio.

1) Press the **CATGRY** Softkey on the XM Radio Page.

2) Press the **CAT +** and **CAT -** softkeys to cycle through the categories.

   Or:

   Turn the small **FMS** Knob to display the 'Categories' list. Highlight the desired category with the small **FMS** Knob.

3) Press the **ENT** Key.

Select an Available Channel within the Selected Category

1) While on the XM Radio Page, press the **CHNL** Softkey.

2) Press the **CH +** Softkey to go down through the list in the Channel Box, or move up the list with the **CH –** Softkey.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Or:

Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.

3) With the desired channel highlighted, press the **ENT** Key.

Entering a Channel Directly

1) While on the XM Radio Page, press the **CHNL** Softkey.

2) Press the **DIR 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.

Assigning Channel Presets

Up to 15 channels from any category can be assigned a preset number.

1) On the XM Radio Page, with the desired channel active, press the **PRESETS** Softkey to access the first five preset channels (**PS1 - PS5**).

2) Press the **MORE** Softkey to access the next five channels (**PS6 – PS10**), and again to access the last five channels (**PS11 – PS15**). Pressing the **MORE** Softkey repeatedly cycles through the preset channels.

3) Press the **SET** Softkey.

4) Press any one of the (**PS1 - PS15**) softkeys to assign a number to the active channel.

Adjusting Volume

1) With the XM Radio Page displayed, press the **VOL** 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.)

Mute SiriusXM Audio

1) Select the XM Radio Page or XM Information Page.

2) Press the **MUTE** Softkey to mute the audio. Press the **MUTE** Softkey again to unmute the audio.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

SCHEDULER

The Scheduler feature can be used to enter and display reminder messages (e.g., Change oil, Altimeter-Transponder, or Hot Section Inspection or Phase 1 Maintenance Check) in the Messages Window on the PFD. Message timers set to periodic alerting automatically reset to the original timer value once the message is displayed. When power is cycled, all messages are retained until deleted, and message timer countdown is resumed.

Entering a Scheduler Message

1) Select the AUX - Utility Page.

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

3) Turn the large **FMS** Knob to highlight the first empty scheduler message naming field.

4) Use the **FMS** Knob to enter the message text to be displayed in the Messages Window and press the **ENT** Key.

5) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the field next to Type.

6) Turn the small **FMS** Knob to select the message type:

  • Event—Message issued at the specified date/time

  • One-time—Message issued when the message timer reaches zero (default setting)

  • Periodic—Message issued each time the message timer reaches zero

7) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.

8) For periodic and one-time message, use the **FMS** Knob to enter the timer value (HH:MM:SS) from which to countdown and press the **ENT** Key.

9) For event-based messages:

  a) Use the **FMS** Knob to enter the desired date (DD-MM-YY) and press the **ENT** Key.

  b) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.

  c) Use the **FMS** Knob to enter the desired time (HH:MM) and press the **ENT** Key.

10) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to enter the next message.

Deleting a Scheduler Message

1) Select the AUX - Utility Page.

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

3) Turn the large **FMS** Knob to highlight the name field of the scheduler message to be deleted.

4) Press the **CLR** Key to clear the message text. If the **CLR** Key is pressed again, the message is restored.

5) Press the **ENT** Key while the message line is cleared to clear the message time.

When a scheduler message is waiting, the **MSG** Softkey flashes. Pressing the **MSG** Softkey opens the Messages Window and acknowledges the scheduler message. Pressing the **MSG** Softkey again removes the Messages Window from the display, and the scheduler message is deleted from the message queue.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

ABNORMAL OPERATION

REVERSIONARY MODE

Should a system detected failure occur in either display, the G1000 automatically enters reversionary mode. In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

In the event of display failure, the display modes are as follows:

- **PFD failure –** Press the **DISPLAY BACKUP** Button on the audio panel to put the MFD in reversionary mode.
- **MFD failure –** PFD enters reversionary mode. Reversionary display mode can be manually activated by pressing the **DISPLAY BACKUP** Button on the audio panel.

> *NOTE: The PA-28-181 Archer Pilot's Operating Handbook (POH) always takes precedence over the information found in this section.*

ABNORMAL COM OPERATION

When a COM tuning failure is detected by the system, the emergency frequency (121.500 MHz) is automatically loaded into the active frequency field of the COM radio for which the tuning failure was detected. In the event of a failure of both PFD and MFD, the emergency frequency (121.500 MHz) automatically becomes the active frequency on both COM radios.

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

If GPS position is lost, or becomes invalid, selected hazards being displayed on the Navigation Map Page are removed until GPS position is again established.

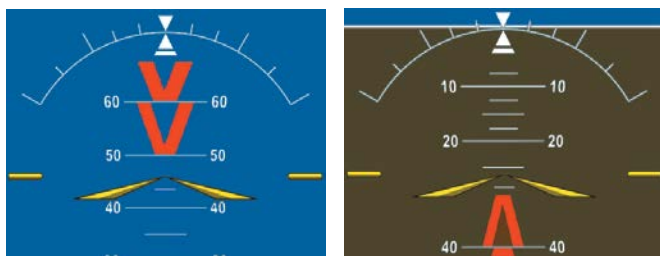**Loss of Hazard Functions with Loss of GPS Position**

UNUSUAL ATTITUDES

The PFD 'declutters' when the aircraft enters an unusual attitude. Only the primary functions are displayed in these situations.

The following information is removed from the PFD (and corresponding softkeys are disabled) when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Flight Director Command Bars
- Inset Map
- Temperatures
- DME Information Window
- Wind Data
- Selected Heading Box
- Selected Course Box
- Transponder Status Box

- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
  – Timer/References
  – Nearest Airports
  – Flight Plan
  – Messages
  – Procedures
- Barometric Minimum Descent Altitude Box

- Glideslope, Glidepath, and Vertical Deviation Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude

Extreme Pitch Indication

DEAD RECKONING

While in Enroute or Oceanic phase of flight, if the G1000 detects an invalid GPS solution or is unable to calculate a GPS position, the system automatically reverts to Dead Reckoning (DR) Mode. In DR Mode, the G1000 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.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

> ✓ **NOTE:** *Dead Reckoning Mode only functions in Enroute (ENR) or Oceanic (OCN) phase of flight. In all other phases, an invalid GPS solution produces a "NO GPS POSITION" annunciation on the map and the G1000 stops navigating in GPS Mode.*

DR Mode is indicated on the G1000 by the appearance of the letters 'DR' superimposed in yellow over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is prominently displayed, also in yellow, on the HSI slightly above and to the right of the aircraft symbol on the CDI as shown in the following figure. The CDI deviation bar is displayed in yellow, but will be removed from the display after 20 minutes. Lastly, but at the same time, a 'GPS NAV LOST' alert message appears on the PFD.

Normal navigation using GPS/SBAS source data resumes automatically once a valid GPS solution is restored.

It is important to note that estimated navigation data supplied by the G1000 in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation. If, while in DR Mode, airspeed and/or heading data is also lost or not available, the DR function may not be capable of estimating your position and, consequently, the system may display a path that is different than the actual movement of the aircraft. Estimated position information displayed by the G1000 through DR while there is no heading and/or airspeed data available should not be used for navigation.

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

CDI 'DR' Indication on PFD

Symbolic Aircraft (Map pages and Inset Map)

Dead Reckoning Indications

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

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

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

Also, while the G1000 is in DR Mode, the autopilot will couple to GPS for up to 20 minutes. Terrain Proximity, TERRAIN-SVS, and TAWS-B are also disabled. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

ANNUNCIATIONS & ALERTS

G1000 SYSTEM ANNUNCIATIONS

When an LRU or an LRU function fails, a large red "X" is typically displayed on windows associated with the failed data. Refer to the PA-28-181 Archer Pilot's Operating Handbook (POH) for additional information regarding pilot responses to these annunciations

System Annunciation	Comment
AHRS ALIGN: Keep Wings Level	Attitude and Heading Reference System is aligning.
ATTITUDE FAIL	Display system is not receiving attitude information from the AHRS.
GPS ENR LOI	GPS information is either not present or is invalid for navigation use. Note that AHRS utilizes GPS inputs during normal operation. AHRS operation may be degraded if GPS signals are not present (see POH).
HDG	Display system is not receiving valid heading input from AHRS.
XPDR FAIL	Display system is not receiving valid transponder information.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GARMIN

G1000 SYSTEM ANNUNCIATIONS (CONT.)

System Annunciation	Comment
	Display system is not receiving airspeed input from air data computer.
	Display system is not receiving altitude input from the air data computer.
	Display system is not receiving vertical speed input from the air data computer.
Other Various Red X Indications	A red 'X' through any other display field (such as engine instrumentation display) indicates that the field is not receiving valid data.

CAS ANNUNCIATIONS

The following annunciations are configured specifically for the PA-28-181 Archer aircraft. See the PA-28-181 Archer POH for information regarding pilot responses.

Warning Annunciations

Annunciation Window Text	Description	Audio Alert
ALTR FAIL	Alternator failure	Triple Chime
L FUEL QTY	Left fuel quantity in warning range	
R FUEL QTY	Right fuel quantity in warning range	
START ENGD	Starter motor energized when engine is running	

Caution Annunciations

Annunciation Window Text	Description	Audio Alert
AC DOOR OPEN✦	Air conditioning condenser door is open during an in-flight engine failure condition.	Double Chime
L FUEL QTY	Left fuel quantity in caution range	
R FUEL QTY	Right fuel quantity in caution range	
PITOT HEAT FAIL	Pitot heat failure	
PITOT HEAT OFF	Pitot heat selected OFF	

✦ Optional

Advisory Annunciations

Annunciation Window Text	Description	Audio Alert
AC DOOR OPEN✦	Air conditioning condenser door is open	Single Chime
AV FAN FAIL	Avionics cooling fan is inoperative	
EMERG BATT ON	Emergency power in use	
FUEL IMBAL	Fuel imbalance (left vs. right tank quantity)	
MAINT MODE ON	Maintenance Mode ON	
MFD FAN FAIL	MFD display fan is inoperative	
PFD FAN FAIL	PFD display fan is inoperative	

✦ Optional

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

TERRAIN-SVS ALERTS

Alert Type	PFD/MFD TERRAIN-SVS Page Annunciation	MFD Pop-Up Alert	Aural Message
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING – TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING – OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION – TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION – OBSTACLE	"Caution; Obstacle, Obstacle"

TERRAIN-SVS SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD Alert Annunciation	TERRAIN-SVS Page Annunciation	Aural Message
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain Alerting is disabled	TER INH	None	None
MFD Terrain or Obstacle database unavailable or invalid. Terrain-SVS operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None

Alert Type	PFD/MFD Alert Annunciation	TERRAIN-SVS Page Annunciation	Aural Message
Terrain System Test Fail	TER FAIL	**TERRAIN FAIL**	"Terrain System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TER FAIL	**TERRAIN FAIL**	"Terrain System Failure"
No GPS position	TER N/A	**NO GPS POSITION**	"Terrain System Not Available"
Excessively degraded GPS signal, Out of database coverage area	TER N/A	None	"Terrain System Not Available"
Sufficient GPS signal received after loss	None	None	"Terrain System Available"

TAWS-B ALERTS

Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	"Pull Up"
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN – PULL-UP or TERRAIN AHEAD – PULL-UP	"Terrain, Terrain; Pull Up, Pull Up" or "Terrain Ahead, Pull Up; Terrain Ahead, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN AHEAD – PULL-UP or TERRAIN – PULL-UP	Terrain Ahead, Pull Up; Terrain Ahead, Pull Up" or "Terrain, Terrain; Pull Up, Pull Up"

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE – PULL-UP or OBSTACLE AHEAD – PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up" or "Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD – PULL-UP or OBSTACLE – PULL-UP	"Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up" or "Obstacle, Obstacle; Pull Up, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION – TERRAIN or TERRAIN AHEAD	"Caution, Terrain; Caution, Terrain" or "Terrain Ahead; Terrain Ahead"
Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN AHEAD or CAUTION – TERRAIN	"Terrain Ahead; Terrain Ahead" or "Caution, Terrain; Caution, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION – OBSTACLE or OBSTACLE AHEAD	"Caution, Obstacle; Caution, Obstacle" or "Obstacle Ahead; Obstacle Ahead"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD or CAUTION – OBSTACLE	"Obstacle Ahead; Obstacle Ahead" or "Caution, Obstacle; Caution, Obstacle"
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW – TERRAIN	"Too Low, Terrain"
Altitude Callout "500"	None	None	"Five-Hundred"
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Negative Climb Rate Caution (NCR)	TERRAIN	DON'T SINK or TOO LOW – TERRAIN	"Don't Sink" or "Too Low, Terrain"

TAWS-B SYSTEM STATUS ANNUNCIATIONS

Alert Type	PFD/MFD Alert Annunciation	TAWS-B Page Annunciation	Aural Message
System Test in Progress	TAWS TEST	**TAWS TEST**	None
System Test Pass	None	None	"TAWS System Test OK"
TAWS Alerting is disabled	TAWS INH	None	None
MFD Terrain or Obstacle database unavailable or invalid. TAWS operating with PFD Terrain or Obstacle databases	None	**TERRAIN DATABASE FAILURE**	None
TAWS-B System Test Fail	TAWS FAIL	**TAWS FAIL**	"TAWS System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TAWS FAIL	**TAWS FAIL**	"TAWS System Failure"
No GPS position	TAWS N/A	**NO GPS POSITION**	"TAWS Not Available"
Excessively degraded GPS signal, Out of database coverage area	TAWS N/A	None	"TAWS Not Available"
Sufficient GPS signal received after loss	None	None	"TAWS Available"

GDL 69/69A DATA LINK RECEIVER MESSAGES

Message	Message Location	Description
CHECK ANTENNA	XM Information Page (MFD)	Data Link Receiver antenna error; service required
UPDATING	XM Information Page (MFD))	Data Link Receiver updating encryption code
NO SIGNAL	XM Information Page Weather Datalink Page (MFD)	Loss of signal; signal strength too low for receiver

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Message	Message Location	Description
LOADING	XM Radio Page (MFD)	Acquiring channel audio or information
OFF AIR	XM Radio Page (MFD)	Channel not in service
--------	XM Radio Page (MFD)	Missing channel information
WEATHER DATA LINK FAILED	Weather Datalink Page (MFD)	No communication from Data Link Receiver within last 5 minutes
ACTIVATION REQUIRED	XM Information Page (MFD)	SiriusXM subscription is not activated
DETECTING ACTIVATION	Weather Datalink Page (MFD)	SiriusXM subscription is activating.
WAITING FOR DATA...	Weather Datalink Page (MFD)	SiriusXM subscription confirmed downloading weather data.

VOICE ALERTS

Message	Priority	Description
"Stall"	Warning	Imminent stall is sensed by stall vane
"Airspeed"		Airspeed exceeds VNE
"Minimums, minimums"		Aircraft has descended below the preset barometric minimum descent altitude
"Traffic"	Caution	TIS Traffic Alert
"Traffic, (distance, bearing, altitude)"		TAS Traffic Alert
"TAS System Test Passed"	Advisory	TAS system initiated test passed
"TAS System Test Failed"		TAS system initiated test failed
"Vertical track"		Aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"Traffic Not Available		Aircraft is outside TIS coverage area
"Timer Expired"		Countdown timer on the PFD has reached zero

MFD & PFD MESSAGE ADVISORIES

Message	Comments
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.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD and/or MFD self-test has detected a problem. The system should be serviced.
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	
MANIFEST – PFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – MFD1 software mismatch, communication halted.	
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFD have different software versions installed. The system should be serviced.
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD and/or MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD and/or MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 KEYSTK – MFD [key name] Key is stuck.	

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

MFD & PFD MESSAGE ADVISORIES (CONT.)

Message	Comments
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD and/or PFD detected a failure in the navigation database. Attempt to reload the aviation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 navigation database error exists.	

DATABASE MESSAGE ADVISORIES

Message	Comments
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD and/or PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 basemap database error exists.	
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD and/or PFD detected a failure in the terrain database. Ensure that the terrain card is properly inserted in display. Replace terrain card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 terrain database missing.	
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD and/or PFD detected a failure in the obstacle database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database error exists.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFD and MFD have different navigation database versions or regions installed. Crossfill is off. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Standby Navigation database mismatch.	The PFD and MFD have different standby navigation database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFD and MFD have different terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFD and MFD have different obstacle database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Airport Terrain database mismatch.	The PFD and MFD have different airport terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
TERRAIN DSP – [PFD1 or MFD1] Terrain awareness display unavailable.	One of the terrain, airport terrain, or obstacle databases required for TAWS in the specified PFD or MFD is missing or invalid.

GMA 1347 MESSAGE ADVISORIES

Message	Comments
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The G1000 system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The G1000 system should be serviced.
MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The G1000 system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The G1000 system should be serviced when possible.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GIA 63W MESSAGE ADVISORIES

Message	Comments
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 and/or GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 and/or GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	
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.
GIA2 COOLING – GIA2 temperature too low.	
GIA1 COOLING – GIA1 over temperature.	The GIA1 and/or GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 over temperature.	
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 and/or GIA2 self-test has detected a problem in the unit. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	
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.	
MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 and/or GIA 2 has incorrect software installed. The system should be serviced.
MANIFEST – GIA2 software mismatch, communication halted.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST– COM1 software mismatch, communication halted.	COM1 and/or COM2 software mismatch. The G1000 system should be serviced.
MANIFEST– COM2 software mismatch, communication halted.	
MANIFEST– NAV1 software mismatch, communication halted.	NAV1 and/or NAV2 software mismatch. The G1000 system should be serviced.
MANIFEST– NAV2 software mismatch, communication halted.	
COM1 CONFIG – COM1 config error. Config service req'd.	COM1 and/or COM2 configuration settings do not match backup configuration memory. The G1000 system should be serviced.
COM2 CONFIG– COM2 config error. Config service req'd.	
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1 and/or COM2. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1 and/or COM2. COM1 and/or COM2 may still be usable. The system should be serviced when possible.
COM2 SERVICE – COM2 needs service. Return unit for repair.	
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 and/or 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 PTT – COM2 push-to-talk key is stuck.	
COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 and/or 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 RMT XFR – COM2 remote transfer key is stuck.	

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV only minimums.
TRUE APR – True north approach. Change HDG reference to TRUE.	Displayed after passing the first waypoint of a true north approach when the nav angle is set to 'AUTO'.

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
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.	
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 and/or NAV2 receiver. The receiver may still be available. The system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 and/or 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 RMT XFR – NAV2 remote transfer key is stuck.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The system should be serviced.
G/S2 FAIL – G/S2 is inoperative.	
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The receiver may still be available. The system should be serviced when possible.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	

GEA 71 MESSAGE ADVISORIES

Message	Comments
GEA1 CONFIG – GEA1 config error. Config service req'd.	The GEA1 configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA 71 has incorrect software installed. The system should be serviced.

GTX 33/33 W/ES MESSAGE ADVISORIES

Message	Comments
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.
MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR1 ADS-B FAIL – XPDR1 unable to transmit ADS-B messages.	ADS-B is inoperative. Other transponder functions may be available. Service when possible.

GRS 77 MESSAGE ADVISORIES

Message	Comments
AHRS1 TAS – AHRS1 not receiving valid 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.
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 AFMS limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.

GMU 44 MESSAGE ADVISORIES

Message	Comments
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

GDL 69A MESSAGE ADVISORIES

Message	Comments
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69 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 69. The receiver is unavailable. The system should be serviced
MANIFEST – GDL software mismatch, communication halted.	The GDL 69 has incorrect software installed. The system should be serviced.

GDC 74A MESSAGE ADVISORIES

Message	Comments
MANIFEST – GDC1 software mismatch, communication halted.	The GDC 74A has incorrect software installed. The system should be serviced.

GTS 800 MESSAGE ADVISORIES

Message	Comments
GTS CONFIG – GTS config error. Config service req'd.	The GTS and GDU have incompatible configurations. This alert is also set when the GTS has an invalid mode S address configured or the mode S address does not match both XPDR mode S addresses.
MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.

MISCELLANEOUS MESSAGE ADVISORIES

Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-up, the system detects that a stored flight plan waypoint is locked. This occurs when an aviation database update eliminates an obsolete waypoint. The flight plan cannot find the specified waypoint and flags this message. This can also occur with user waypoints in 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 aviation database update. Verify that stored flight plans contain correct waypoint locations.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.
DB CHANGE – Database changed. 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 aviation database update. Verify that the user-modified procedures in stored flight plans are correct and up to date.
DB CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the aviation database. This alert is issued only after an aviation database update. Verify use of airways in stored flight plans and reload airways as needed.
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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
APR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
VNV – Unavailable. Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
VNV – Unavailable. Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
VNV – Unavailable. Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
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.
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
FAILED PATH – A data path has failed.	A data path connected to the GDU, GDL 69A, or the GIA 63/W has failed.
[PFD1, or MFD1] CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD or MFD. The SD card needs to be reinserted.
[PFD1, or MFD1] CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD or MFD. The SD card needs to be reinserted.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

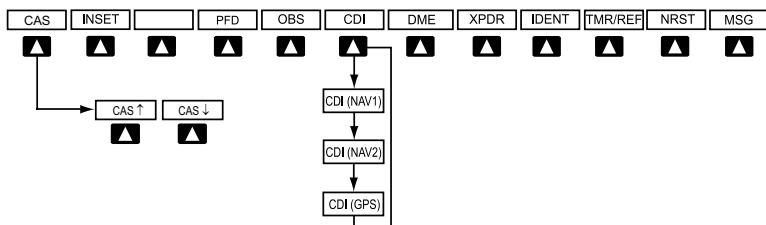| Message	Comments
[PFD1, or MFD1] CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified PFD or MFD contains invalid data.
[PFD1, or MFD1] CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified PFD or MFD contains invalid data.
CHECK CRS – Database 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.
TRN AUD FAIL – Trn Awareness audio source unavailable.	The audio source for terrain awareness is offline. Check GIA1 or GIA 2.
TERRAIN AUD CFG – Trn Awareness audio config error. Service req'd.	Terrain audio alerts are not configured properly. The system should be serviced

FLIGHT PLAN IMPORT/EXPORT MESSAGES

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

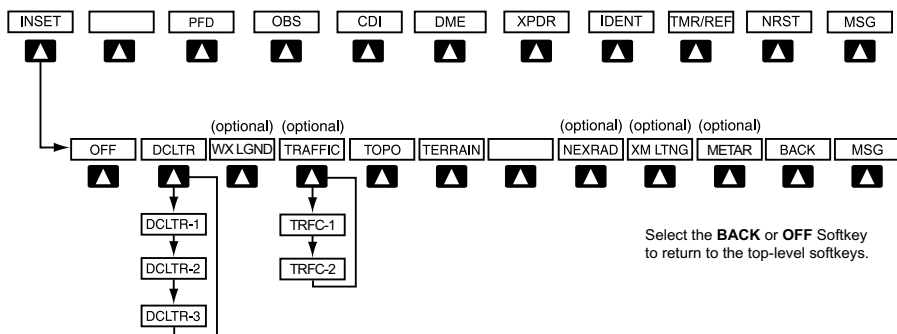| Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'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.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

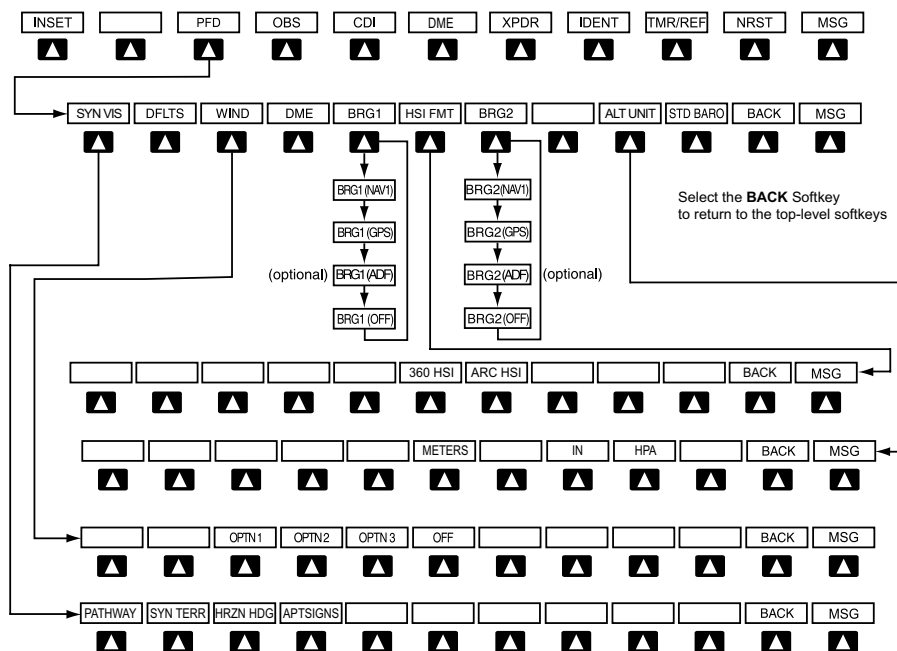| Flight Plan Import/Export Results	Description
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints that the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

APPENDIX

PFD SOFTKEY MAP

Top Level PFD Softkeys

Select the **BACK** or **OFF** Softkey to return to the top-level softkeys.

Inset Map Softkeys

Level 1	Level 2	Description
CAS		Displayed only when a sufficient number of items are displayed in the Annunciation Window to warrant scrolling
	CAS ↑	When available, scrolls up through the alerts when pressed
	CAS ↓	When available, scrolls down through the alerts when pressed
INSET		Displays Inset Map in PFD lower left corner
	OFF	Removes Inset Map

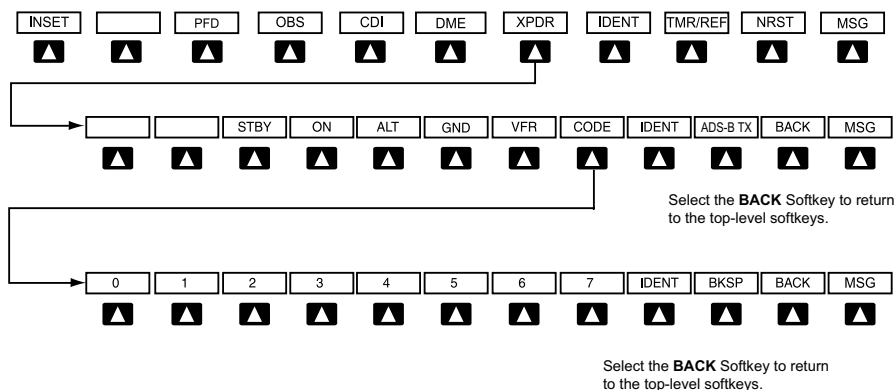| Level 1	Level 2	Description
	DCLTR (3)	Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan
	WX LGND	Displays icon and age on the Inset Map for the selected weather products (optional)
	TRAFFIC	Cycles through traffic display options: TRFC-1: Traffic displayed on inset map TRFC-2: Traffic Map Page is displayed in the inset map window. (optional feature)
	TOPO	Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map
	TERRAIN	Displays terrain information on Inset Map
	NEXRAD	Displays NEXRAD weather and coverage information on Inset Map (optional feature)
	XM LTNG	Displays SiriusXM lightning information on Inset Map (optional feature)
	METAR	Displays METAR flags on airport symbols shown on the Inset Map (optional)

PFD Configuration Softkeys

Select the **BACK** Softkey to return to the top-level softkeys

(optional)

Level 1	Level 2	Level 3	Description
PFD			Displays second-level softkeys for additional PFD configurations
	SYN VIS		Displays the softkeys for enabling or disabling Synthetic Vision features
		PATHWAY	Displays rectangular boxes representing the horizontal and vertical flight path of the active flight plan
		SYN TERR	Enables synthetic terrain depiction
		HRZN HDG	Displays compass heading along the Zero-Pitch line

Level 1	Level 2	Level 3	Description
		APTSIGNS	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.
	DFLTS		Resets PFD to default settings, including changing units to standard
	WIND		Displays softkeys to select wind data parameters
		OPTN 1	Wind direction arrows with headwind and crosswind components
		OPTN 2	Wind direction arrow and speed
		OPTN 3	Wind direction arrow with headwind/tailwind and crosswind components
		OFF	Information not displayed
	DME		Press to display the DME information window
	BRG1		Cycles the Bearing 1 Information Window through NAV1 or GPS/ waypoint identifier and GPS-derived distance information.
	HSI FRMT		Displays the HSI formatting softkeys
		360 HSI	Displays the HSI in a 360 degree format
		ARC HSI	Displays the HSI in an arc format
	BRG2		Cycles the Bearing 2 Information Window through NAV2 or GPS/ waypoint identifier and GPS-derived distance information.
	ALT UNIT		Displays softkeys for setting the altimeter and BARO settings to metric units

Level 1	Level 2	Level 3	Description
		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 hectopacals
	STD BARO		Sets barometric pressure to 29.92 in Hg (1013 hPa)

INSET PFD OBS CDI DME XPDR IDENT TMR/REF NRST MSG

STBY ON ALT GND VFR CODE IDENT ADS-B TX BACK MSG

Select the **BACK** Softkey to return to the top-level softkeys.

0 1 2 3 4 5 6 7 IDENT BKSP BACK MSG

Select the **BACK** Softkey to return to the top-level softkeys.

Transponder Softkeys

Level 1	Level 2	Level 3	Description
XPDR			Displays transponder mode selection softkeys
	STBY		Selects Standby Mode (transponder does not reply to any interrogations)
	ON		Selects Mode A (transponder replies to interrogations)
	ALT		Selects Mode C – Altitude Reporting Mode (transponder replies to identification and altitude interrogations)
	GND		Manually selects Ground Mode, the transponder does not allow Mode A and Mode C replies, but it does permit acquisition squitter and replies to discretely addressed Mode S interrogations.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Level 1	Level 2	Level 3	Description
	VFR		Automatically enters the VFR code (1200 in the U.S.A. only)
	CODE		Displays transponder code selection softkeys 0-7
		0 — 7	Use numbers to enter code
		BKSP	Removes numbers entered, one at a time
	ADS-B TX		Activates/deactivates transmission of the aircraft's three-dimensional position and aircraft heading for reception by ADS-B systems.
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
NRST			Displays Nearest Airports Window
MSG			Displays Message Window

MFD SOFTKEY MAP

MFD Softkeys

Level 1	Level 2	Level 3	Level 4	Description
ENGINE				Displays the default engine softkey level. Press again to return to the previous softkey level
	TABS			Resets fuel on board display to quantities equating to the filler neck tabs
	DEC FUEL			Press to decrease fuel quantity in 1-gallon increments
	INC FUEL			Press to increase fuel quantity in 1-gallon increments
	RST FUEL			Resets remaining fuel to zero
MAP				Enables second-level Navigation Map softkeys
	TRAFFIC			Displays traffic information on Navigation Map (optional)
	PROFILE			Displays/removes Profile View on Navigation Map Page
	TOPO			Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Navigation Map
	TERRAIN			Displays terrain information on Navigation Map

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Level 1	Level 2	Level 3	Level 4	Description
	AIRWAYS			Displays airways on the map; cycles through the following: AIRWAYS: No airways are displayed AIRWY ON: All airways are displayed AIRWY LO: Only low altitude airways are displayed AIRWY HI: Only high altitude airways are displayed
	NEXRAD			Displays NEXRAD weather and coverage information on the Navigation Map (optional)
	XM LTNG			Displays XM lightning information on Navigation Map (optional feature). XM lightning and Stormscope lightning are mutually exclusive when displaying on the Navigation Map.
	METAR			Displays METAR flags on airport symbols shown on the Navigation Map (optional)
	LEGEND			Displays the legend for the selected weather products. Available only when NEXRAD, XM LTNG, PROFILE and/or METAR softkeys are selected.
	BACK			Returns to top-level soft-keys

Level 1	Level 2	Level 3	Level 4	Description
DCLTR (3)				Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan
SHW CHRT				When available, displays optional airport and terminal procedure charts

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-SYSTEM STATUS Page.*

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.

If an error occurs during synchronization, an error message will be displayed, followed by the affected display in the Sync Status section of the Database Window. If synchronization completes on one display, but an error occurs on another, the error message will be displayed with the affected displays listed after it. When an error message is displayed, the problem must be corrected before synchronization can be completed. A power cycle is required to restart synchronization when 'Card Full' or 'Err' is shown.

Error Message	Description
Canceled	Database synchronization has been canceled by removing the bottom SD card in display being updated
Card Full	SD card does not contain sufficient memory
Err	Displayed for all other errors that may cause the synchronization process to be halted
Timeout	System timed-out prior to the database transfer completing

Updating Basemap, SafeTaxi, Airport Terrain, Obstacle, and Airport Directory Databases

These databases may be copied to one Supplemental Data Card, then automatically synchronized to other card in the system:

1) With system power OFF, remove the MFD database card from the bottom card slot of the MFD.

2) Update the basemap, SafeTaxi, airport terrain, obstacle and/or airport directory databases on the MFD card.

3) Insert the MFD database card into the bottom card slot of the MFD.

4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. When updating the terrain and FliteCharts databases, a 'Verifying' message may be seen. If this message is present, wait for the system to finish loading before proceeding to step 5.

5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.

6) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

7) Turn the small **FMS** Knob to select the System Status Page.

8) Monitor the Sync Status in the Database Window. Wait for all databases to complete synching, indicated by 'Complete' being displayed.

9) Remove and reapply power to the system.

10) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

11) Turn the small **FMS** Knob to select the System Status Page.

12) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB** or **PFD1 DB**). Verify the correct database cycle information is shown for each database for each display.

Updating Terrain, FliteCharts, and ChartView Databases

These databases must be copied to both Supplemental Data Cards:

1) With system power OFF, remove the Supplemental Data Card from the bottom card slot of the MFD and PFD.

2) Update the terrain and/or FliteCharts or ChartView databases on each of the Supplemental Data Cards.

3) Insert the updated Supplemental Data Cards into the bottom card slot of the MFD and PFD.

4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. A 'Verifying' message may be seen. If this message is present, wait for the system to finish loading before proceeding to step 5.

5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.

6) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

7) Turn the small **FMS** Knob to select the System Status Page.

8) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB** or **PFD1 DB**). Verify the correct database cycle information is shown for each database for each display.

9) Remove power from the system.

Loading the Jeppesen Navigation Database as the Active Navigation Database

The Jeppesen Navigation Database that is loaded to internal memory as the active database will be used by the system.

> **NOTE:** Loading the Jeppesen Navigation Database as the active database prior to its effective date will result in the expiration date on the power-up screen and the effective date on the AUX-System Status Page being displayed in yellow.

> **NOTE:** After the navigation database is loaded or copied, the top SD card may be removed.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display (PFD or MFD) to be updated (label of SD card facing left).

2) Turn the system ON. A prompt is displayed in the upper left corner of the display:

```
DO YOU WANT TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD?
THE STANDBY DATABASE WILL BE ACTIVATED UPON THE FIRST ON-GROUND POWER CYCLE ON OR
AFTER 00:00 SYSTEM TIME ON THE EFFECTIVE DATE.
            FROM            TO
REGION:     WORLDWIDE       WORLDWIDE
CYCLE:      1204            1205
EFFECTIVE:  09-APR-2012     07-MAY-2012
EXPIRES:    07-MAY-2012     04-JUN-2012

NO WILL BE ASSUMED IN 21 SECONDS.
```

3) Press the **NO** Softkey to proceed to loading the active database.

4) A prompt similar to the following is displayed. Press the **YES** Softkey to update the active navigation database.

```
DO YOU WANT TO UPDATE THE ACTIVE NAVIGATION DATABASE?
SELECTING YES WILL OVERWRITE THE ACTIVE NAVIGATION DATABASE.
            FROM            TO
REGION:     WORLDWIDE       WORLDWIDE
CYCLE:      1204            1205
EFFECTIVE:  09-APR-2012     07-MAY-2012
EXPIRES:    07-MAY-2012     04-JUN-2012

NO WILL BE ASSUMED IN 8 SECONDS.
```

5) After the update completes, the display starts in normal mode.

6) Turn the system OFF and remove the SD card from the top card slot.

7) Repeat steps 1 through 6 for the other display (PFD or MFD).

8) Apply power to the system and press the **ENT** Key to acknowledge the startup screen.

9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

10) Turn the small **FMS** Knob to select the System Status Page.

11) Press the Display Database Selection Softkey to show active navigation database information for each display (**MFD1 DB**, **PFD1 DB**). Verify the correct active navigation database cycle information is shown for each display.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Loading the Jeppesen Navigation Database as the Standby Navigation Database

The purpose of the Standby Navigation Database is to allow the loading of the next cycle of the Jeppesen Navigation Database to the bottom SD card, prior to its effective date. (The Jeppesen Navigation Database is available from Jeppesen seven days prior to its effective date.)

> **NOTE:** _After the navigation database is loaded or copied, the top SD card may be removed._

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the MFD.

2) Verify that an SD card is inserted in the bottom slot of the PFD and the MFD.

3) Turn the system ON. A prompt is displayed.

```
DO YOU WANT TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD?
THE STANDBY DATABASE WILL BE ACTIVATED UPON THE FIRST ON-GROUND POWER CYCLE ON OR
AFTER 00:00 SYSTEM TIME ON THE EFFECTIVE DATE.
            FROM           TO
REGION:     WORLDWIDE      WORLDWIDE
CYCLE:      1204           1205
EFFECTIVE:  09-APR-2012    07-MAY-2012
EXPIRES:    07-MAY-2012    04-JUN-2012

NO WILL BE ASSUMED IN 21 SECONDS.
```

4) Press the **YES** Softkey. The navigation database is copied to the SD card in the bottom card slot of the MFD.

5) After the navigation database files are copied to the bottom SD card, press any key to verify, as instructed.

6) After database verification is complete, press any key to continue as instructed on the display.

7) Press the **NO** Softkey. The display now starts in normal mode. Since the database effective date is not yet valid, it should not be loaded as the active database. The display now starts in normal mode. Do not remove power while the display is starting.

8) Press the **ENT** Key to acknowledge the startup screen.

9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

10) Turn the small **FMS** Knob to select the System Status Page.

11) The new database is copied to the SD card in the bottom card slot of the PFD. Progress can be monitored in the SYNC STATUS field. When copying is finished, 'Complete' is displayed.

> **NOTE:** *During the synchronization process, version differences between standby navigation databases will exist. This will result in the system displaying a 'DB Mismatch' alert for the standby navigation databases. This alert will remain until the next power cycle.*

12) Turn system power OFF.

13) Remove the SD card from the top card slot of the MFD.

14) Turn system power ON.

15) Press the **ENT** Key to acknowledge the startup screen.

16) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

17) Turn the small **FMS** Knob to select the System Status Page.

18) Press the Display Database Selection Softkey to show standby navigation database information for each display (**MFD1 DB**, **PFD1 DB**). Verify the correct standby navigation database cycle information is shown for each display.

Magnetic Field Variation Database Update

At startup, the system compares this version of the MV DB with that presently being used by the AHRS (GRS). If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page, as shown in the following figure.

```
GRS MV DB Update Available:
Update from 2005 to 2010?

     OK      or     CANCEL
```

GRS Magnetic Field Variation Database Update Prompt

Loading the magnetic field variation database update:

With 'OK' highlighted, as shown in the previous figure, press the **ENT** Key on the MFD. A progress monitor is displayed as shown in the following figure.

Uploading Database to GRS

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

GPS Nav

Flight
Planning

Procedures

Hazard
Avoidance

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

GARMIN.

Flight Instruments

EIS

Nav/Com/ XPDR/Audio

GPS Nav

Flight Planning

Procedures

Hazard Avoidance

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

GARMIN.