

GARMIN

Embraer Prodigy™ Flight Deck 100

Cockpit Reference Guide



Embraer Phenom 100

System Software 0743.06 or later

FLIGHT INSTRUMENTS

ENGINE & AIRFRAME SYSTEMS

NAV/COM/TRANSPONDER/AUDIO PANEL

AUTOMATIC FLIGHT CONTROL SYSTEM

GPS NAVIGATION

FLIGHT PLANNING

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HAZARD AVOIDANCE

ADDITIONAL FEATURES

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ANNUNCIATIONS & ALERTS

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This manual reflects the operation of System Software version 0743.06 or later for the Embraer Phenom 100. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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WARNING: Navigation and terrain separation must NOT be predicated upon the use of the terrain avoidance feature. The terrain avoidance feature is NOT intended to be used as a primary reference for terrain avoidance and does not relieve the pilot from the responsibility of being aware of surroundings during flight. The terrain avoidance feature is only to be used as an aid for terrain avoidance. Terrain data is obtained from third party sources. Garmin is not able to independently verify the accuracy of the terrain data.



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



WARNING: The altitude calculated by the GPS receivers is geometric height above Mean Sea Level and could vary significantly from the altitude displayed by pressure altimeters, such as the GDC 74B Air Data Computer, or other altimeters in aircraft. GPS altitude should never be used for vertical navigation. Always use pressure altitude displayed by the PFD or other pressure altimeters in aircraft.



WARNING: Do not use outdated database information.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. Pilots using any outdated database do so entirely at their own risk.



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 as an aid to enhance situational awareness.



WARNING: Traffic information shown on the multi-function display is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.



WARNING: XM Weather should not be used for hazardous weather penetration. Weather information provided by the GDL 69A is approved only for weather avoidance, not penetration.



WARNING: NEXRAD weather data is to be used for long-range planning purposes only. Due to inherent delays in data transmission and the relative age of the data, NEXRAD weather data should not be used for short-range weather avoidance.



WARNING: The Prodigy™ Integrated Flight Deck, as installed in the Embraer Phenom 100 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. Although unlikely, it may be possible for erroneous operation to occur without a fault indication shown by the system. It is thus the responsibility of the pilot to detect such an occurrence by means of cross-checking with all redundant or correlated information available in the cockpit.



WARNING: 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 Prodigy™ Pilot's Guide documentation and the Embraer Phenom 100 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: The illustrations in this guide are only examples. Never use the system to attempt to penetrate a thunderstorm. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Aeronautical Information Manual (AIM) recommend avoiding "by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."



WARNING: Lamp(s) inside this product may 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 anomalies 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 70° North latitude and south of 70° South latitude. An area north of 65° North latitude between longitude 75° West and 120° West. An area south of 55° South latitude between longitude 120° East and 165° East.



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: 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 aviation 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: The data contained in the terrain and obstacle databases comes from government agencies. Garmin accurately processes and cross-validates the data, but cannot guarantee the accuracy and completeness of the data.



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: 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 Prodigy system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the complete system are found in the Prodigy Flight Deck 100 Pilot's Guide.

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190-00685-00		Initial release	

Revision	Date of Revision	Affected Pages	Description
A	July, 2008		Production release

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FLIGHT INSTRUMENTS

SELECTING THE ALTIMETER BAROMETRIC PRESSURE SETTING

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

SELECTING STANDARD BAROMETRIC PRESSURE

Press the **BARO** Knob.

CHANGE ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

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

Or:

Select the **HPA** Softkey to display the barometric pressure setting in hectopascals.

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

SYNCHRONIZING THE ALTIMETER BAROMETRIC PRESSURE SETTINGS

- 1) Select the AUX-SYSTEM SETUP Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight BARO in the SYNCHRONIZATION Window.
- 4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

SYNCHRONIZE CDI

- 1) Select the AUX-SYSTEM SETUP Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight CDI in SYNCHRONIZATION Window.
- 4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

CHANGE NAVIGATION SOURCES

- 1) Select 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) Select 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) Select the **CDI** Softkey a third time to return to GPS.

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH GPS

- 1) Select the **OBS** Softkey to select OBS Mode.
- 2) Turn the **CRS** Knob to select the desired course to/from the waypoint. Press the **CRS** Knob to slew the CDI Course Pointer to a course bearing directly to the waypoint.
- 3) Select the **OBS** Softkey again to disable OBS Mode.

GENERIC TIMER

- 1) Select 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) Select 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 VSPEED BUGS ON OR OFF BY CATEGORY

- 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 field to the right of 'MINIMUMS'.
- 3) Turn the small **FMS** Knob clockwise to BARO.
- 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

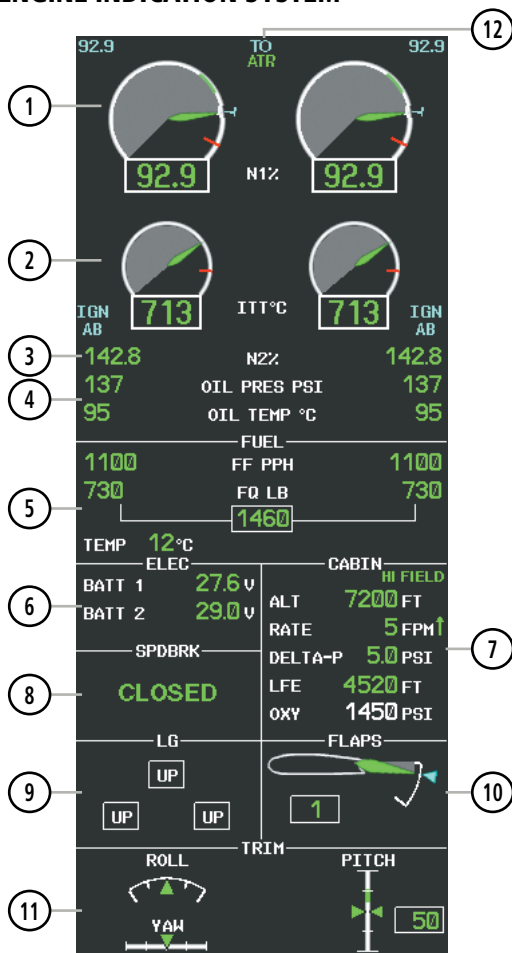
- 1) Select the **PFD** Softkey.
- 2) Select the **WIND** Softkey to display wind data below the Selected Heading.
- 3) Select one of the **OPTN** softkeys to change how wind data is displayed.
- 4) To remove the Wind Data Window, select the **OFF** Softkey.

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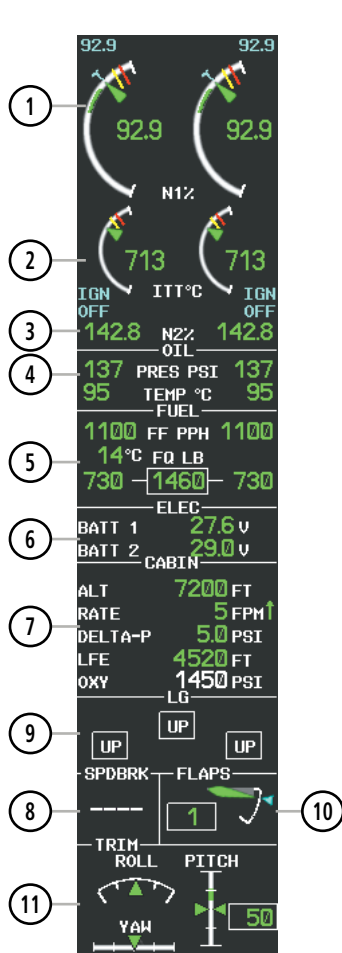
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ENGINE & AIRFRAME SYSTEMS

ENGINE INDICATION SYSTEM



EICAS Display (Normal Mode)



EIS Display (Reversionary Mode)

- 1 Engine Fan Rotation Speed
- 2 Interstage Turbine Temperature (ITT)
- 3 Engine High Pressure Compressor Rotation Speed
- 4 Oil Pressure and Temperature
- 5 Fuel Display
- 6 Battery Voltmeter

- 7 Pressurization Display
- 8 Speed Brake Status
- 9 Landing Gear Status
- 10 Flap Indicator
- 11 Trim Indicator
- 12 Thrust Rating Indication(top)/Automatic Thrust Reserve status (bottom)

Thrust Rating

Indication	Thrust Rating
CRZ	Cruise
CLB	Climb
CON	Continuous
TO	Takeoff
GA	Go Around

Thrust Rating Indications

Selecting a thrust rating:

- 1) Select the **SYSTEM** Softkey.
- 2) Select the **ENG SET** Softkey
- 3) To choose the continuous thrust rating, select the **CON** Softkey,
Or:
To choose the maximum climb thrust rating, select the **CLB** Softkey.
- 4) Select the **BACK** Softkey to return to the previous softkey level.

Automatic Thrust Reserve

Indication*	Description
ATR	ATR enabled in both engines
ATR	ATR armed in both engines, but inactive
TO - RSV	ATR activated in at least one engine

* When no indication is shown, ATR has not been enabled or armed in both engines.

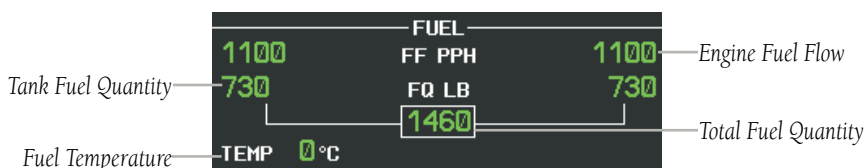
Automatic Thrust Reserve (ATR) Status

Disabling/enabling Automatic Thrust Reserve (ATR):

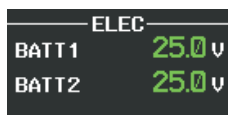
- 1) Select the **SYSTEM** Softkey.
- 2) Select the **ENG SET** Softkey to display the Takeoff Data Set Window.

- 3) To disable ATR, select the **ATR OFF** Softkey;
Or:
 To enable ATR, select the **ATR ON** Softkey.
- 4) If desired, change the OAT while the Takeoff Data Set Window is displayed.
- 5) To confirm the selected takeoff settings and close the Takeoff Data Set Window, select the **ACCEPT** Softkey,
Or:
 To cancel the operation, select the **BACK** Softkey.

Fuel and Electrical Indications

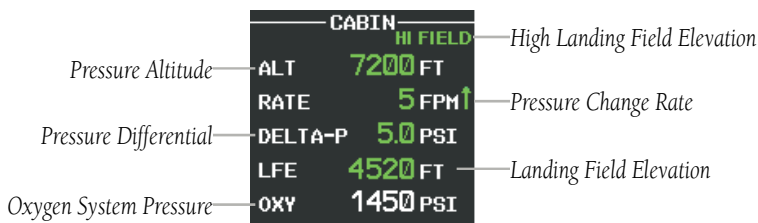


Fuel Display



Electrical Display

Cabin Pressurization



Cabin Pressure Display

Setting the displayed landing field elevation:

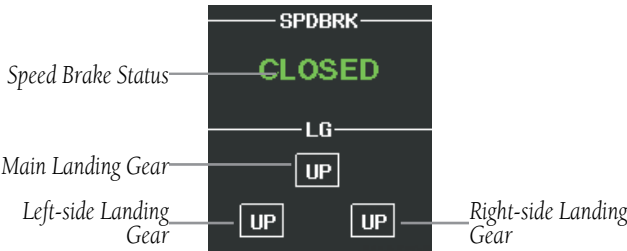
- 1) Select the **SYSTEM** Softkey.
- 2) Select the **LFE** Softkey.
- 3) Select the **FMS LFE** Softkey to set the LFE to the value for the destination airport in the current flight plan.

Or:

Use the **±500** and **±50 FT** softkeys to set the desired elevation.

- 4) To confirm the new LFE value, select the **ACCEPT** Softkey.

Speed Brakes and Landing Gear



Speed Brake and Landing Gear Indications

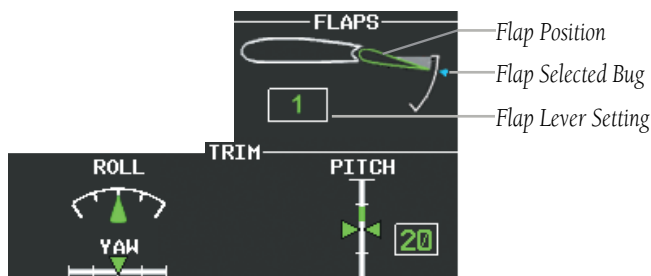
Indication	Description
CLOSED	Speed brakes retracted
OPEN	Speed brakes deployed
NOT AVAIL	Invalid information

Speed Brake Indications

Indication	Description
	Landing Gear Down
	Landing Gear Up
	Landing Gear Transitioning (Normal)
	Landing Gear Locked Down
	Landing Gear Locked Up
	Landing Gear Transitioning (Abnormal)

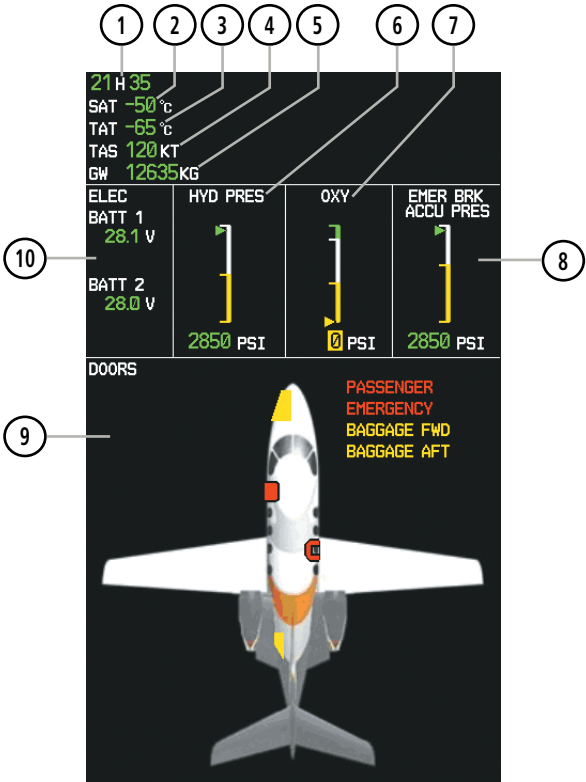
Landing Gear Position Indications

Flaps and Trim



Flap and Trim Indications

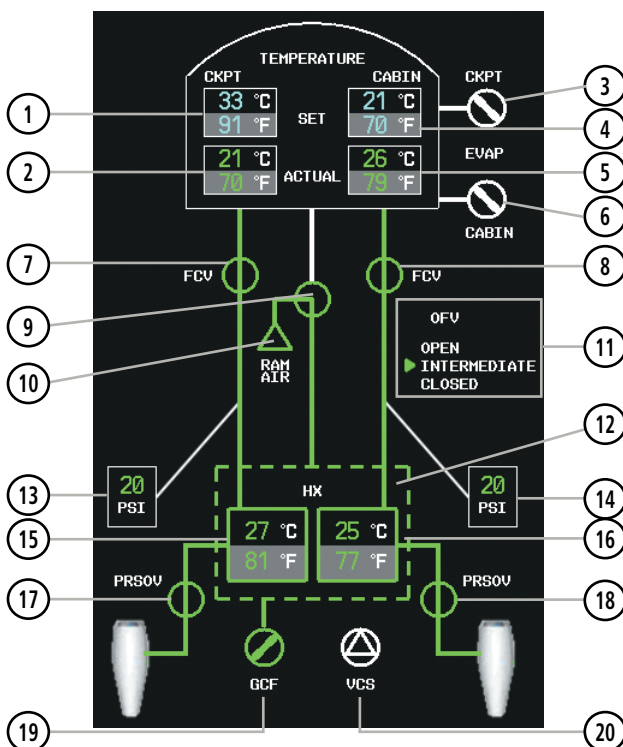
SYNOPTICS



- 1 System Clock
- 2 Static Air Temperature (SAT)
- 3 Total Air Temperature (TAT)
- 4 True Airspeed (TAS)
- 5 Aircraft Gross Weight
- 6 Hydraulic Pressure
- 7 Oxygen
- 8 Emergency Brake Accumulator Pressure
- 9 Door Status
- 10 Electrical

System Status Synoptics Page

Environmental Control System (ECS)



- | | |
|--------------------------------------|---|
| ① Cockpit Temperature Setting | ⑪ Outflow Valve (OFV) Status* |
| ② Actual Cockpit Temperature | ⑫ Heat Exchanger Pack Cooling Circuit |
| ③ Cockpit Evaporator Fan | ⑬ Bleed Line 1 (Left) Pressure |
| ④ Cabin Temperature Setting | ⑭ Bleed Line 2 (Right) Pressure |
| ⑤ Actual Cabin Temperature | ⑮ Cockpit Duct Temperature Setting |
| ⑥ Cabin Evaporator Fan | ⑯ Cabin Duct Temperature Setting |
| ⑦ Flow Control Shutoff Valve (FCV) 1 | ⑰ Pressure Regulating Shutoff Valve (PRSOV) 1 |
| ⑧ Flow Control Shutoff Valve (FCV) 2 | ⑱ Pressure Regulating Shutoff Valve (PRSOV) 2 |
| ⑨ Ram Air Valve (RAV) | ⑲ Ground Cooling Fan (GCF) |
| ⑩ Ram Air Duct | ⑳ Vapor Cycle System (VCS) |

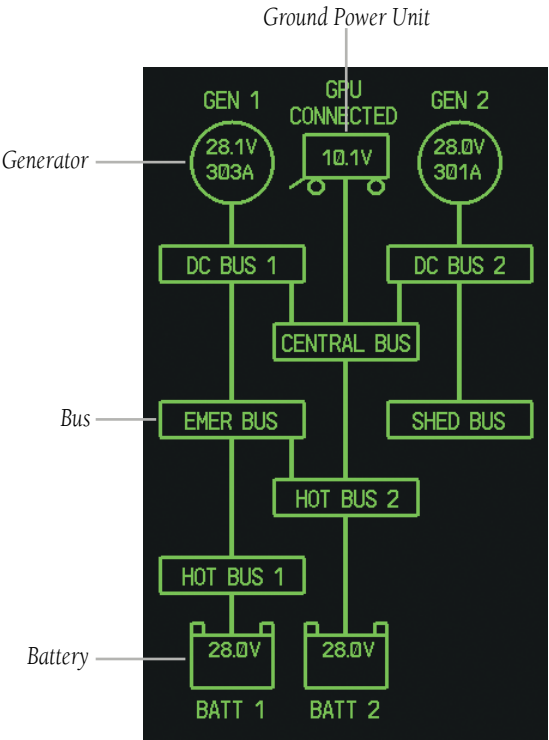
* Outflow valve (OFV) status is displayed only while the aircraft is parked or taxiing.

Environmental Control System Synoptics Page

Unit	Icons and Descriptions		
Fan	 On	 Off	
Heat Exchanger	 On	 Off	
Vapor Cycle System	 On	 Off	
PRSOV	 Open with flow	 Open, no flow	 Closed
Ram Air Duct From NACA Scoop	 Airborne	 On ground	
Ram Air Valve	 Closed	 Open, airborne	 Open, on ground

Environmental Control System Unit Status Indications

Electrical

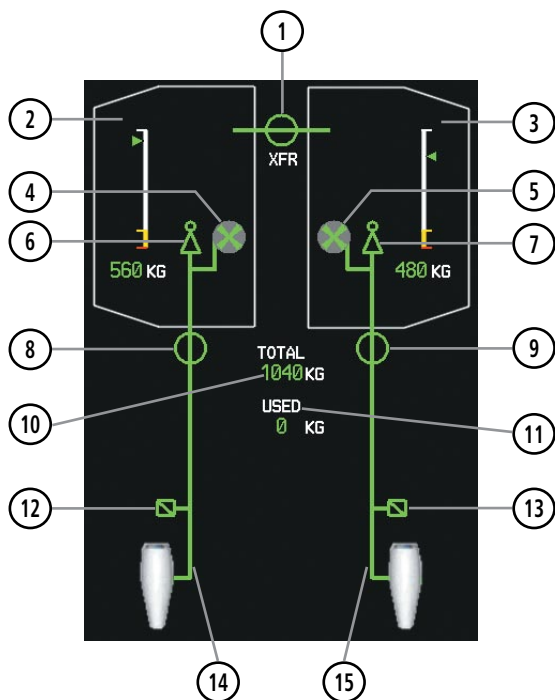


Electrical Synoptics Page

Unit	Icons and Descriptions		
Generator			
	On	Off Bus	Off
Bus			
	Normal	Abnormal	
Battery			
	Normal	Abnormal	

Electrical System Unit Status Indications

Fuel



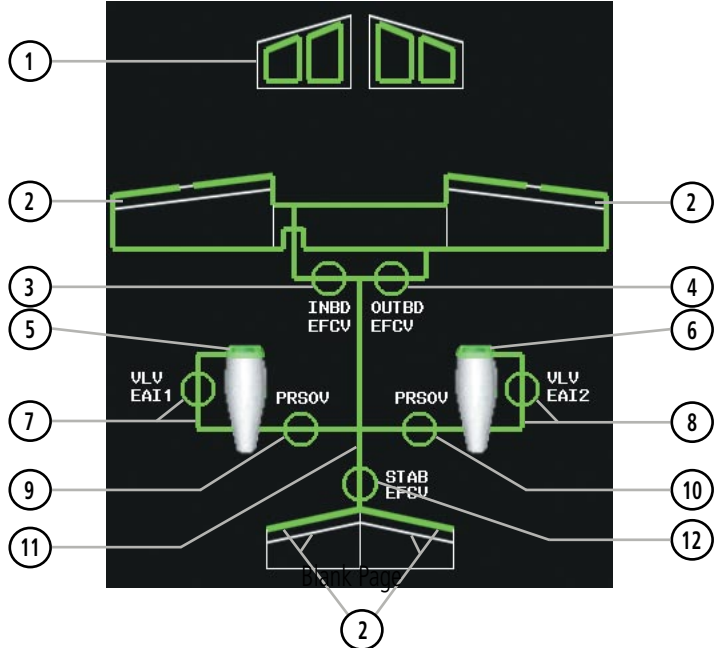
- | | |
|----------------------------|--------------------------|
| ① Fuel Transfer SOV | ⑨ Fuel 2 SOV |
| ② Left Tank Fuel Quantity | ⑩ Total Fuel |
| ③ Right Tank Fuel Quantity | ⑪ Fuel Used |
| ④ Left DC Pump | ⑫ LH Pressure Switch |
| ⑤ Right DC Pump | ⑬ RH Pressure Switch |
| ⑥ Left Feed Ejector | ⑭ Left Engine Feed Line |
| ⑦ Right Feed Ejector | ⑮ Right Engine Feed Line |
| ⑧ Fuel 1 SOV | |

Fuel Synoptics Page

Unit	Icons and Descriptions							
Fuel Line		Operating		Not operating				
Feed Ejector		Operating		Not operating				
Fuel Pressure Switch		Operating		Not operation				
Valve		Open with flow		Open, no flow		In transit		Closed
DC Pump		Operating		Not operating				
Fuel Transfer Valve		Open with flow		In transit		Closed		

Fuel System Unit Status Indications

Ice Protection System



- | | | | |
|---|---|---|--|
| ① | Windshield Heaters | ⑦ | EAI 1 Valve and Bleed Line |
| ② | Boot Lines and Valves | ⑧ | EAI 2 Valve and Bleed Line |
| ③ | Inboard Ejector Flow Control Valve | ⑨ | Pressure Regulating Shut-Off Valve 1 (PRSOV 1) |
| ④ | Outboard Ejector Flow Control Valve | ⑩ | Pressure Regulating Shut-Off Valve 2 (PRSOV 2) |
| ⑤ | Engine Anti-ice 1 Bleed Duct and Lip Skin | ⑪ | Ice Protection Bleed Duct |
| ⑥ | Engine Anti-ice 2 Bleed Duct and Lip Skin | ⑫ | STAB EFCV |

Ice Protection Synoptics Page

Unit	Icons and Descriptions		
Inboard/Outboard EFCV and PRSOV			
	Open with flow	Open, no flow	Closed
STB EFCV and, EAI Valve			
	Open with flow	Open, no flow	Closed

Ice Protection System Unit Status Indications

- Flight Instruments
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- Nav/Com/XPDR/Audio
- AFCS
- GPS Nav
- Flight Planning
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- Hazard Avoidance
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NAV/COM/TRANSPONDER/AUDIO PANEL

ENTER OR CHANGE FLIGHT ID

- 1) Press the **TMR/REF** Softkey, then turn the large **FMS** Knob to highlight the Flight ID field.
- 2) Turn the small **FMS** Knob to enter the first character.
- 3) Turn the large **FMS** Knob to select the next field.
- 4) Turn the small **FMS** Knob to enter the next desired character.
- 5) Repeat steps 3 and 4 until the desired Flight ID is entered.
- 6) Press the **ENT** Key to update the Flight ID.

DME TUNING

- 1) Press the **DME** Softkey.
- 2) If two DMEs are installed, 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.

ENTER A TRANSPONDER CODE

- 1) Press the **XPDR** Softkey to display the transponder mode selection softkeys.
- 2) If the aircraft is equipped with two transponders, press the **XPDR1** or **XPDR2** Softkey to select the active transponder.
- 3) Press the **CODE** Softkey to display the transponder code selection softkeys, for digit entry.
- 4) 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.

SELECTING A COM RADIO

Transmit/Receive

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

Receive Only

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

SELECTING A NAV RADIO

- 1) Press the **CDI** Softkey to select NAV1 (VOR1/LOC1) or NAV2 (VOR2/LOC2).
- 2) Pressing the **NAV1**, **NAV2**, **DME**, or **ADF** Key on the audio panel selects and deselects the navigation radio audio source. All radio keys can be selected individually or together.

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.

INTERCOM

Pressing the **INTR COM** Key on either Audio Panel selects and deselects the intercom on both Audio Panels. The annunciator is lit when the intercom is active. The intercom connects the pilot and copilot together. Either the pilot or copilot may select or deselect the intercom.

The **CABIN** Key initiates two way communication between the pilot or copilot and the passengers in the cabin. The annunciator is lit when the cabin intercom is active on either Audio Panel.

The **MAN SQ** Key allows either automatic or manual control of the intercom squelch setting. Pressing the **MAN SQ** Key enables manual squelch control, indicated by the MAN SQ annunciator.

During manual squelch operation, pressing the **ICS** Knob switches between volume and squelch adjustment, lighting the associated annunciator beneath the knob. When the MAN SQ annunciator is lit, the **ICS** Knob controls both volume and squelch. When the MAN SQ annunciator is extinguished, the **ICS** Knob controls only volume.

PASSENGER ADDRESS (PA) SYSTEM

A passenger address system is provided by pressing the **PA** Key to deliver messages to the passengers. The message is heard by the other pilot on the headset only if the **PA** Key is enabled on both audio panels. PA messages are one way from the flight deck to the passengers.

CLEARANCE RECORDER AND PLAYER



NOTE: Pressing the play key on the pilot's Audio Panel plays recorded audio to the Pilot. Pressing the play key on the Copilot's Audio Panel plays recorded audio to the Copilot.

Recorded COM audio is stored in separate memory blocks. Once 2.5 minutes of recording time have been reached, the recorder begins recording over the stored memory blocks, starting from the oldest block.

The **PLAY** Key controls the play function. The PLAY annunciator is illuminated to indicate when play is in progress. The PLAY annunciator extinguishes after playback is finished.

Pressing the **PLAY** Key once plays the latest recorded memory block and then returns to normal operation. Pressing the **PLAY** Key again during play of a memory block stops play. If a COM input signal is detected during play of a recorded memory block, play is halted.

Pressing the **PLAY** Key twice within one-half second while audio is playing plays the previous block of recorded audio. Each subsequent two presses of the **PLAY** Key within one-half second backtracks through the recorded memory blocks to reach and play any recorded block.

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AUTOMATIC FLIGHT CONTROL SYSTEM



NOTE: If sensor information (other than attitude) required for a flight director mode becomes invalid or unavailable, the flight director automatically reverts to the default mode for that axis.



NOTE: If the attitude information required for the default flight director modes becomes invalid or unavailable, the autopilot automatically disengages.

FLIGHT DIRECTOR ACTIVATION

An initial press of a key listed in the following table (when the flight director is not active) activates the pilot-side flight director in the listed modes.

Control Pressed	Flight Director Activated	Modes Selected	
		Lateral	Vertical
FD Key (pilot-side)	Pilot-side	Roll Hold (default) ROL	Pitch Hold (default) PIT
FD Key (copilot-side)	Copilot-side	Roll Hold (default) ROL	Pitch Hold (default) PIT
AP Key	Pilot-side	Roll Hold (default) ROL	Pitch Hold (default) PIT
CWS Button	Pilot-side	Roll Hold (default) ROL	Pitch Hold (default) PIT
GA Switch	Pilot-side	Roll Hold (default) ROL	Takeoff (on ground) TO
		Roll Hold (default) ROL	Go Around (in air) GA
ALT Key	Pilot-side	Roll Hold (default) ROL	Altitude Hold ALT
VS Key	Pilot-side	Roll Hold (default) ROL	Vertical Speed VS
VNV Key	Pilot-side	Roll Hold (default) ROL	Vertical Path Tracking* VPTH
NAV Key	Pilot-side	Navigation** GPS VOR LOC BC	Pitch Hold (default) PIT
APR Key	Pilot-side	Approach** GPS VOR LOC	Pitch Hold (default) PIT
			Glidepath GP
			Glideslope GS
HDG Key	Pilot-side	Heading Select HDG	Pitch Hold (default) PIT

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

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

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/descend to the Selected Altitude	(default)	PIT
Selected Altitude Armed	AFCS armed to capture the altitude displayed in the Selected Altitude window	*	ALTS
Altitude Hold	Holds the current Altitude Reference	ALT Key	ALT nnnnn FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	VS Key	VS nnnn FPM
Flight Level Change, IAS Hold	Maintains the current aircraft airspeed (in IAS or Mach) while the aircraft is climbing/descending to the Selected Altitude	FLC Key	FLC nnn KT
Flight Level Change, Mach Hold			FLC M .nnn
VNAV	Captures and tracks the VNAV flight path	VNV Key	VPTH
VNAV Target Altitude Armed	AFCS armed to capture the altitude displayed in the VNAV Target Altitude window	**	ALTV
Glidepath	Captures and tracks the WAAS glidepath on approach	APR Key	GP
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Go Around	Disengages the autopilot and commands a constant pitch attitude and wings level	GA Switch	GA

* ALTS armed automatically when PIT, VS, FLC, or GA active, and under VPTH when Selected Altitude is to be captured instead of VNAV Target Altitude

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

LATERAL MODES

Lateral Mode	Description	Control	Annunciation
Roll Hold	Holds the current aircraft roll attitude or rolls the wings level, depending on the commanded bank angle	(default)	ROL
Low Bank	Limits the maximum commanded roll angle	BANK Key	*
Heading Select	Captures and tracks the Selected Heading	HDG Key	HDG
Navigation, GPS Arm/Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	NAV Key	GPS
Navigation, VOR Enroute Arm/Capture/Track			VOR
Navigation, LOC Arm/Capture/Track (No Glideslope)			LOC
Navigation, Backcourse Arm/Capture/Track	Captures and tracks a localizer signal for backcourse approaches		BC
Approach, GPS Arm/Capture/Track**	Captures and tracks the selected navigation source (GPS, VOR, LOC)	APR Key	GPS
Approach, VOR Arm/Capture/Track			VAPP
Approach, ILS Arm/Capture/Track (Glideslope Mode automatically armed)			LOC

* No annunciation appears in the AFCS Status Box. The acceptable bank angle range is indicated in green along the Roll Scale of the Attitude Indicator.

** Glidepath Mode automatically arms if vertical guidance is available for the selected approach.

Cruise Speed Control (CSC)

Cruise Speed Control (CSC) is available while the AFCS Altitude Hold Mode is active and the autopilot is engaged. When active, green arcs appear on the N1 gauges, at values corresponding to the cruise speed selected.

Selecting Cruise Speed Control (CSC):

- 1) Enter Altitude Hold Mode and engage the autopilot (see the AFCS Section for details).
- 2) Press the **CSC** Key (on the AFCS Control Unit).

GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation using the MFD

- 1) With the MFD selected on the controller, press the **Direct-to** () Key.
- 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 counterclockwise 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 or controller.
- 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 counterclockwise to place the cursor over the 'ALT' altitude field.

- 7) Turn the small **FMS** Knob to enter the desired altitude constraint.
- 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 offset distance (-) 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 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) Select 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) Select 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.

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

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 arrival and approach procedures are "auto-designated". This means the system will automatically use the altitudes loaded with the arrival

or approach for giving vertical flight path guidance outside the FAF. Note that these altitudes will be displayed as small light blue text.

Altitudes that are 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.

	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 PLANNING

WEIGHT PLANNING

All procedures apply to the MFD 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 first rectangular page icon.

- 1) Select 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) If necessary, 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) Select the **FOB SYNC** Softkey to enter the fuel on board quantity as read from the aircraft fuel quantity sensors.

Or:

Manually enter the desired fuel quantity.

- 4) Press the **ENT** Key. The cursor is now in the 'FUEL RESERVES' field.
- 5) Enter the desired reserve fuel quantity.
- 6) Press the **FMS** Knob to remove the cursor.

TRIP PLANNING

- 1) Turn the large **FMS** Knob to select the 'AUX' page group.
- 2) Turn the small **FMS** Knob to select the second rectangular page icon.
- 3) The current 'PAGE MODE' is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, select the **AUTO** or **MANUAL** Softkey.

4) For Direct-to planning:

- a) Select 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) Select 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.

- 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) Enter the fuel flow. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel flow is provided by the system.
- 8) The flashing cursor moves to the fuel onboard field. Modify the fuel onboard. Press the **ENT** Key when finished. In 'AUTOMATIC' mode, fuel onboard is provided by the entry made on the Weight Planning Page.
- 9) The flashing cursor moves to the calibrated airspeed field. Enter a calibrated airspeed. Press the **ENT** Key when finished.

CREATE A NEW 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) Select 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 'REFERENCE WAYPOINTS' field. If desired, the waypoint can be defined by a reference waypoint. Use one of the following methods to enter the reference waypoint:
 - a) Turn the small **FMS** Knob to the left to display a list of flight plan waypoints. This list is populated only when there is an active flight plan.
 - 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' waypoints 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.
- 7) After pressing the **ENT** Key, the cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.
- 8) Press the **ENT** Key.
- 9) The cursor is now displayed in the 'DIS' (distance) field. Enter the desired distance from the reference waypoint.
- 10) Press the **ENT** Key. The cursor is now placed for entering another reference waypoint, if desired.
- 11) Press the **FMS** Knob to remove the flashing cursor.

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 place the cursor in the 'USER WAYPOINT LIST' field.
- 5) Turn the small **FMS** Knob to highlight the desired waypoint.
- 6) Select 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 NEW FLIGHT PLAN



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

Using the MFD

- 1) Press the **FPL** Key.
- 2) Turn the small **FMS** Knob to display the Flight Plan Catalog Page.
- 3) Select the **NEW** Softkey to display a blank flight plan for the first empty storage location.
- 4) Turn the small **FMS** Knob to display the Waypoint Information Window.
- 5) Enter the identifier of the departure waypoint.
- 6) Press the **ENT** Key.
- 7) Repeat step number 4, 5, and 6 to enter the identifier for each additional flight plan waypoint.
- 8) 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.

Using the PFD



NOTE: If a flight plan is active, an additional flight plan cannot be entered using the PFD.

- 1) Press the **FPL** Key.
- 2) Turn the small **FMS** Knob to display the Waypoint Information Page.
- 3) Turn the small **FMS** Knob to enter the first letter of the destination waypoint identifier.
- 4) Turn the large **FMS** Knob to the right to move the cursor to the next character position.
- 5) Repeat step 3 and 4 to spell out the rest of the waypoint identifier.
- 6) Press the **ENT** Key and the cursor is now ready for entering of the next flight plan waypoint.
- 7) Repeat steps 3 through 6 to enter the identifier for each additional flight plan waypoint.
- 8) Once all waypoints have been entered, press the **FMS** Knob to remove the cursor. The new flight plan is now active.

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.
- 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' airport waypoints 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.
 - e) 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. 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 select the **LD AIRWY** Softkey, or press the **MENU** Key and select "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).
- 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.

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) Select 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) Select 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) Select 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.

INVERT AND ACTIVATE A STORED FLIGHT PLAN

- 1) Press the **FPL** Key on the MFD or MFD Control Unit.
- 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) Select 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 on the MFD or MFD Control Unit.
- 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) Select 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 on the MFD or MFD Control Unit.
- 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) Select 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. Turn the large **FMS** Knob to select the desired insertion point.
- 4) Select 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.

PROCEDURES

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 on the MFD or MFD Control Unit 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) Select 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.

- 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) Select 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 (WAAS, 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 activates the first leg of the approach.
- 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.

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.

XM WEATHER (OPTIONAL)



WARNING: Use of XM weather for hazardous weather penetration is not recommended. Weather information provided by XM Radio Service is approved only for weather avoidance, not penetration.

Displaying XM Weather on the Navigation Map Page

- 1) Select the **MAP** Softkey.
- 2) Select the **NEXRAD** or **XM LTNG** Softkey to display the desired weather. Select 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) Select the **WX** Softkey to display METAR and TAF text (METAR and TAF information is updated every 12 minutes).

Displaying Weather on the 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 Weather Data Link Page.
- 3) Select the available softkeys to select the desired XM weather product.

- 4) Select 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.

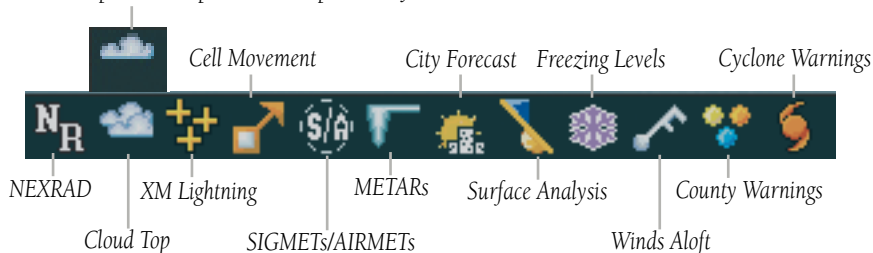
Map Panning Information – Weather Data Link Page

- 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.

Weather Products and Symbols

Echo Top (Cloud Top and Echo Top Mutually Exclusive)



TRAFFIC INFORMATION SERVICE (TIS)



WARNING: Traffic information shown on the multi-function display is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.



NOTE: Traffic Information Service (TIS) is only available when the aircraft is within the service volume of a TIS capable terminal radar site.

Traffic Symbol	Description
	Non-Threat Traffic (intruder is beyond 5 nm and greater 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) Select the **OPERATE** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.
- 4) Select the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.
- 5) Rotate the **Joystick** clockwise to increase the display range or rotate counter-clockwise to decrease the display range.

Displaying Traffic on the Navigation Map

- 1) Ensure TIS is operating. With the Navigation Map displayed, select the **MAP** Softkey.
- 2) Select the **TRAFFIC** Softkey. Traffic is now displayed on the map.

TERRAIN AWARENESS & WARNING SYSTEM (TAWS) DISPLAY



WARNING: The TAWS display shows supplemental information only. It should not be used for navigation.



NOTE: Terrain data is not displayed when the aircraft latitude is greater than 75 degrees north or 60 degrees south.



NOTE: TAWS operation is only available when the system is configured for a TAWS-B installation.

Manual System Test

- 1) While the TAWS 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 Page.

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

Display Terrain on the TAWS Page

- 1) Turn the large **FMS** Knob to select the Map Page Group.
- 2) Turn the small **FMS** Knob to select the TAWS Page.
- 3) If desired, select the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is selected, a radar-like 120° view is displayed. Select the **360** Softkey to return to the 360° default display.
- 4) Rotate the **Joystick** clockwise to increase the display range or rotate counter-clockwise to decrease the display range.

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 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 alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS WAAS 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 Page is displayed, select 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 Page is displayed, select the **INHIBIT** Softkey.

Or:

- 1) While the TAWS Page is displayed, press the **MENU** Key.
- 2) Turn the small **FMS** Knob to select 'Enable TAWS'.
- 3) Press the **ENT** Key.

AIRBORNE COLOR WEATHER RADAR



WARNING: Begin transmitting only when it is safe to do so. If it is desired to transmit while the aircraft is on the ground, no personnel or objects should be within 11 feet of the antenna.



CAUTION: In Standby Mode, the antenna is parked at the center line. It is always a good idea to put the radar in Standby Mode before taxiing the aircraft to prevent the antenna from bouncing on the bottom stop and possibly causing damage to the radar assembly.

Displaying Weather on the Weather Radar Page

- 1) Turn the large **FMS** Knob to select the Map Page Group.
- 2) Turn the small **FMS** Knob to select the Weather Radar Page.
- 3) Select the **MODE** Softkey.
- 4) If the aircraft is on the ground, select the **STANDBY** Softkey to initiate the one minute warm-up period. After the warm-up is complete, the radar will enter the Standby Mode. After the aircraft is airborne, select the **WEATHER** Softkey.

Or:

If the aircraft is already airborne, select the **WEATHER** or **GROUND** Softkey. The one-minute warm-up period will be initiated, after which the radar will begin transmitting. The horizontal scan is initially displayed.

- 5) Turn the **Joystick** to select the desired range.
- 6) If desired, select the **VERTICAL** Softkey for vertical scanning.

Adjusting Antenna Tilt

Move the **Joystick** up or down to adjust the tilt of the antenna up or down. Monitor the displayed tilt value in the TILT field.

When scanning vertically, a Tilt Line may be displayed to aid in positioning the tilt of the antenna. If the Tilt Line is not displayed, perform the following steps:

- 1) Press the **MENU** Key
- 2) Turn the large **FMS** Knob to select 'Show Tilt Line'.
- 3) Press the **ENT** Key.

Adjusting Antenna Bearing

Move the **Joystick** right or left to adjust the azimuth position of the antenna right or left. Monitor the displayed bearing value in the BEARING field.

When scanning horizontally, a Bearing Line may be displayed to aid in positioning the antenna for the vertical scan. If the Bearing Line is not displayed, perform the following steps:

- 1) Press the **MENU** Key
- 2) Turn the large **FMS** Knob to select 'Show Bearing Line'.
- 3) Press the **ENT** Key.

Vertically Scan a Storm Cell

- 1) While in the Horizontal Scan view, move the **Joystick** to place the Bearing Line on the desired storm cell, or other area, to be vertically scanned.
- 2) Select the **VERTICAL** Softkey. A vertical "slice" of the selected area will now be displayed.
- 3) Move the **Joystick** right or left to move the scanned "slice" a few degrees right or left.
- 4) Turn the **Joystick** to adjust the range.
- 5) To select a new area to be vertically scanned, select the **HORIZON** Softkey to return to the Horizontal Scan view and repeat the previous steps.

Adjusting Gain



WARNING: Changing the gain in Weather Mode will cause precipitation intensity to be displayed as a color not representative of the true intensity. Remember to return the gain setting to 'Calibrated' for viewing the actual intensity of precipitation.

- 1) Select the **GAIN** Softkey to activate the cursor in the 'GAIN' field.
- 2) Turn the small **FMS** Knob to adjust the gain for the desirable level. The gain setting is visible in the gain field as a movable horizontal bar in a flashing box. The line pointer is a reference depicting the calibrated position.
- 3) Press the **FMS** Knob to remove the cursor.
- 4) Select the **GAIN** Softkey again to recalibrate the gain. 'CALIBRATED' will be displayed in the 'GAIN' field.

Ground Mapping

- 1) Select the **MODE** Softkey.
- 2) Select the **GROUND** Softkey to place the radar in Ground Map Mode.
- 3) Select the **BACK** Softkey.

Sector Scan

- 1) While in the Horizontal Scan Mode, move the **Joystick** right or left to place the Bearing Line in the desired position. The location of the Bearing Line will become the center point of the Sector Scan.
- 2) Press the **FMS** Knob to display the cursor.
- 3) Turn the large **FMS** Knob to place the cursor in the SECTOR SCAN field.
- 4) Turn the small **FMS** Knob to select FULL, 60°, 40°, or 20° scan.
- 5) If desired, readjust the Bearing Line with the **Joystick** to change the center of the Sector Scan.
- 6) Press the **FMS** Knob to remove the cursor.

Antenna Stabilization

- 1) To activate or deactivate the antenna stabilization, select the **MODE** Softkey.
- 2) Select the **STAB ON** Softkey to activate antenna stabilization or select the **STAB OFF** Softkey to deactivate. The current stabilization condition is shown in the upper right of the weather radar display.

Weather Attenuated Color Highlight (WATCH®)

To activate or deactivate the WATCH® feature, select the **WATCH** Softkey. This feature is only available in the Horizontal Scan Mode.

Weather Alert

To activate or deactivate Weather Alert, select the **WX ALERT** Softkey. Activating and deactivating will also enable or inhibit the alert on the PFD.

Automatic Standby

When the weather radar system is in the Weather or Ground Map Mode, upon landing the system will automatically switch to Standby Mode.

ADDITIONAL FEATURES

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 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 aid in following ground control instructions by accurately displaying the aircraft position on the map in relation to taxiways, ramps, runways, terminals, and services. This database is updated on a 56-day cycle.

XM® RADIO ENTERTAINMENT

The XM® Radio Page provides information and control of the audio entertainment features of the XM 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 the displayed AUX - XM Information Page.
- 3) Select 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) Select the **CATGRY** Softkey on the XM Radio Page.
- 2) Select the **CAT +** and **CAT -** softkeys to cycle through the categories.

Or:

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

- 3) Press the **ENT** Key.

Select an Available Channel within the Selected Category

- 1) While on the XM Radio Page, select the **CHNL** Softkey.
- 2) Select the **CH +** Softkey to go up through the list in the Channel Box, or move down the list with the **CH -** Softkey.

Or:

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, select the **CHNL** Softkey.
- 2) Select the **DIR CH** Softkey. The channel number in the Active Channel Box is highlighted.
- 3) Select the numbered softkeys located on the bottom of the display to directly select the desired channel number.
- 4) Press the **ENT** Key to activate the selected channel.

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, select the **PRESETS** Softkey to access the first five preset channels (**PS1 - PS5**).
- 2) Select 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) Select any one of the (**PS1 - PS15**) softkeys to assign a number to the active channel.
- 4) Select the **SET** Softkey on the desired channel number to save the channel as a preset.

Adjusting Volume

- 1) With the XM Radio Page displayed, select the **VOL** Softkey.
- 2) Select the **VOL –** Softkey to reduce volume or select the **VOL +** Softkey to increase volume. (Once the **VOL** Softkey is selected, the volume can also be adjusted using the small **FMS** Knob.)
- 3) Select the **MUTE** Softkey to mute the audio. Select the **MUTE** Softkey again to unmute the audio.

Radio volume may also be adjusted at each passenger station.

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

Blank Page

ABNORMAL OPERATION



NOTE: The Embraer Phenom 100 Airplane Flight Manual (AFM) always takes precedence over the information found in this section.

ENGINE

When an engine failure occurs, besides the CAS message corresponding to the failed engine (“E1 FAIL” or “E2 FAIL”), the corresponding N1 gauge displays the annunciation “FAIL” in yellow (Figure 3-21). Detection of an engine fire causes the red annunciation “FIRE” to be displayed over the ITT gauge.



Engine Failure Indication



Engine Fire Indication

CABIN PRESSURIZATION

If low flow or a cabin leak is detected, the cabin pressure change rate readout and arrow turn red.

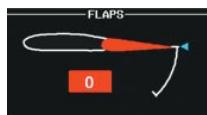
CABIN	
	HI FIELD
ALT	7200 FT
RATE	2700 FPM↑
DELTA-P	5.0 PSI
LFE	4520 FT
OXY	1450 PSI

Cabin Leak Indication

FLAPS

The following denote abnormal flap conditions:

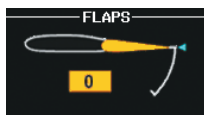
- Flaps not in position for takeoff – Flap pointer and readout turn red (A and B).
- Flaps have failed or become jammed – Flap pointer and readout turn yellow (C)
- Flaps unavailable – Flap pointer is removed and readout turns light blue (D)



A - Flaps Retracted at Takeoff



B - Flaps at FULL (Landing) Position at Takeoff



C - Flaps Failed



D - Flaps Unavailable

TRIM

Aileron or rudder mistrim are denoted with yellow arrows pointing in the direction of mistrim on the Roll and Yaw Trim indicators (A).

If takeoff configuration has been selected and the pitch trim position is not within the green band on the pitch trim scale, the pointers and readout turn red (B). If an asymmetrical pitch trim condition exists, the pointers and readout turn yellow (C).



A - Mistrim



B - Pitch Trim Outside Takeoff Configuration



C - Asymmetrical Pitch Trim Condition

REVERSIONARY MODE

If the system detects a failure in PFD1, reversionary mode is entered automatically. Reversionary mode must be entered manually in the case of PFD2 or MFD failure.. In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

Manual activation of reversionary display mode is accomplished by pressing the **DISPLAY BACKUP** Button on the appropriate audio panel.

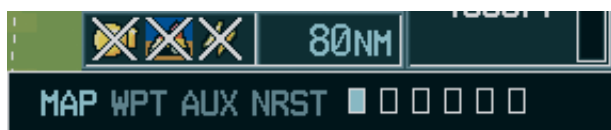
- **PFD1** – By pressing the **DISPLAY BACKUP** Button on the left audio panel.
- **MFD** – By pressing the **DISPLAY BACKUP** Button on the left or the right audio panel.
- **PFD2** – By pressing the **DISPLAY BACKUP** Button on the right audio panel.

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 PFDs, 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
 - ADF/DME Tuning
- Barometric Minimum Descent Altitude Box
- Glideslope, Glide-path, 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 system 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 system uses its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft's current estimated position.



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 system stops navigating in GPS Mode.

DR Mode is indicated 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. Also, the CDI deviation bar is removed from the display. Lastly, but at the same time, a ‘GPS NAV LOST’ alert message appears on the PFD.

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

It is important to note that estimated navigation data supplied by the system in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation. If, while in DR Mode, airspeed and/or heading data is also lost or not available, the DR function is 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 system 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/WAAS 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

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
- Track Bug
- All Bearing Pointer Distances
- Active Flight Plan distances, bearings, and ETE values

Also, while the system is in DR Mode, the autopilot will not couple to GPS, and both TAWS and Terrain Proximity are disabled. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

Flight Instruments
EAS
Nav/Com/XPDR/Audio
AFC
GPS Nav
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Procedures
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ANNUNCIATIONS & ALERTS

CAS MESSAGES

Warning Messages

See the Airplane Flight Manual (AFM) for recommended pilot actions.

Message	Description
CAB ALTITUDE HI	Cabin altitude pressure altitude high
DOOR EMER OPEN	Emergency door open
DOOR PAX OPEN	Passenger door open
E1 FIRE	Fire in engine 1
E2 FIRE	Fire in engine 2
E1 OIL LO PRES	Low oil pressure in engine 1
E2 OIL LO PRES	Low oil pressure in engine 2
ELEC EMERGENCY	Generators offline
ELEC XFR FAIL	Generators offline and electrical emergency transfer has failed
LG LEVER DISAG	Landing gear position and control lever disagreement
NO TO CONFIG	No takeoff configuration

Caution Messages

See the Airplane Flight Manual (AFM) for recommended pilot actions.

Message	Description
ADS 1 FAIL	ADS 1 offline or failed
ADS 2 FAIL	ADS 2 offline or failed
ADS 1 HTR FAIL	Pitot heater 1 offline or heater element failed
ADS 2 HTR FAIL	Pitot heater 2 offline or heater element failed
AHRS 1 FAIL	AHRS 1 failure
AHRS 2 FAIL	AHRS 2 failure
A-I E1 FAIL	Anti-ice system failure in engine 1
A-I E2 FAIL	Anti-ice system failure in engine 2
ANTI-SKID FAIL	Anti-skid function lost; main brake still available
AP FAIL	Loss of autopilot function
AP PITCH MISTRIM	Airplane mistrimmed in pitch axis when autopilot is engaged
AP ROLL MISTRIM	Airplane mistrimmed in roll axis when autopilot is engaged
AUDIO PNL 1 FAIL	Audio panel 1 is offline
AUDIO PNL 2 FAIL	Audio panel 2 is offline

	Message	Description
Flight Instruments	AURAL WRN FAIL	Aural warning system failure due to non-communicating LRUs
	AUTO PTRIM FAIL	Auto pitch trim failure; other pitch trim functions still available
EAS	BATT DISCHARG	Battery discharging under normal operation
	BATT 1 OFF BUS	Battery 1 offline
Nav/Com/XPDR/Audio	BATT 2 OFF BUS	Battery 2 offline
	BATT EXCEEDANCE	Battery voltage has exceeded 29 VDC
AFCs	BLEED 1 FAIL	Bleed 1 system not under control
	BLEED 2 FAIL	Bleed 2 system not under control
GPS Nav	BLEED 1 LEAK	Bleed 1 hot air leakage at some region of the ducting
	BLEED 2 LEAK	Bleed 2 hot air leakage at some region of the ducting
Flight Planning	BRK FAIL	Main brake system lost
	CAB DELTA-P FAIL	Excessive cabin pressure differential
Procedures	CLUTCH PIT FAIL	Slip clutch maintenance test failed
	CLUTCH ROL FAIL	Slip clutch maintenance test failed
Hazard Avoidance	CLUTCH YAW FAIL	Slip clutch maintenance test failed
	CONFIG MDL FAIL	Master Configuration Module failed or non-communicative
Additional Features	D-I WINGSTB FAIL	Deice system in wings and tail failure
	DOORBAG AFT OPEN	Crew baggage door open
Abnormal Operation	DOORBAG FWD OPEN	Forward baggage door open
	DUCT 1 OVERTEMP	Duct 1 temperature over specified safe value
Annun/Alerts	DUCT 2 OVERTEMP	Duct 2 temperature over specified safe value
	E1 CTRL FAULT	Engine 1 responds slowly or not at all to thrust commands
Appendix	E2 CTRL FAULT	Engine 2 responds slowly or not at all to thrust commands
	E1 FAIL	Uncommanded shutdown detected for engine 1
Index	E2 FAIL	Uncommanded shutdown detected for engine 2
	E1 FIRE DET FAIL	Fire detection system failure in engine 1
	E2 FIRE DET FAIL	Fire detection system failure in engine 2
	E1 FIREX FAIL	Fire extinguisher failure in engine 1
	E2 FIREX FAIL	Fire extinguisher failure in engine 2
	E1 FUEL IMP BYP	Fuel filter impending bypass condition for engine 1
	E2 FUEL IMP BYP	Fuel filter impending bypass condition for engine 2
	E1 TLA FAIL	Thrust Lever Angle failure for engine 1
	E2 TLA FAIL	Thrust Lever Angle failure for engine 2
	E1 TTO HTR FAIL	Heater failue in engine 1
	E2 TTO HTR FAIL	Heater failue in engine 2
	EBAY OVHT	Electrical bay over temperature
	EMER BRK LO PRES	Few emergency brake functions available
	ENG EXCEEDANCE	Limit exceeded in engine(s) during flight

Message	Description
ENG NO DISPATCH	FADEC detected no dispatch fault condition in engine(s)
ENG NO TO DATA	No takeoff data entered
FLAP FAIL	Loss of flaps deployment or retraction
FUEL 1 LO LEVEL	Low fuel level in tank 1
FUEL 2 LO LEVEL	Low fuel level in tank 2
FUEL 1 LO PRES	Fuel pressure low in engine 1 feed line
FUEL 2 LO PRES	Fuel pressure low in engine 2 feed line
FUEL 1 SOV FAIL	Fuel feed SOV 1 closed or unavailable
FUEL 2 SOV FAIL	Fuel feed SOV 2 closed or unavailable
FUEL IMBALANCE	Fuel is imbalanced between the tanks
FUEL OVERFILL	Fuel tank overfilled
FUEL XFR FAIL	Fuel transfer failure
GEN 1 OFF BUS	Generator 1 offline
GEN 2 OFF BUS	Generator 2 offline
GEN OVLD	Generator(s) overload
GEN START FAULT	Generator start fault
GIA 1 FAIL	Failure of GIA 1
GIA 2 FAIL	Failure of GIA 2
GIA 1 OVHT	GIA 1 over temperature
GIA 2 OVHT	GIA 2 over temperature
HYD HI TEMP	Hydraulic temperature high
HYD LO PRES	Hydraulic pressure low
LG WOW SYS FAIL	Landing gear weight-on-wheels system failure
MFD CONFIG	MFD configuration error
MFD FAULT	Fault with the MFD
MFD OVHT	MFD over temperature
OXY LO PRES	Oxygen system pressure low
PARK BRK NOT REL	Parking brake not released
PAX OXY NO PRES	Cabin altitude high and passenger oxygen system pressure low
PFD 1 CONFIG	PFD 1 configuration error
PFD 2 CONFIG	PFD 2 configuration error
PFD 1 FAULT	Fault with PFD 1
PFD 2 FAULT	Fault with PFD 2
PFD 1 OVHT	PFD 1 over temperature
PFD 2 OVHT	PFD 2 over temperature
PRESN AUTO FAIL	Pressurization controller failure
PTRIM BKP FAIL	Loss of backup pitch trim actuator
PTRIM NML FAIL	Loss of normally-operating pitch trim actuator

Message	Description
PUSHER FAIL	Stall Warning & Protection System pusher has failed
PUSHER OFF	Stall Warning Pusher is off
STBY HTR FAIL	Failure of standby heater
SWPS FAIL	Stall Warning & Protection System inoperative
SWPS FAULT	Stall Warning & Protection System activation angles anticipated to conservative settings
SWPS HTR 1 FAIL	Stall Warning & Protection System heater 1 failure
SWPS HTR 2 FAIL	Stall Warning & Protection System heater 2 failure
SWPS UNTESTED	Stall Warning & Protection System has not been tested
WSHLD 1 HTR FAIL	Windshield 1 heater failure
WSHLD 2 HTR FAIL	Windshield 2 heater failure
YD FAIL	Loss of yaw damper function
YD MISTRIM	Airplane mistrimmed in yaw axis when YD is engaged

Advisory Messages

See the Airplane Flight Manual (AFM) for recommended pilot actions.

Message	Description
A-I E1 ON	De-ice system on in engine 1
A-I E2 ON	De-ice system on in engine 2
ADS 1 HTR FAULT	Fault in ADS 1 heater
ADS 2 HTR FAULT	Fault in ADS 2 heater
ADS-AOA HTR ON	ADS - Angle-of-attack heater on
AHRS 1 FAULT	Fault with AHRS 1
AHRS 2 FAULT	Fault with AHRS 2
AUDIO PNL 1 FAULT	Fault with audio panel 1
AUDIO PNL 2 FAULT	Fault with audio panel 2
AURAL WRN FAULT	Partial loss of aural warning function
AVNX FAN FAIL	Avionics fan failure
BLEED 1 OFF	Bleed pressure regulator 1 and shut-off valve closed
BLEED 2 OFF	Bleed pressure regulator 2 and shut-off valve closed
CLUTCH PIT PASS	Pitch slip clutch maintenance test passed
CLUTCH PIT PROG	Pitch slip clutch maintenance test in progress
CLUTCH ROL PASS	Roll slip clutch maintenance test passed
CLUTCH ROL PROG	Roll slip clutch maintenance test in progress
CLUTCH YAW PASS	Yaw slip clutch maintenance test passed
CLUTCH YAW PROG	Yaw slip clutch maintenance test in progress
DC BUS 1 OFF	DC bus 1 offline
DC BUS 2 OFF	DC bus 2 offline

Message	Description
D-I WINGSTB ON	Deice system in wings and tail ON
E1 CHIP DETECTED	Chip detected by engine 1 oil chip detector
E2 CHIP DETECTED	Chip detected by engine 2 oil chip detector
E1 FADEC FAULT	FADEC fault in engine 1
E2 FADEC FAULT	FADEC fault in engine 2
E1 SHORT DSPTCH	Engine 1 in short dispatch condition
E2 SHORT DSPTCH	Engine 2 in short dispatch condition
ELEC SYS FAULT	Electrical system fault
EMER BUS OFF	Emergency bus OFF
ENG FIREX DISCH	Engine fire extinguisher discharge
FLAP NOT AVAIL	Flaps not available
FUEL EQUAL	Fuel quantity asymmetry corrected; XFEED SOV is open
FUEL 1 FEED FAULT	DC pump on due to low fuel pressure
FUEL 2 FEED FAULT	DC pump on due to low fuel pressure
FUEL 1 PSW FAIL	Fuel pressure switch stuck in "high" position
FUEL 2 PSW FAIL	Fuel pressure switch stuck in "high" position
FUEL PUMP 1 FAIL	Fuel pump 1 failure
FUEL PUMP 2 FAIL	Fuel pump 2 failure
GEA 1 FAIL	Failure of GEA 1
GEA 2 FAIL	Failure of GEA 2
GEA 3 FAIL	Failure of GEA 3
GSD FAIL	GSD non-communicative
HSDB FAULT	An LRU has stopped communicating over an HSDB
HSDB SW REV POS	HSDB switch in reversionary position
MACH TRIM FAIL	Mach trim failure; other pitch trim functions still available
MFD FAN FAIL	Failure of MFD fan
OXY SW NOT AUTO	Oxygen system switch in manual mode
PFD 1 FAN FAIL	Failure of PFD 1 fan
PFD 2 FAN FAIL	Failure of PFD 2 fan
PTRIM DISCONNECT	Pitch trim disconnected
PTRIM SW1 FAIL	Failure of pilot pitch trim switch
PTRIM SW2 FAIL	Failure of copilot pitch trim switch
RAM AIR FAIL	Ram air valve failure
SHED BUS OFF	Shed bus off
SWPS ICE SPEED	Stall Warning System activation angles anticipated due to ice conditions

AURAL ALERTS

Message	Priority	Description
"Cabin"	Warning	High cabin altitude
"Fire, Fire"		Engine fire
"High Speed"		Maximum operating speed exceeded
"Landing Gear"		Gear up in landing condition
"No Takeoff Brakes"		No Takeoff Configuration due to brake status
"No Takeoff Flap"		No Takeoff Configuration due to flap status
"No Takeoff Trim"		No Takeoff Configuration due to trim status
"Stall, Stall"		Airplane in stall condition
"Flight Director"		Flight director has reverted to pitch or roll default mode
"Timer Expired"		Countdown timer on the PFD has reached zero
"Trim Trim Trim"	Advisory	Trim switch malfunction
"Aural Warning OK"	Status	Aural warning system test passes
"Aural Warning One Channel"		Aural warning system test detects failure in one channel
"Takeoff OK"		Takeoff configuration test passed

OTHER PRODIGY™ AURAL ALERTS

Aural Alert	Description
"Minimums, minimums"	The aircraft has descended below the preset barometric minimum descent altitude.
"Vertical track"	The aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"Traffic"	The Traffic Information Service (TIS) has issued a Traffic Advisory alert.
"TIS not available"	The aircraft is outside the Traffic Information Service (TIS) coverage area.

COMPARATOR ANNUNCIATIONS

Comparator Window Text	Condition
ALT MISCOMP	Difference in altitude sensors is ≥ 200 ft.
IAS MISCOMP	If both airspeed sensors detect < 35 knots, this is inhibited.
	If either airspeed sensor detects ≥ 35 knots, and the difference in sensors is > 10 kts. If either airspeed sensor detects ≥ 80 knots, and the difference in sensors is > 7 kts.
HDG MISCOMP	Difference in heading sensors is > 6 degrees.
PIT MISCOMP	Difference in pitch sensors is > 5 degrees.
ROL MISCOMP	Difference in roll sensors is > 6 degrees.
ALT NO COMP	No data from one or both altitude sensors.
IAS NO COMP	No data from one or both airspeed sensors.
HDG NO COMP	No data from one or both heading sensors.
PIT NO COMP	No data from one or both pitch sensors.
ROL NO COMP	No data from one or both roll sensors..

REVERSIONARY SENSOR ANNUNCIATIONS

Reversionary Sensor Window Text	Condition
BOTH ON ADC1	Both PFDs are displaying data from the number one Air Data Computer.
BOTH ON ADC2	Both PFDs are displaying data from the number two Air Data Computer.
BOTH ON AD STBY	Both PFDs are displaying data from the standby air data input.
BOTH ON AHRS1	Both PFDs are displaying data from the number one Attitude & Heading Reference System.
BOTH ON AHRS2	Both PFDs are displaying data from the number two Attitude & Heading Reference System.
BOTH ON AT STBY	Both PFDs are displaying data from the standby attitude and heading reference input.
BOTH ON GPS1	Both PFDs are displaying data from the number one GPS receiver.
BOTH ON GPS2	Both PFDs are displaying data from the number two GPS receiver.

Reversionary Sensor Window Text	Condition
USING ADC1	PFD2 is displaying data from the #1 Air Data Computer.
USING ADC2	PFD1 is displaying data from the #2 Air Data Computer.
USING AD STBY	PFD1 or PFD2 is displaying data from the standby air data input.
USING AHRS1	PFD2 is displaying data from the #1 AHRS.
USING AHRS2	PFD1 is displaying data from the #2 AHRS.
USING AT STBY	PFD1 or PFD2 is displaying data from the standby attitude and heading reference input.
USING GPS1	PFD2 is displaying data from the #1 GPS.
USING GPS2	PFD1 is displaying data from the #2 GPS.

TAWS ALERTS

Alert Type	PFD/MFD TAWS 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	"Terrain, Terrain; Pull Up, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up"
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	"Caution, Terrain; Caution, Terrain"

Alert Type	PFD/MFD TAWS Page Annunciation	MFD Pop-Up Alert	Aural Message
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION - TERRAIN	"Caution, Terrain; Caution, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	"Caution, Obstacle; Cau- tion, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION - OBSTACLE	"Caution, Obstacle; Cau- tion, 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	"Don't Sink"

TAWS System Status Annunciations

Alert Type	PFD/MFD TAWS Page Annunciation	MFD Pop-Up Alert	Aural Message
TAWS System Test Fail	TAWS FAIL	None	"TAWS System Failure"
TAWS Alerting is disabled	TAWS INHB	None	None
No GPS position or excessively degraded GPS signal	TAWS N/A	None	"TAWS Not Available" "TAWS Available" will be heard when sufficient GPS signal is re-established.
System Test in progress	TAWS TEST	None	None
System Test pass	None	None	"TAWS System Test OK"

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 & PFDs with preferred settings, if desired.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFDs 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.
PFD2 SERVICE – PFD2 needs service. Return unit for repair.	
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 – PFD2 software mismatch, communication halted.	
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.
PFD2 CONFIG – PFD2 config error. Config service req'd.	
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 PFDs have different software versions installed. The system should be serviced.

MFD & PFD MESSAGE ADVISORIES (CONT.)

Message	Comments
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.
PFD2 COOLING – PFD2 has poor cooling. Reducing power usage.	
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.
PFD2 KEYSTK – PFD2 [key name] Key is stuck.	
MFD1 KEYSTK – MFD [key name] Key is stuck.	
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.
PFD2 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 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.

DATABASE MESSAGE ADVISORIES

Message	Comments
MFD1 DB ERR – MFD1 aviation database error exists.	The MFD and/or PFD detected a failure in the aviation database. Attempt to reload the aviation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 aviation database error exists.	
PFD2 DB ERR – PFD2 aviation database error exists.	

DATABASE MESSAGE ADVISORIES (CONT.)

Flight Instruments	MFD1 DB ERR – MFD1 basemap database error exists.	The MFD and/or PFD detected a failure in the basemap database.
EAS	PFD1 DB ERR – PFD1 basemap database error exists.	
Nav/Com/XPDR/Audio	PFD2 DB ERR – PFD2 basemap database error exists.	
AFCs	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.
GPS Nav	PFD1 DB ERR – PFD1 terrain database error exists.	
	PFD2 DB ERR – PFD2 terrain database error exists.	
Flight Planning	MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Procedures	PFD1 DB ERR – PFD1 terrain database missing.	
	PFD2 DB ERR – PFD2 terrain database missing.	
Hazard Avoidance	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.
Additional Features	PFD1 DB ERR – PFD1 obstacle database error exists.	
Abnormal Operation	PFD2 DB ERR – PFD2 obstacle database error exists.	
Annun/Alerts	MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
	PFD1 DB ERR – PFD1 obstacle database missing.	
Appendix	PFD2 DB ERR – PFD2 obstacle database missing.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
MFD1 DB ERR – MFD1 airport terrain database error exists.	The MFD and/or PFD detected a failure in the airport terrain database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 airport terrain database error exists.	
PFD2 DB ERR – PFD2 airport terrain database error exists.	
MFD1 DB ERR – MFD1 airport terrain database missing.	The airport terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 airport terrain database missing.	
PFD2 DB ERR – PFD2 airport terrain database missing.	
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD and/or PFD detected a failure in the Safe Taxi database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	
PFD2 DB ERR – PFD2 Safe Taxi database error exists.	
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD and/or PFDs detected a failure in the ChartView database (optional feature). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD and/or PFDs detected a failure in the FliteCharts database (optional feature). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
DB MISMATCH – Aviation database version mismatch. Xtalk is off.	The PFDs and MFD have different aviation database versions installed. Crossfill is off. Install correct aviation database version in all displays.

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Aviation database type mismatch. Xtalk is off.	The PFDs and MFD have different aviation database types installed (Americas, European, etc.). Crossfill is off. Install correct aviation database type in all displays.
DB MISMATCH – Terrain database version mismatch.	The PFDs and MFD have different terrain database versions installed. Install correct terrain database version in all displays.
DB MISMATCH – Terrain database type mismatch.	The PFDs and MFD have different terrain database types installed. Install correct terrain database type in all displays.
DB MISMATCH – Obstacle database version mismatch.	The PFDs and MFD have different obstacle database versions installed. Install correct obstacle database version in all displays.
DB MISMATCH – Airport Terrain database mismatch.	The PFDs and MFD have different airport terrain databases installed. Install correct airport terrain database in all displays.

GMA 1347D MESSAGE ADVISORIES

Message	Comments
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA2 FAIL – GMA2 is inoperative.	
GMA XTALK – GMA crosstalk error has occurred.	An error has occurred in transferring data between the two GMAs. The system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
GMA2 CONFIG – GMA2 config error. Config service req'd.	

GMA 1347D MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
MANIFEST – GMA2 software mismatch, communication halted.	
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.
GMA2 SERVICE – GMA2 needs service. Return unit for repair.	

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.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Flight Instruments	HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is WAAS capable.
	HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
EAS		
Nav/Com/XPDR/Audio	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.	
AFCs		
GPS Nav	MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
Flight Planning	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.	
Procedures	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.	
Hazard Avoidance	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.	
Additional Features		
Abnormal Operation	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.	
Annun/Alerts		
Appendix		
Index	LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
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 WAAS 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'.
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.	
NAV2 SERVICE – NAV2 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.
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
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.	

GIA 63W MESSAGE ADVISORIES (CONT.)

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.	

GSD 41 MESSAGE ADVISORIES

Message	Comments
GSD1 CONFIG – GSD1 config error. Config service req'd.	GSD1 and the CDU have different copies of the GSD1 configuration.
GSD1 COOLING – GSD1 temperature too low.	GSD1 is reporting a low temperature condition.
GSD1 COOLING – GSD1 over temperature.	GSD1 is reporting an over-temperature condition.
GSD1 SERVICE – GSD1 needs service. Return unit for repair.	GSD1 is reporting an internal error condition. The GSD may still be usable.
GSD1 COOLING – GSD1 over temperature.	GSD1 is reporting an over-temperature condition.
GSD1 SERVICE – GSD1 needs service. Return unit for repair.	GSD1 is reporting an internal error condition. The GSD may still be usable.

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.
GEA2 CONFIG – GEA2 config error. Config service req'd.	The GEA2 configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA 71 has incorrect software installed. The system should be serviced.
MANIFEST – GEA2 software mismatch, communication halted.	The #2 GEA 71 has incorrect software installed. The system should be serviced.

GTx 33/33D 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.
XPDR2 CONFIG – XPDR2 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
MANIFEST – GTX2 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.
XPDR2 SRVC – XPDR2 needs service. Return unit for repair.	The #2 transponder should be serviced when possible.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR2 FAIL – XPDR2 is inoperative.	There is no communication with the #2 transponder.

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.
AHRS2 TAS – AHRS2 not receiving valid airspeed.	The #2 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
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.

GRS 77 MESSAGE ADVISORIES (CONT.)

Message	Comments
AHRS2 GPS – AHRS2 using backup GPS source.	The #2 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
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.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The #2 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The #2 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The #2 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
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.
AHRS2 SRVC – AHRS2 Magnetic-field model needs update.	The #2 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.
GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	
MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.
MANIFEST – GRS2 software mismatch, communication halted.	The #2 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.
HDG FAULT – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
MANIFEST – GMU2 software mismatch, communication halted.	

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.

GWX 68 ALERT MESSAGES

Message	Comments
GWX CONFIG – GWX config error. Config service req'd.	GWX 68 configuration settings do not match those of the GDU configuration. The system should be serviced.
GWX FAIL – GWX is inoperative.	The GDU is not receiving status packet from the GWX 68 or the GWX 68 is reporting a fault. The GWX 68 radar system should be serviced.
GWX SERVICE – GWX needs service. Return unit for repair.	A failure has been detected in the GWX 68. The GWX 68 may still be usable.
MANIFEST – GWX software mismatch, communication halted.	The GWX 68 has incorrect software installed. The system should be serviced.
WX ALERT – Possible severe weather ahead.	Possible severe weather detected within +/- 10 degrees of the aircraft heading at a range of 80 to 320 nm.

GDC 74B MESSAGE ADVISORIES

Message	Comments
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	GDC1 or GDC2 is reporting that the altitude error correction is unavailable.
ADC2 ALT EC – ADC2 altitude error correction is unavailable.	
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC1 or GDC2 is reporting that the airspeed error correction is unavailable.
ADC2 AS EC – ADC2 airspeed error correction is unavailable.	
MANIFEST – GDC1 software mismatch, communication halted.	The GDC 74B has incorrect software installed. The system should be serviced.
MANIFEST – GDC2 software mismatch, communication halted.	

GCU 475 MESSAGE ADVISORIES

Message	Comments
GCU CNFG – GCU Config error. Config service req'd.	GCU 475 configuration settings do not match those of backup configuration memory. The system should be serviced.
GCU FAIL – GCU is inoperative.	A failure has been detected in the GCU 475. The GCU 475 is unavailable.
MANIFEST – GCU software mismatch, communication halted.	The GCU 475 has incorrect software installed. The system should be serviced.
GCU KEYSTK – GCU [key name] Key is stuck.	A key is stuck on the GCU 475 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.

GMC 715 MESSAGE ADVISORIES

Message	Comments
GMC CONFIG – GMC Config error. Config service req'd.	Error in the configuration of the GMC 715.
GMC FAIL – GMC is inoperative.	A failure has been detected in the GMC 715. The GMC 715 is unavailable.
MANIFEST – GMC software mismatch. Communication halted.	The GMC 715 has incorrect software installed. The system should be serviced.
GMC KEYSTK – GMC [key name] Key is stuck.	A key is stuck on the GMC 715 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.

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 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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
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.
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.
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.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
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.
NO WGS84 WPT – Non WGS 84 waypoint for navigation -[xxxx]	The selected waypoint [xxxx] does not use the WGS 84 datum. Cross-check position with alternate navigation sources.
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 or the GIA 63/W has failed.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
MAG VAR WARN – Large magnetic variance. Verify all course angles.	The GDU’s internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
SCHEDULER [#] – <message>.	Message criteria entered by the user.

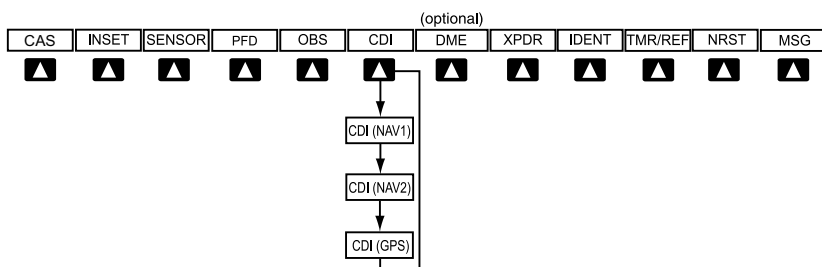
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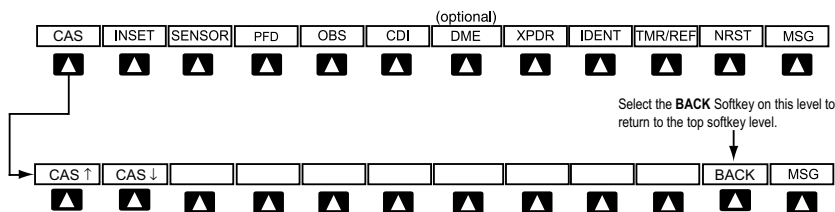
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APPENDIX

PFD SOFTKEY MAP



Top Level PFD Softkeys



CAS Softkeys

CAS

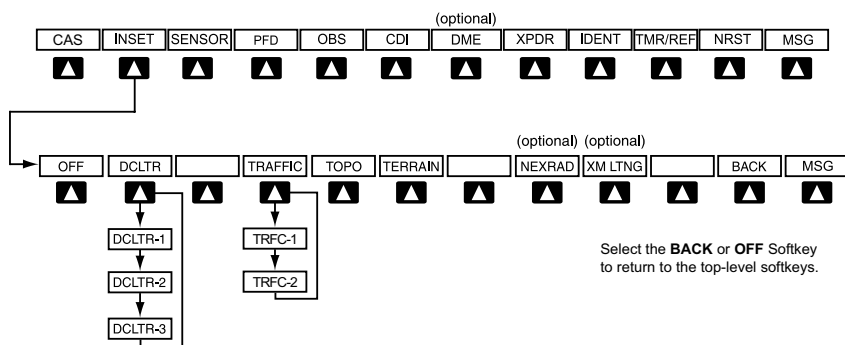
CAS ↑

Displays the scroll up and scroll down softkeys.

CAS ↓

Scroll up (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)

Scroll down (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)



INSET Map Softkeys

INSET

Displays Inset Map in PFD lower left corner

OFF

Removes Inset Map

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

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

TOPO

Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map

TERRAIN

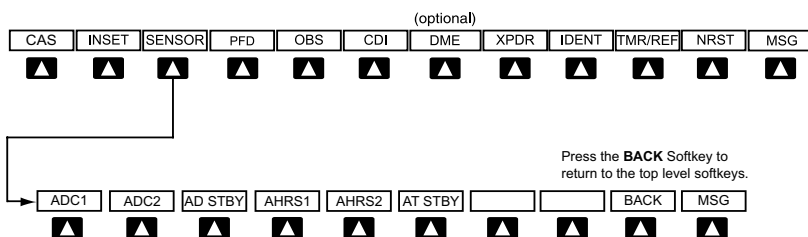
Displays terrain information on Inset Map

NEXRAD

Displays NEXRAD weather and coverage information on Inset Map (optional feature)

XM LTNG

Displays XM lightning information on Inset Map (optional feature)



SENSOR Softkeys

SENSOR

Displays softkeys for selecting the #1 and #2 AHRs and Air Data Computers

ADC1 Selects the #1 Air Data Computer

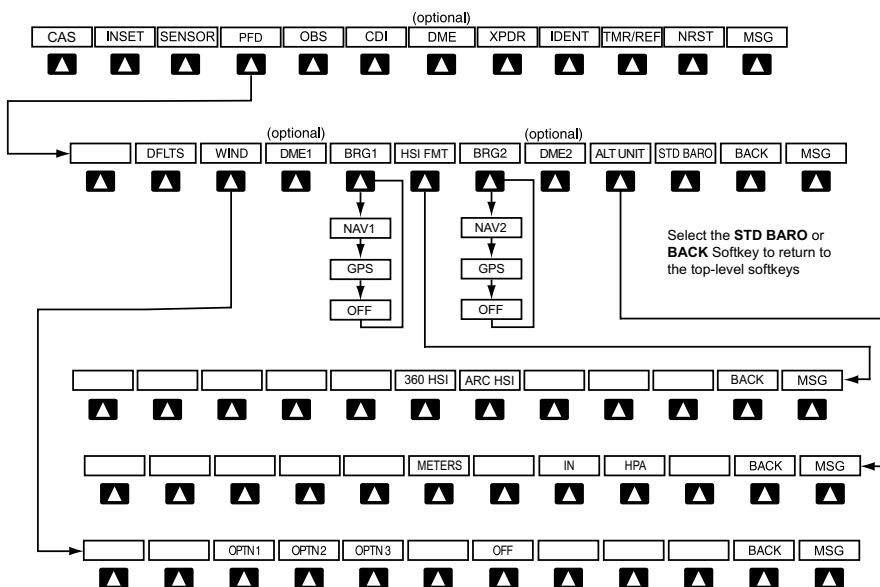
ADC2 Selects the #2 Air Data Computer

AD STBY Selects standby air data input

AHR1 Selects the #1 AHRs

AHR2 Selects the #2 AHRs

AT STBY Selects standby AHRs input



PFD Configuration Softkeys

PFD

		Displays second-level softkeys for additional PFD configurations
	DFLT5	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	Total direction with head and crosswind speed components
	OFF	Information not displayed

	DME1		Select to display the DME1 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.
--	-------------	---

	DME2		Select to display the DME2 information window
--	-------------	--	---

	ALT UNIT	Displays softkeys for setting the altimeter and BARO settings to metric units
	METERS	When enabled, displays altimeter and selected altitude in meters
	IN	Press to display the BARO setting as inches of mercury
	HPA	Press to display the BARO setting as hectopascals

STD BARO

Sets barometric pressure to 29.92 in Hg (1013 hPa)

OBS

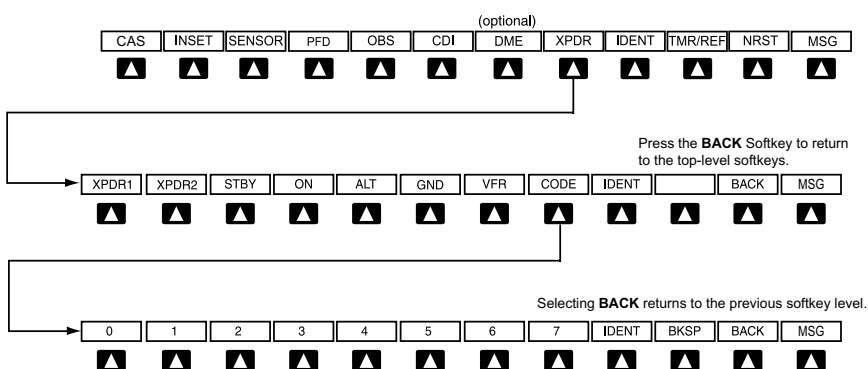
Selects OBS mode on the CDI when navigating by GPS (only available with active leg)

CDI

Cycles through GPS, VOR1 (LOC1), and VOR2 (LOC2) navigation sources on the CDI

DME

Displays the DME Tuning Window, allowing selection of the NAV source



Transponder Softkeys

XPDR

Displays transponder mode selection softkeys

XPDR1

Selects the #1 transponder as active

XPDR2

Selects the #2 transponder as active

STBY

Selects Standby Mode (transponder does not reply to any interrogations)

ON

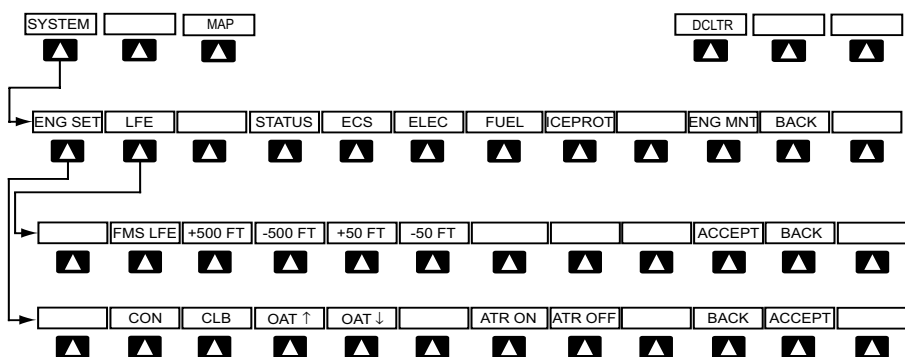
Selects Mode A (transponder replies to interrogations)

ALT

Selects Mode C – Altitude Reporting Mode (transponder replies to identification and altitude interrogations)

Flight Instruments	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.
EAS	VFR	Automatically enters the VFR code (1200 in the U.S.A. only)
Nav/Com/XPDR/Audio	CODE	Displays transponder code selection soft-keys 0-7
AFC	0 — 7	Use numbers to enter code
GPS Nav	BKSP	Removes numbers entered, one at a time
Flight Planning	IDENT	Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
Procedures	TMR/REF	Displays Timer/References Window
	NRST	Displays Nearest Airports Window
	MSG	Displays Messages Window

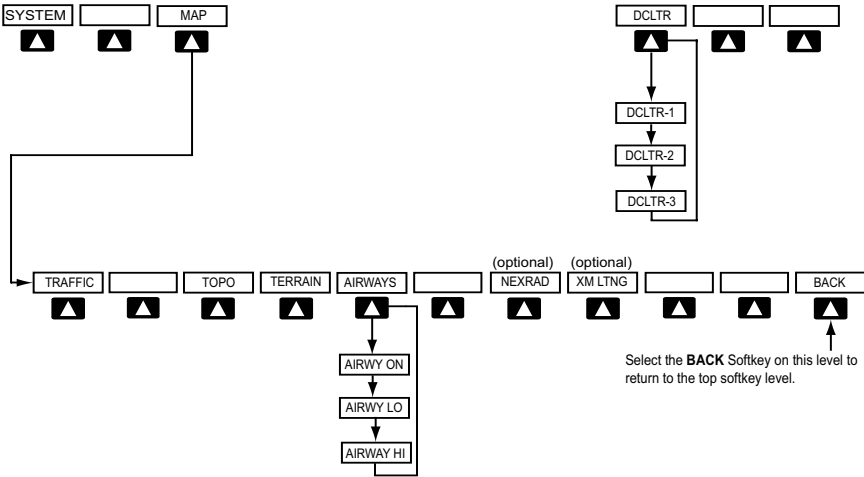
MFD SOFTKEY MAP



SYSTEM Softkeys

SYSTEM	Accesses EIS softkeys	Flight Instruments
ENG SET	Accesses the FADEC settings softkeys; displays the Takeoff Data Set Window when aircraft is parked or taxiing	EAS
CON	Selects the continuous thrust rating. Disabled when aircraft is on the ground.	Nav/Com/XPDR/Audio
CLB	Selects the maximum climb thrust rating. Disabled when aircraft is on the ground.	AFCS
OAT ↑	Increases the takeoff outside air temperature setting in one-degree Celsius increments. Disabled when aircraft is in the air.	GPS Nav
OAT ↓	Decreases the takeoff outside air temperature setting in one-degree Celsius increments. Disabled when aircraft is in the air.	Flight Planning
ATR ON	Enables Automatic Thrust Reserve (ATR). Disabled when aircraft is in the air.	Procedures
ATR OFF	Disables Automatic Thrust Reserve (ATR). Disabled when aircraft is in the air.	Hazard Avoidance
BACK	Returns display to previous softkey level	Additional Features
ACCEPT	Confirms the selected takeoff settings	Abnormal Operation
LFE	Accesses softkeys for manually setting the Landing Field Elevation (LFE)	Annun./Alerts
FMS LFE	Sets current flight plan destination elevation as displayed LFE	Appendix
+500 FT	Increases currently displayed LFE value by 500 ft	Index
-500 FT	Decreases currently displayed LFE value by 500 ft	
+50 FT	Increases currently displayed LFE value by 50 ft	
-50 FT	Decreases currently displayed LFE value by 50 ft	
ACCEPT	Confirms the LFE setting and returns to the previous softkey level	

BACK	Returns display to previous softkey level
STATUS	Displays the System-Status Page
ECS	Displays the System-ECS (Environmental Control System) Page
ELEC	Displays the System-Electrical Page
FUEL	Displays the System-Fuel Page
ICEPROT	Displays the System-Deice Page
ENG MNT	Displays the Engine Maintenance Page. Enabled only while aircraft is on the ground and engines are off.
BACK	Returns display to previous softkey level



MAP Softkeys

MAP	Enables second-level Navigation Map softkeys
TRAFFIC	Displays traffic information on Navigation Map
TOPO	Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Navigation Map
TERRAIN	Displays terrain information on Navigation Map

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 Navigation Map (optional feature)
XM LTNG	Displays XM lightning information on Navigation Map (optional feature)
BACK	Returns to top-level softkeys
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

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GARMIN

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