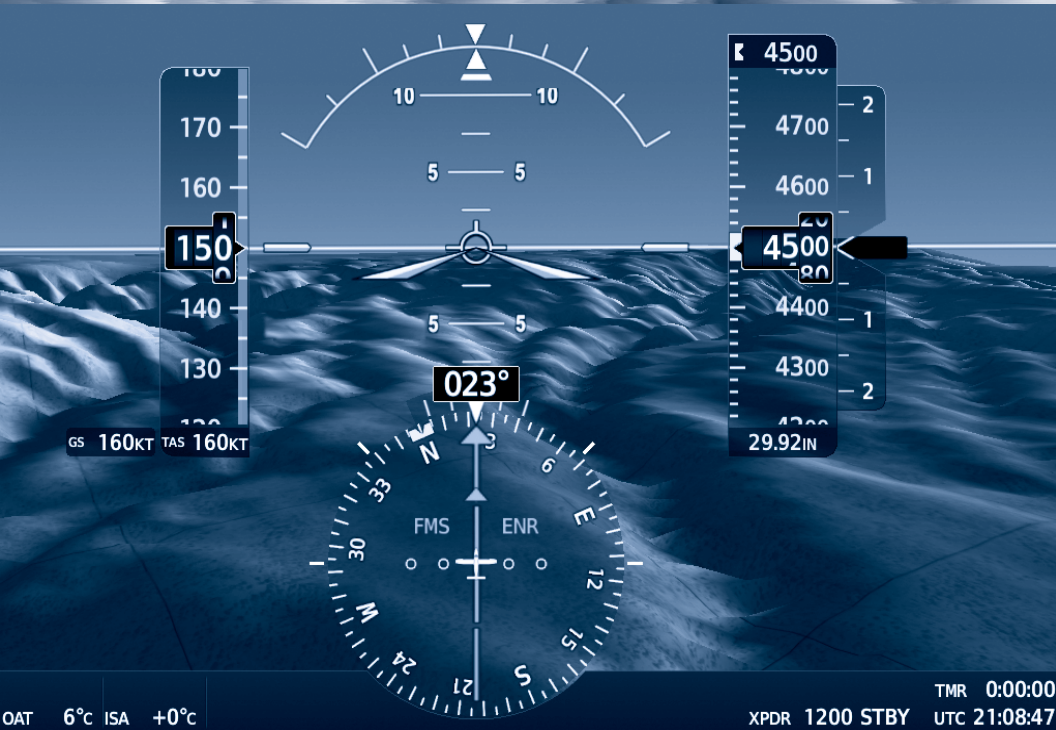


G1000[®] NXi

Cockpit Reference Guide



FLIGHT INSTRUMENTS

ENGINE INDICATION SYSTEM (EIS)

NAV/COM/TRANSPONDER/AUDIO PANEL

FLIGHT MANAGEMENT SYSTEM

HAZARD AVOIDANCE

AUTOMATIC FLIGHT CONTROL SYSTEM

ADDITIONAL FEATURES

ABNORMAL OPERATION

ANNUNCIATIONS & ALERTS

APPENDIX

INDEX

Copyright © 2017 Garmin Ltd. or its subsidiaries. All rights reserved.

This manual reflects the operation of System Software version 2633.00 or later for the Quest KODIAK® 100. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

Garmin International, Inc.

1200 East 151st Street
Olathe, Kansas 66062, U.S.A.

Garmin (Europe) Ltd.

Liberty House, Hounsdown Business Park
Southampton, Hampshire SO40 9LR U.K.

Garmin AT, Inc.

2345 Turner Road SE
Salem, OR 97302, U.S.A.

Garmin Corporation

No. 68, Zhangshu 2nd Road
Xizhi District, New Taipei City, Taiwan

Contact Garmin Product Support at www.flygarmin.com.

For warranty information refer to www.flygarmin.com.

Except as expressly provided herein, no part of this manual may be reproduced, copied, transmitted, disseminated, downloaded or stored in any storage medium, for any purpose without the express written permission of Garmin. Garmin hereby grants permission to download a single copy of this manual and of any revision to this manual onto a hard drive or other electronic storage medium to be viewed for personal use, provided that such electronic or printed copy of this manual or revision must contain the complete text of this copyright notice and provided further that any unauthorized commercial distribution of this manual or any revision hereto is strictly prohibited.

Garmin®, G1000® NXi, WATCH®, FliteCharts®, and SafeTaxi® are registered trademarks of Garmin International, Inc. or its subsidiaries. Garmin ESP™, Garmin SVT™, and Connex™ are trademarks of Garmin International, Inc. or its subsidiaries. These trademarks may not be used without the express permission of Garmin.

Stormscope® is a registered trademarks of L-3 Communications. AC-U-KWIK® is a registered trademark of Penton Business Media Inc. KODIAK® is a registered trademark of Quest Aircraft Company. NavData® is a registered trademark of Jeppesen, Inc. Wi-Fi® is a registered trademark of the Wi-Fi Alliance. SiriusXM Weather and SiriusXM Satellite Radio are provided by SiriusXM Satellite Radio, Inc. The Bluetooth® word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Garmin is under license.

AOPA membership publications, inc. and its related organizations (hereinafter collectively "AOPA") expressly disclaim all warranties, with respect to the AOPA information included in this data, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The information is provided "as is" and AOPA does not warrant or make any representations regarding its accuracy, reliability, or otherwise. Under no circumstances including negligence, shall AOPA be liable for any incidental, special or consequential damages that result from the use or inability to use the software or related documentation, even if AOPA or an AOPA authorized representative has been advised of the possibility of such damages. User agrees not to sue AOPA and, to the maximum extent allowed by law, to release and hold harmless AOPA from any causes of action, claims or losses related to any actual or alleged inaccuracies in the information. Some jurisdictions do not allow the limitation or exclusion of implied warranties or liability for incidental or consequential damages so the above limitations or exclusions may not apply to you.

AC-U-KWIK and its related organizations (hereafter collectively "AC-U-KWIK Organizations") expressly disclaim all warranties with respect to the AC-U-KWIK information included in this data, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The information is provided "as is" and AC-U-KWIK Organizations do not warrant or make any representations regarding its accuracy, reliability, or otherwise. Licensee agrees not to sue AC-U-KWIK Organizations and, to the maximum extent allowed by law, to release and hold harmless AC-U-KWIK Organizations from any cause of action, claims or losses related to any actual or alleged inaccuracies in the information arising out of Garmin's use of the information in the datasets. Some jurisdictions do not allow the limitation or exclusion of implied warranties or liability for incidental or consequential damages so the above limitations or exclusions may not apply to licensee.

Printed in the U.S.A.



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



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



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



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



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



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



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



WARNING: The displayed minimum safe altitude (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: Always obtain qualified instruction prior to operational use of this equipment.



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



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



WARNING: When using the autopilot to fly an approach with vertical guidance, the autopilot will not level the aircraft at the MDA/DH even if the MDA/DH is set in the altitude preselect.



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



WARNING: Because of variation in the earth's magnetic field, do not rely on the accuracy of attitude and heading indications (GRS 77 installations only) in the following geographic areas: North of 72° North latitude at all longitudes; South of 70° South latitude at all longitudes; North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada); North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada); North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia); South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).



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



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



WARNING: Intruder aircraft at or below 500 ft. AGL may not appear on the Garmin SVT display or may appear as a partial symbol.



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



WARNING: Do not operate the weather radar in a transmitting mode when personnel or objects are within the MPEL boundary.



WARNING: Always position the weather radar gain setting to Calibrated for viewing the actual intensity of precipitation. Changing the gain in weather mode causes precipitation intensity to be displayed as a color not representative of the true intensity.



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



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



CAUTION: Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and affect the airworthiness of the aircraft.



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



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



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



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



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



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



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



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



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



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

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



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



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



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



NOTE: Garmin requests the flight crew report any observed discrepancies related to database information. These discrepancies could come in the form of an incorrect procedure; incorrectly identified terrain, obstacles and fixes; or any other displayed item used for navigation or communication in the air or on the ground. Go to FlyGarmin.com and select 'Aviation Data Error Report'.



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



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



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



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



NOTE: The system supports approval of AC 120-76C Hardware Class 3, Software Type B Electronic Flight Bag (EFB) electronic aeronautical chart applications. Possible additional requirements may make a secondary source (traditional paper or additional electronic display) necessary onboard the aircraft. If the secondary source is a Portable Electronic Device (PED), its use must be consistent with guidance in AC 120-76C.



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

Blank Page

SOFTWARE LICENSE AGREEMENT FOR GARMIN AVIATION PRODUCTS

The software embedded in your Garmin product (the "Licensed Software") is owned by Garmin International, Inc. ("Garmin" or "us"). The Licensed Software is protected under copyright laws and international copyright treaties. The Licensed Software is provided under this Software License Agreement (hereinafter the "Agreement") and is subject to the following terms and conditions which are agreed to by End User ("Licensee", "you" or "your"), on the one hand, and Garmin and its licensors and affiliated companies of Garmin and its licensors, on the other hand. The Licensed Software is licensed, not sold, to you. Garmin and Licensee may be referred to individually as a "Party" or jointly as the "Parties."

IMPORTANT: CAREFULLY READ THIS ENTIRE AGREEMENT BEFORE USING THIS PRODUCT. INSTALLING, COPYING, OR OTHERWISE USING THIS PRODUCT INDICATES YOUR ACKNOWLEDGMENT THAT YOU HAVE READ THIS AGREEMENT AND AGREE TO ITS TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, YOU MAY NOT USE THIS PRODUCT.

1. Definitions. The following capitalized terms shall have the meanings set forth below:

- 1.1 "Device" means any Garmin device that is delivered by or on behalf of Garmin to Licensee onto which the Licensed Software is installed.
- 1.2 "Documentation" means Garmin's then-current instructional, technical or functional documentation relating to the Devices or Licensed Software which is delivered or made available by Garmin in connection with this Agreement.
- 1.3 "Licensed Software" means the software in binary executable form that is embedded in the Devices and/or made available for use on the Devices via a software loader card.
- 1.4 "Permitted Purpose" means operating and using the Device on which the Licensed Software is installed for the Device's intended use.

2. License.

- 2.1 License Grant. Subject to the terms and conditions of this Agreement and Licensee's compliance with the terms and conditions of this Agreement, Garmin hereby grants to Licensee a limited, royalty-free, non-exclusive, non-sublicenseable, non-transferable and revocable right and license to use and perform the Licensed Software as installed on the Devices and the Documentation solely for the Permitted Purpose and only during the term of this Agreement, provided that the Licensed Software may only be used by Licensee on Devices on which the Licensed Software has been installed or otherwise made available by Garmin.
- 2.2 Reservation of Rights. Garmin retains exclusive ownership of all right, title and interest in and to the Licensed Software and Documentation. All of Garmin's rights in and to the Licensed Software and Documentation not expressly licensed to Licensee under Section

2.1 are expressly reserved for Garmin. Nothing contained in this Agreement shall be construed as conferring by implication, acquiescence, or estoppel any license or other right upon Licensee. Without limiting the foregoing, the Parties acknowledge and agree that this Agreement grants Licensee a license of the Licensed Software under the terms of Section 2.1, and shall not in any manner be construed as a sale of the Licensed Software or any rights in the Licensed Software.

3. Restrictions; Protection and Third Party Devices.

- 3.1 Prohibited Uses. Licensee shall not, shall not attempt to and shall not permit any third party to: (a) sublicense, lease, loan, sell, resell, market, transfer, rent, disclose, demonstrate, or distribute the Licensed Software or Documentation to any third party; (b) uninstall the Licensed Software from the Device on which it was originally installed; (c) make any use of or perform any acts with respect to the Licensed Software or Documentation other than as expressly permitted in accordance with the terms of this Agreement; (d) use the Licensed Software or Documentation in any manner that violates any applicable law; (e) reproduce or copy the Licensed Software; (f) modify, adapt, alter, translate, port, create derivative works of, reverse engineer, decompile or disassemble the Licensed Software or Documentation or otherwise derive the source code or other proprietary information or trade secrets from the Licensed Software; (g) remove, alter, or obscure any proprietary notices from the Licensed Software or Documentation; (h) use the Licensed Software or Documentation to provide services to third parties (such as business process outsourcing, service bureau applications or third party training); (i) use the Licensed Software on any equipment, hardware or device other than a Device; or (j) export, re-export or otherwise distribute, directly or indirectly, the Licensed Software or Documentation to a jurisdiction or country to which the export, re-export or distribution of such Licensed Software or Documentation is prohibited by applicable law.
- 3.2 Protection of Software and Documentation. Licensee shall use its best efforts to protect the Licensed Software and Documentation from unauthorized access, distribution, modification, display, reproduction, disclosure or use with at least the same degree of care as Licensee normally uses in protecting its own software and documentation of a similar nature from unauthorized access, distribution, modification, display, reproduction, disclosure or use. Licensee shall limit access to the Licensed Software and Documentation to only those employees of Licensee who require access to the Licensed Software or Documentation for the Permitted Purpose and who have been made aware of the restrictions set forth in this Agreement. Licensee shall take prompt and appropriate action to prevent unauthorized use or disclosure of the Licensed Software and Documentation.

4. Term and Termination.

- 4.1 Term. The term of this Agreement shall commence on the Effective Date, and shall continue in perpetuity thereafter, unless terminated earlier as provided in this Section 4.

- 4.2 Termination by Garmin. Garmin may immediately terminate this Agreement upon written notice to Licensee if Licensee commits a material breach of this Agreement or breaches a material term of this Agreement.
- 4.3 Effect of Termination. Upon any termination of this Agreement for any Party : (a) Licensee shall immediately cease all use of the Licensed Software and Documentation; (b) all rights and licenses granted to Licensee to the Licensed Software and Documentation and Garmin’s related obligations shall immediately terminate; and (c) Sections 4.3, 5 and 6 shall survive.

5. Disclaimer; Limitations of Liability; Indemnity.

- 5.1 DISCLAIMER. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE LICENSED SOFTWARE AND DOCUMENTATION (INCLUDING ANY RESULTS TO BE OBTAINED FROM ANY USE OF THE LICENSED SOFTWARE AND DOCUMENTATION) ARE PROVIDED “AS IS” AND “AS AVAILABLE” WITH NO WARRANTIES, GUARANTEES OR REPRESENTATIONS AND NEITHER GARMIN NOR ITS AFFILIATES MAKE ANY REPRESENTATION, WARRANTY OR GUARANTEE, STATUTORY OR OTHERWISE, UNDER LAW OR FROM THE COURSE OF DEALING OR USAGE OF TRADE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INTERFERENCE, NON-INFRINGEMENT, TITLE, OR SIMILAR, UNDER THE LAWS OF ANY JURISDICTION. GARMIN DOES NOT WARRANT THAT THE LICENSED SOFTWARE OR DOCUMENTATION WILL MEET LICENSEE’S REQUIREMENTS OR THAT OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE. LICENSEE ASSUMES THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LICENSED SOFTWARE AND DOCUMENTATION. THE LICENSED SOFTWARE IS NOT INTENDED FOR USE IN ANY NUCLEAR, MEDICAL, OR OTHER INHERENTLY DANGEROUS APPLICATIONS, AND GARMIN DISCLAIMS ALL LIABILITY FOR ANY DAMAGE OR LOSS CAUSED BY SUCH USE OF THE LICENSED SOFTWARE.
- 5.2 EXCLUSION OF DAMAGES; LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING TO THE CONTRARY HEREIN, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, UNDER NO CIRCUMSTANCES AND REGARDLESS OF THE NATURE OF ANY CLAIM SHALL GARMIN BE LIABLE TO LICENSEE FOR AN AMOUNT IN EXCESS OF \$100, OR BE LIABLE IN ANY AMOUNT FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR INDIRECT DAMAGES, LOSS OF GOODWILL OR PROFITS, LIQUIDATED DAMAGES, DATA LOSS, COMPUTER FAILURE OR MALFUNCTION, ATTORNEYS’ FEES, COURT COSTS, INTEREST OR EXEMPLARY OR PUNITIVE DAMAGES, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OR NON-PERFORMANCE OF THE LICENSED SOFTWARE OR DOCUMENTATION, EVEN IF GARMIN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES.

5.3 Indemnity. Licensee shall indemnify, defend and hold Garmin and its affiliates harmless against any and all losses, claims, actions, causes of action, liabilities, demands, fines, judgments, damages and expenses suffered or incurred by Garmin or its affiliated companies in connection with: (a) any use or misuse of the Licensed Software or Documentation by Licensee or any third party in Licensee's reasonable control; or (b) Licensee's breach of this Agreement.

6. General.

6.1 No Devices or Services. Licensee acknowledges and agrees that nothing in this Agreement shall be construed as requiring Garmin to: (a) provide or supply the Devices or any other devices or hardware to Licensee; (b) grant any licenses to any software other than the Licensed Software; or (c) provide any services, such as support, maintenance, installation or professional services for the Licensed Software.

6.2 Non-Exclusive. Each Party's rights and obligations under this Agreement are non-exclusive. Garmin is not precluded from marketing, licensing, providing, selling or distributing the Licensed Software or Documentation, or any other products, software, documentation or services, either directly or through any third party.

6.3 Assignment. Licensee may not assign this Agreement or any of its rights, interests or obligations hereunder without the prior written consent of Garmin. Any purported assignment in violation of this Section 6.3 shall be null and void. Subject to the foregoing, this Agreement shall be binding upon and shall inure to the benefit of the Parties and their respective successors and permitted assigns and transferees.

6.4 Feedback and Data. Licensee may from time to time provide feedback, comments, suggestions, questions, ideas, or other information to Garmin concerning the Licensed Software or Documentation or Garmin's products, services, technology, techniques, processes or materials ("Feedback"). Garmin may in connection with any of its products or services freely use, copy, disclose, license, distribute and otherwise exploit such Feedback in any manner without any obligation, payment, royalty or restriction whether based on intellectual property rights or otherwise.

6.5 Governing Law. The validity, interpretation and enforcement of this Agreement will be governed by the substantive laws, but not the choice of law rules, of the state of Kansas. This Agreement shall not be governed by the 1980 UN Convention on Contracts for the International Sale of Goods.

6.6 Legal Compliance. You represent and warrant that (i) you are not located in a country that is subject to a U.S. Government embargo, or has been designated by the U.S. Government as a "terrorist supporting" country, and (ii) you are not listed on any U.S. Government list of prohibited or restricted parties.

- 6.7 Injunctive Relief. The Parties acknowledge and agree that irreparable damage would occur if any provision of this Agreement was not performed in accordance with its specific terms or was otherwise breached and as such, the Parties will be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the performance of the terms and provisions of this Agreement without proof of actual damages, this being in addition to any other remedy to which any Party is entitled at law or in equity.
- 6.8 Amendments and Waivers. This Agreement may be amended and any provision of this Agreement may be waived, provided that any such amendment or waiver will become and remain binding upon a Party only if such amendment or waiver is set forth in a writing by such Party. No course of dealing between or among any persons having any interest in this Agreement will be deemed effective to modify, amend or discharge any part of this Agreement or any rights or obligations of any Party under or by reason of this Agreement. No delay or failure in exercising any right, power or remedy hereunder will affect or operate as a waiver thereof; nor will any single or partial exercise thereof or any abandonment or discontinuance of steps to enforce such a right, power or remedy preclude any further exercise thereof or of any other right, power or remedy. The rights and remedies hereunder are cumulative and not exclusive of any rights or remedies that any Party would otherwise have.
- 6.9 Severability. The provisions of this Agreement will be severable in the event that for any reason whatsoever any of the provisions hereof are invalid, void or otherwise unenforceable, any such invalid, void or otherwise unenforceable provisions will be replaced by other provisions which are as similar as possible in terms to such invalid, void or otherwise unenforceable provisions but are valid and enforceable and the remaining provisions will remain valid and enforceable to the fullest extent permitted by applicable law, in each case so as to best preserve the intention of the Parties with respect to the benefits and obligations of this Agreement.
- 6.10 No Third-Party Beneficiaries. This Agreement is solely for the benefit of the Parties and does not confer on third parties any remedy, claim, reimbursement, claim of action or other right in addition to those existing without reference to this Agreement.
- 6.11 Entire Agreement. This Agreement shall constitute the entire agreement between Garmin and you with respect to the subject matter hereof and will supersede all prior negotiations, agreements and understandings of Garmin and you of any nature, whether oral or written, with respect to such subject matter.
- 6.12 Interpretation. In this Agreement: (a) headings are for convenience only and do not affect the interpretation of this Agreement; (b) the singular includes the plural and vice versa; (c) the words 'such as', 'including', 'particularly' and similar expressions are not used as,

nor are intended to be, interpreted as words of limitation; (d) a reference to a person includes a natural person, partnership, joint venture, government agency, association, corporation or other body corporate; a thing includes a part of that thing; and a party includes its successors and permitted assigns; and (e) no rule of construction applies to the disadvantage of a Party because that Party was responsible for the preparation of this Agreement. Any translation of this Agreement from English is provided as a convenience only. If this Agreement is translated into a language other than English and there is a conflict of terms between the English version and the other language version, the English version will control.

Part Number	Change Summary
190-02101-00	Initial Release

Revision	Date of Revision	Affected Pages	Description
A	September 2017	All	Production release at GDU 20.10
B	November 2017	All	Revision - Added Software License Agreement - Revised procedure viewing procedure - Added Copying Maintenance Log file to SD Card - Added Normal Operating Advisory Table - Added Approach Advisory Message - Added Voice Alerts Table - Added Comparator and Reversionary Sensor annunciations

Blank Page

FLIGHT INSTRUMENTS	1
Selecting the Altimeter Barometric Pressure Setting	1
Selecting Standard Barometric Pressure (29.92 in Hg)	1
Change Altimeter Barometric Pressure Setting Units	1
Displaying the Metric Altitude Overlay	1
Synchronizing the Altimeter Barometric Pressure Settings	1
Setting BARo transition alerts	2
Selecting Bearing Display and Changing Sources	2
Adjusting the Selected Heading	3
Adjusting the Selected Course	3
Changing the Navigation Angle True/Magnetic Setting	3
Synchronizing the CDIs	3
Changing the Selected GPS CDI Setting	4
Change Navigation Sources	4
Enable/Disable OBS Mode While Navigating with A GPS Flight Plan	4
Generic Timer (PFD)	4
Configure Vspeed Bugs Individually	5
Modifying Vspeeds as a Group (All On, All Off, Restore Defaults)	5
Set Barometric Minimum Descent Altitude/Decision Height	5
Displaying Wind Data	6
Synthetic Vision	6
ENGINE INDICATION	9
Engine Display	9
Engine System Display	11
Engine Fuel Display	12
NAV/COM/TRANSPONDER/AUDIO PANEL	15
Selecting Transponder Mode	15
Enter a Transponder Code	15
Selecting a COM Radio	15
Selecting a NAV Radio	15
NAV/COM Tuning	16
Auto-Tuning Radios On The PFD	16
Auto-Tuning Radios On The MFD	16
Simultaneous COM Operation	16
Digital Clearance Recorder and Player	17
Intercom System (ICS) Isolation	17

FLIGHT MANAGEMENT	19
Changing A Field In The MFD Navigation Status Box	19
USING MAP DISPLAYS	19
Changing The Navigation Map Orientation	19
Configuring Automatic Zoom	19
Panning The Map	20
Reviewing Information For An Airport, NAVAID, Or User Waypoint	20
Viewing Airspace Information For A Special-Use Or Controlled Airspace	20
Displaying/Removing Topographic Data On The PFD Inset Map Or The HSI Map	21
Displaying/Removing Topographic Data Using The Navigation Map Page Menu	21
Setting Up The 'Land', 'Aviation' Or 'Airspace' Group Items	21
Decluttering The Map	22
Decluttering The PFD Inset Map	22
Displaying/Removing Airways	22
Selecting An Airway Range (Low ALT Airways or High ALT Airways)	22
Displaying/Removing The Track Vector	23
Displaying/Removing The Fuel Range Ring And Selecting A Fuel Range Time	23
Displaying/Removing The Selected Altitude Intercept Arc	24
WAYPOINTS	24
Selecting An Airport For Review By Identifier, Facility Name, Or Location	24
Selecting A Runway	24
Viewing A Destination Airport	24
Viewing Information For A Nearest Airport On The PFD	25
Viewing Information For A Nearest Airport On The MFD	25
Viewing Runway Information For A Specific Airport	25
Selecting An Intersection	26
Selecting An NDB	26
Selecting A VOR	26
Selecting A VRP	26
Selecting A User Waypoint	26
Creating User Waypoints From The User Waypoint Information Page	27
Creating User Waypoints From Map Pages	27
Changing The Altitude Buffer Distance Setting	28
AIRSPACES	29
Turning An Airspace Alert On Or Off	29
Selecting And Viewing An Airspace Alert With Its Associated Information	29
Turning Smart Airspace On Or Off	29

DIRECT-TO NAVIGATION	30
Entering A Waypoint Identifier, Facility Name, Or City As A Direct-To Destination	30
Selecting An Active Flight Plan Waypoint As A Direct-To Destination	30
Selecting A Nearest, Recent Or User Waypoint As A Direct-To Destination	30
Cancelling A Direct-To	31
Selecting A Manual Direct-To Course	31
Entering A VNV Altitude And Along-Track Offset For The Waypoint	31
Removing A VNV Altitude Constraint	32
FLIGHT PLANNING	32
Creating An Active Flight Plan	32
Adding A Waypoint To The Active Flight Plan	33
Creating And Adding User Waypoints To The Active Flight Plan	34
Adding An Airway To A Flight Plan	34
Collapse/Expand Airways in a Flight Plan	34
Storing An Active Flight Plan From The Active Flight Plan Page or the Active Flight Plan Window	35
Activating A Stored Flight Plan On The MFD	35
Inverting And Activating A Stored Flight Plan On The MFD	35
Import a Flight Plan from an SD Card	35
Export a Flight Plan to an SD Card	36
Previewing a flight plan transfer from a wireless connection:	36
Ignoring a flight plan transfer from a wireless connection:	37
Storing a pending flight plan:	37
Activating a pending flight plan:	37
Deleting a pending flight plan:	37
Deleting all pending flight plans:	38
Deleting The Active Flight Plan	38
Deleting An Individual Waypoint From The Active Flight Plan	38
Deleting An Entire Airway From The Active Flight Plan	39
Deleting An Entire Procedure From The Active Flight Plan	39
Entering An Along Track Offset Distance	39
Activating Parallel Track	40
Cancelling Parallel Track	40
Activating A Flight Plan Leg	40
Inverting The Active Flight Plan	41
Inverting And Activating A Stored Flight Plan	41
Switching Between Leg-To-Leg Waypoint Distance And Cumulative Waypoint Distance	41
Determining The Closest Point Along The Active Flight Plan To A Selected Waypoint	42

Creating A User-Defined Hold At An Active Flight Plan Waypoint.....	42
Creating A User-Defined Hold At The Aircraft Present Position.....	43
Creating A User-Defined Hold At A Direct-To Waypoint.....	43
Exiting A User-Defined Hold Inserted Into The Active Flight Plan.....	44
Removing A User-Defined Hold Inserted Into The Active Flight Plan.....	44
Removing A User-Defined Hold At An Off-Route Direct-To.....	44
VERTICAL NAVIGATION	45
Enabling VNV Guidance.....	45
Disabling VNV Guidance.....	45
Altitude Constraints.....	45
Designating A Waypoint Altitude To Be Used For Vertical Guidance.....	47
Entering/Modifying An Altitude Constraint.....	48
Activating A Vertical Navigation Direct-To.....	48
Modifying The VS TGT And FPA.....	49
Deleting An Altitude Constraint Provided By The Navigation Database.....	49
Deleting An Altitude Constraint That Has Been Manually Entered.....	49
Reverting A Manually Entered Altitude Constraint Back To The Navigation Database Value.....	50
Modifying A System Calculated Altitude Constraint.....	50
PROCEDURES	50
Viewing available procedures at an airport.....	50
Loading A Departure Into The Active Flight Plan Using The PROC Key.....	51
Removing A Departure Procedure From The Active Flight Plan.....	52
Loading An Arrival Into The Active Flight Plan Using The PROC Key.....	52
Loading An Approach Into The Active Flight Plan Using The PROC Key.....	53
Activating A Previously Loaded Approach With Vectors To Final.....	53
Removing An Approach From The Active Flight Plan.....	54
Activating A Missed Approach In The Active Flight Plan.....	54
Activating Temperature Compensated Altitude.....	54
Cancelling Temperature Compensated Altitude.....	54
TRIP PLANNING	55
Selecting Automatic Or Manual Page Mode.....	55
Selecting Flight Plan Or Waypoint Mode.....	55
Selecting A Flight Plan And Leg For Trip Statistics.....	55
Selecting Waypoints For Waypoint Mode.....	55
Entering Manual Data For Trip Statistics Calculations.....	56

RAIM PREDICTION	56
Predicting RAIM Availability At A Selected Waypoint.....	56
Predicting RAIM Availability At The Aircraft Present Position.....	57
Enabling/Disabling SBAS.....	57
HAZARD AVOIDANCE	59
Customizing the Hazard Displays on the Navigation Map Page:.....	59
STORMSCOPE® (Optional)	59
SiriusXM Weather (Optional)	60
FIS-B Weather	64
Airborne Color Weather Radar	70
Terrain Awareness & Warning System (TAWS-B)	77
AUTOMATIC FLIGHT CONTROL SYSTEM	81
Activating The Flight Director	81
Vertical Modes	82
Lateral Modes	83
Combination Modes (VNV, APR, NAV, BC, GA)	84
ADDITIONAL FEATURES	85
Terminal Procedure Charts	85
SurfaceWatch	87
Airport Directory	88
Electronic Checklists	89
SiriusXM™ Radio Entertainment	90
Maintenance Logs	92
Scheduler	94
Crew Profiles	95
Electronic Stability & Protection	99
Connex Setup	100
Auxiliary Video	101
ABNORMAL OPERATION	103
Reversionary Mode	103
Abnormal COM Operation	103
Hazard Displays with Loss of GPS Position	103
Unusual Attitudes	104
Dead Reckoning	105

ANNUNCIATIONS & ALERTS 107

- System Annunciations** 107
- System Annunciations (Cont.)** 108
- Aircraft Alerts** 109
- Comparator Annunciations** 112
- Reversionary Sensor Annunciations** 112
- AFCS Alerts** 113
- Voice Alerts** 114
- TAWS B Alerts** 115
- TAWS-B System Status Annunciations** 117
- GDL 69A SXM Data Link Receiver Messages** 117
- System Messages** 118
- Flight Plan Import/Export Messages** 136
- Crew Profile import/Export Messages** 137

APPENDIX 139

- PFD Softkeys** 139
- MFD Softkeys** 143
- Loading Updated Databases** 146
- Magnetic Field Variation Database Update** 150
- Map Symbols** 150
- Miscellaneous Symbols** 153

INDEX Index-1

FLIGHT INSTRUMENTS

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

SELECTING THE ALTIMETER BAROMETRIC PRESSURE SETTING

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

SELECTING STANDARD BAROMETRIC PRESSURE (29.92 IN HG)

- 1) Press the **PFD Opt** Softkey to display the second-level softkeys.
- 2) Press the **STD Baro** Softkey.
- 3) Press the **Back** Softkey to return to the top-level softkeys.

CHANGE ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

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

Or:

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

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

DISPLAYING THE METRIC ALTITUDE OVERLAY

- 1) Press the **PFD Opt** Softkey to display the second-level softkeys.
- 2) Press the **ALT Units** Softkey
- 3) Press the **Meters** Softkey to enable metric altitude overlays.
- 4) Press the **Back** Softkey twice to return to the top-level PFD softkeys.

SYNCHRONIZING THE ALTIMETER BAROMETRIC PRESSURE SETTINGS

- 1) Select the AUX-System Setup 1 Page on the MFD using the **FMS** Knob.
- 2) Press the **FMS** Knob to activate the cursor.

- 3) Turn the large **FMS** Knob to highlight BARO in the Synchronization Window.
- 4) Turn the small **FMS** Knob clockwise to On or counterclockwise to Off
- 5) Press the **FMS** Knob to remove the cursor.

SETTING BARO TRANSITION ALERTS

- 1) Use the **FMS** Knob to select the Aux - System Setup 1 Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) To enable/disable the Baro Transition Alert based on altitude, turn the large **FMS** Knob to highlight the 'On' or 'Off' field for the BARO Transition Alert Altitude in the BARO Transition Alert Box.
- 4) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Altitude On or Off.
- 5) Turn the large **FMS** Knob to highlight the Altitude field.
- 6) Use the **FMS** Knobs to change the altitude and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.
- 7) Turn the large **FMS** Knob to highlight the 'On' or 'Off' field for the BARO Transition Alert Level.
- 8) If desired, turn the small **FMS** Knob to set the BARO Transition Alert Flight Level On or Off.
- 9) Turn the large **FMS** Knob to highlight the Flight Level field.
- 10) Use the **FMS** Knobs to change the Flight Level for the alert and press the **ENT** Key to accept or press the **CLR** Key to return to the previous altitude selection.
- 11) Push the **FMS** Knob to deactivate the cursor.

SELECTING BEARING DISPLAY AND CHANGING SOURCES

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **Bearing 1** Softkey or the **Bearing 2** Softkey to display the desired bearing pointer and information window with a NAV source.

- 3) Press the **Bearing 1** Softkey or the **Bearing 2** Softkey again to change the bearing source to GPS.
- 4) To remove the bearing pointer and information window, press the **Bearing 1** Softkey or the **Bearing 2** Softkey again.

ADJUSTING THE SELECTED HEADING

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

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

ADJUSTING THE SELECTED COURSE

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

Press the **CRS** Knob to re-center the CDI and return the course pointer to the bearing of the active waypoint or navigation station.

CHANGING THE NAVIGATION ANGLE TRUE/MAGNETIC SETTING

- 1) Use the **FMS** Knob to select the AUX - System Setup 1 Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight NAV Angle in the Display Units box.
- 4) Turn the small **FMS** Knob to highlight the desired setting and press the **ENT** Key.
 - TRUE - References angles to true north (T)
 - MAGNETIC - Angles corrected to the computed magnetic variation (Mag Var)

SYNCHRONIZING THE CDIS

- 1) Select the AUX - System Setup 1 Page using the **FMS** Knob on the MFD.
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight 'CDI Sync' in the Synchronization box.
- 4) Turn the small **FMS** Knob clockwise to On or counterclockwise to Off.

CHANGING THE SELECTED GPS CDI SETTING

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

CHANGE NAVIGATION SOURCES

- 1) Press the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the cyan tuning box over the NAV1 standby frequency in the upper left corner of the PFD.
- 2) Press the **CDI** Softkey again to change to VOR2 or LOC2. This places the cyan tuning box over the NAV2 standby frequency.
- 3) Press the **CDI** Softkey a third time to return to GPS.

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH A GPS FLIGHT PLAN

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

GENERIC TIMER (PFD)

- 1) Press the **Tmr/Ref** Softkey, then turn the large **FMS** Knob to select the time field (hh/mm/ss). Turn the **FMS** Knobs to set the desired time, then press the **ENT** Key. The Up/Dn field is now highlighted.
- 2) Turn the small **FMS** Knob to display the Up/Down window. Turn the **FMS** Knob to select 'Up' or 'Dn', then press the **ENT** Key. 'START?' is now highlighted.
- 3) Press the **ENT** Key to START, STOP, or RESET the timer (if the timer is counting down, it will start counting up after reaching zero). Press the **CLR** Key or the **Tmr/Ref** Softkey to remove the window.

CONFIGURE VSPEED BUGS INDIVIDUALLY

- 1) Press the **Tmr/Ref** Softkey.
- 2) Turn the large **FMS** Knob to highlight the desired Vspeed.
- 3) Use the small **FMS** Knob to change the highlighted Vspeed in 1-kt increments. When a speed has been changed from its default value, an asterisk appears next to the changed 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.

MODIFYING VSPEEDS AS A GROUP (ALL ON, ALL OFF, RESTORE DEFAULTS)

- 1) Press the **Tmr/Ref** Softkey.
- 2) Press the **MENU** Key.
- 3) Turn the **FMS** Knob to highlight the desired selection.
- 4) Press the **ENT** Key.
- 5) To remove the window, press the **CLR** Key or the **Tmr/Ref** Softkey.

SET BAROMETRIC MINIMUM DESCENT ALTITUDE/DECISION HEIGHT

- 1) Press the **Tmr/Ref** Softkey.
- 2) Turn the large **FMS** Knob to highlight the Off/BARO/TEMP COMP field to the right of 'MINS'.
- 3) Turn the small **FMS** Knob clockwise to select BARO or TEMP COMP. Off is selected by default.
- 4) Press the **ENT** Key or turn the **FMS** Knob to highlight the next field.
- 5) Use the small **FMS** Knob to enter the desired altitude (BARO or TEMP COMP from zero to 16,000 feet). If TEMP COMP was selected, a field for entering the airport temperature will appear. Press the **ENT** Key or turn the large **FMS** Knob to highlight this field, and use the small **FMS** Knob to enter the temperature.
- 6) Press the **ENT** Key.
- 7) To remove the window, press the **CLR** Key or the **Tmr/Ref** Softkey.

DISPLAYING WIND DATA

- 1) Press the **PFD Opt** Softkey.
- 2) Press the **Wind** Softkey.
- 3) Press one of the **Option** softkeys to change how wind data is displayed.
- 4) To remove the Wind Data Window, press the **Off** Softkey.
- 5) Press the **Back** Softkey twice to return to the top-level PFD softkeys.

SYNTHETIC VISION



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



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

Synthetic Vision Technology (SVT) functionality is offered as an optional enhancement to the system.

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

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

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

Activating and deactivating SVT:

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

Activating and deactivating Pathways:

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

Activating and deactivating Horizon Headings:

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

Activating and deactivating Airport Signs:

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

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Blank Page

ENGINE INDICATION

ENGINE DISPLAY

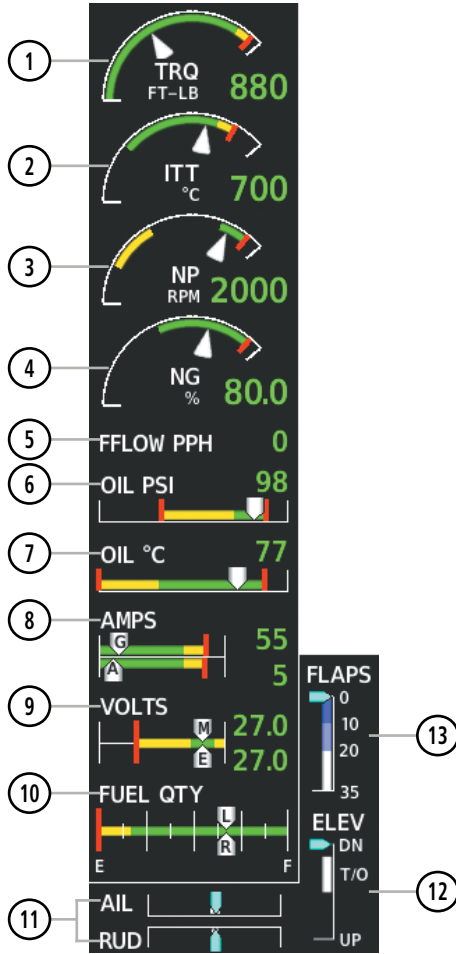


Figure 3-4 Engine Display

Flight Instruments	<p>① Torque Gauge (TRQ FT-LB)</p>	<p>Displays engine torque in foot-pounds (ft-lb). Caution and warning ranges are propeller speed sensitive and change for speeds greater than 2000 rpm.</p>
EIS	<p>② Interstage Turbine Temperature Gauge (ITT °C)</p>	<p>Displays Interstage Turbine Temperature (ITT) in degrees Celsius (°C).</p> <ul style="list-style-type: none"> -When the starter is engaged, 'STRT' is annunciated above the temperature readout. -When the engine is off or in the process of being shut down, 'OFF' is annunciated. -When the ITT is below 200°, dashes "----" are displayed in place of the temperature readout.
Nav/Com/XPDR/Audio	<p>③ Propeller Speed Gauge (NP RPM)</p>	<p>Displays propeller speed in revolutions per minute (rpm)</p>
Flight Management	<p>④ Generator Speed Gauge (NG %)</p>	<p>Displays generator speed as a percentage</p>
Hazard Avoidance	<p>⑤ Fuel Flow (FFLOW PPH)</p>	<p>Displays current fuel flow in pounds per hour (pph)</p>
AFCS	<p>⑥ Oil Pressure Indicator (OIL PSI)</p>	<p>Displays engine oil pressure in pounds per square inch (psi)</p>
Additional Features	<p>⑦ Oil Temperature Indicator (OIL °C)</p>	<p>Displays engine oil temperature in °C</p>
Abnormal Operation	<p>⑧ Ammeter (AMPS)</p>	<p>Displays DC current in amperes (amps) for the generator (G) and the alternator (A)</p>
Annun/Alerts	<p>⑨ Voltmeter (VOLTS)</p>	<p>Displays DC bus voltages for the main bus (M) and essential bus (E)</p>
Appendix	<p>⑩ Fuel Quantity Indicator (FUEL QTY)</p>	<p>Displays quantities of fuel in pounds (lb) in the left (L) and right (R) tanks</p>
Index	<p>⑪ Aileron and Rudder Trim Bars (AIL, RUD)</p>	<p>Aileron and rudder trim are indicated with pointers along slide bars; the white bars indicate takeoff trim positions</p>
	<p>⑫ Elevator Trim Bar (ELEV)</p>	<p>Elevator trim is indicated with a pointer along a slide bar; takeoff trim position is indicated with a white bar and T/O label</p>
	<p>⑬ Flap Position Indicator (FLAPS)</p>	<p>Flap deflection is indicated with a pointer along a color-coded slide bar</p>

ENGINE SYSTEM DISPLAY

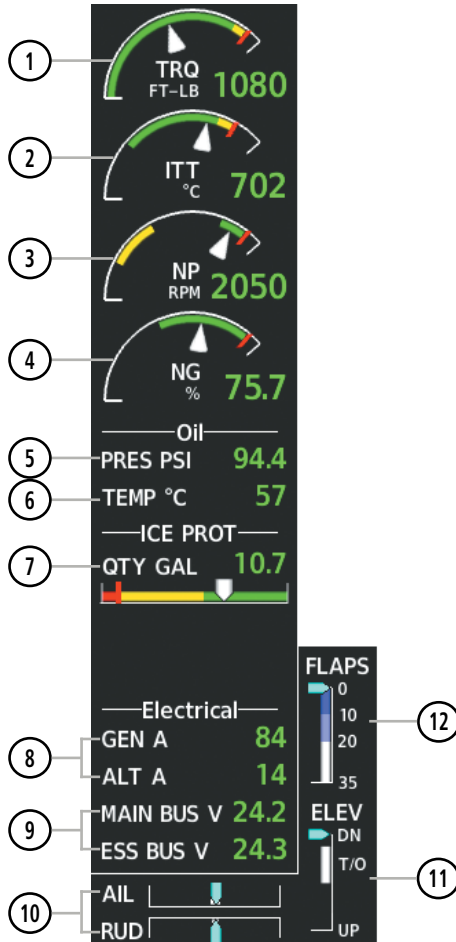


Figure 3-6 System Display

- ① **Torque Gauge (TRQ FT-LB)** Displays engine torque in foot-pounds (ft-lb)
- ② **Interstage Turbine Temperature Gauge (ITT °C)** Displays Interstage Turbine Temperature (ITT) in degrees Celsius (°C)

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

- 3 Propeller Speed Gauge (NP RPM)** Displays propeller speed in revolutions per minute (rpm)
- 4 Generator Speed Gauge (NG %)** Displays generator speed as a percentage
- 5 Oil Pressure (PRES PSI)** Displays engine oil pressure in pounds per square inch (psi)
- 6 Oil Temperature (TEMP °C)** Displays engine oil temperature in °C
- 7 Ice Protection (QTY GAL)** Displays quantity of ice protection fluid in gallons (gal)
- 8 Ammeter (GEN A, ALT A)** Displays DC current in amperes (amps) for the generator (G) and the alternator (A)
- 9 Voltmeter (MAIN BUS V, ESS BUS V)** Displays DC bus voltages for the main bus and essential bus
- 10 Aileron and Rudder Trim Bars (AIL, RUD)** Aileron and rudder trim are indicated with pointers along slide bars; the white bars indicate takeoff trim positions
- 11 Elevator Trim Bar (ELEV)** Elevator trim is indicated with a pointer along a slide bar; takeoff trim position is indicated with a white bar and T/O label
- 12 Flap Position Indicator (FLAPS)** Flap deflection is indicated with a pointer along a color-coded slide bar

ENGINE FUEL DISPLAY

- 1) Press the **ENGINE** Softkey.
- 2) Press the **FUEL** Softkey.
- 3) To return to the default Engine Display, press the **ENGINE** or **BACK** Softkey.



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

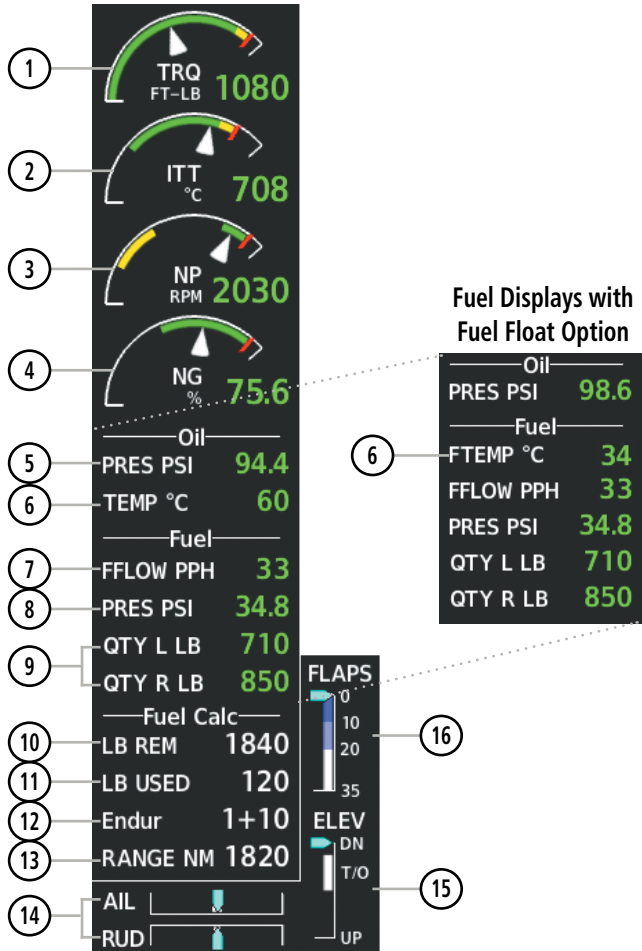


Figure 3-7 Engine Fuel Display

Fuel calculations are based on the fuel flow totalizer and the displayed fuel remaining (LB REM), adjusted by the pilot using the following softkeys:

- **DEC Fuel** – Decreases totalizer-based fuel remaining in 10-lb increments
- **INC Fuel** – Increases totalizer-based fuel remaining in 10-lb increments
- **RST Fuel** – Resets totalizer-based fuel remaining to the aircraft’s fuel capacity and the displayed fuel used (LB USED) to zero

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Flight Instruments	1	Torque Gauge (TRQ FT-LB)	Displays engine torque in foot-pounds (ft-lb)
EIS	2	Interstage Turbine Temperature Gauge (ITT °C)	Displays Interstage Turbine Temperature (ITT) in degrees Celsius (°C)
Nav/Com/XPDR/Audio	3	Propeller Speed Gauge (NP RPM)	Displays propeller speed in revolutions per minute (rpm)
Flight Management	4	Generator Speed Gauge (NG %)	Displays generator speed as a percentage
Flight Management	5	Oil Pressure (PRES PSI)	Displays engine oil pressure in pounds per square inch (psi)
Flight Management	6	Oil Temperature (TEMP °C)	Displays engine oil temperature in °C (not present with Fuel Float option)
Flight Management	6	Fuel Temperature (F TEMP °C)	Displays engine fuel temperature in °C (only present with Fuel Float option)
Hazard Avoidance	7	Fuel Flow (FFLOW PPH)	Displays current fuel flow in pounds per hour (pph)
AFCS	8	Fuel Pressure (PRES PSI)	Displays current fuel pressure in pounds per square inch (psi)
Additional Features	9	Fuel Quantities (QTY L/R LB)	Displays quantities of fuel in pounds (lb) in the left (L) and right (R) tanks
Additional Features	10	Set Fuel Remaining (LB REM)	Displays current fuel remaining in lb as set by the pilot and adjusted for fuel burn since last set
Abnormal Operation	11	Calculated Fuel Used (LB USED)	Displays quantity of fuel used in lb based on fuel flow since last reset
Abnormal Operation	12	Calculated Endurance (Endur)	Displays flight time remaining in hours:minutes (HH:MM) based on the calculated fuel remaining
Annun/Alerts	13	Calculated Range (RANGE NM)	Displays aircraft range in nautical miles (nm) based on the calculated fuel remaining, the aircraft's heading, and the wind direction and speed
Appendix	14	Aileron and Rudder Trim Bars (AIL, RUD)	Aileron and rudder trim are indicated with pointers along slide bars; the white bars indicate takeoff trim positions
Appendix	15	Elevator Trim Bar (ELEV)	Elevator trim is indicated with a pointer along a slide bar; takeoff trim position is indicated with a white bar and T/O label
Index	16	Flap Position Indicator (FLAPS)	Flap deflection is indicated with a pointer along a color-coded slide bar

NAV/COM/TRANSPONDER/AUDIO PANEL

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

SELECTING TRANSPONDER MODE

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

ENTER A TRANSPONDER CODE

- 1) Press the **XPDR** Softkey to display the transponder mode selection softkeys.
- 2) Press the **Code** Softkey to display the transponder code selection softkeys, for digit entry.
- 3) Press the digit softkeys to enter the code in the code field. When entering the code, the next key in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Five seconds after the fourth digit has been entered, the transponder code becomes active.

SELECTING A COM RADIO

Transmit/Receive

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

Receive Only

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

SELECTING A NAV RADIO

- 1) To begin navigating using a navigation radio, press the **CDI** Softkey on the PFD to select VOR1/LOC1 (NAV1) or VOR2/LOC2 (NAV2).
- 2) Press the **NAV1** or **NAV2** Key on the audio panel to select or deselect 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 cyan 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.

AUTO-TUNING RADIOS ON THE PFD

- 1) Press the **Nearest** Softkey to display the Nearest Airports Window.
- 2) Turn either **FMS** Knob to highlight the desired frequency.
- 3) Press the **ENT** Key to place the frequency in the standby field of the active COM.
- 4) Press the Frequency Transfer Key to place the frequency in the active field.

NAV frequencies are entered automatically in the NAV frequency active or standby field (depending in CDI selection) upon approach loading or approach activation.

AUTO-TUNING RADIOS ON THE MFD

Auto-tuning on the MFD is done in much the same way as on the PFD. Use the **FMS** Knobs to select the desired frequency on any of the information pages. Pressing the **ENT** Key then loads the selected frequency in the tuning box as a standby frequency.

SIMULTANEOUS COM OPERATION

Both the pilot and the copilot can transmit and receive messages simultaneously over separate COM radios. The selected COM MIC Annunciator flashes when either pilot's microphone PTT is pressed.

If both pilots select the same COM radio, the pilot has priority on COM1 and the copilot has priority on COM2.

DIGITAL CLEARANCE RECORDER AND PLAYER



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

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

INTERCOM SYSTEM (ICS) ISOLATION

Press the **PILOT** and/or **COPLT** Key to select those isolated from hearing the Nav/Com radios and music.

Mode	PILOT KEY ANNUNCIATOR	COPLT KEY ANNUNCIATOR	Pilot Hears	Copilot Hears	Passenger Hears
ALL	OFF	OFF	Selected radios; pilot; copilot; passengers; music	Selected radios; pilot; copilot; passengers; music	Selected radios; pilot; copilot; passengers; music
PILOT	ON	OFF	Selected radios; pilot	Copilot; passengers; music	Copilot; passengers; music
COPILOT	OFF	ON	Selected radios; pilot; passengers; music	Copilot	Selected radios; pilot; passengers; music
CREW	ON	ON	Selected radios; pilot; copilot	Selected radios; pilot; copilot	Passengers; music

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Blank Page

FLIGHT MANAGEMENT

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Changing A Field In The MFD Navigation Status Box

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

USING MAP DISPLAYS

CHANGING THE NAVIGATION MAP ORIENTATION

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

CONFIGURING AUTOMATIC ZOOM

- 1) Press the **MENU** Key with the Navigation Map Page displayed. The cursor flashes on the 'Map Settings' option.
- 2) Press the **ENT** Key. The Map Settings Menu is displayed.
- 3) Select the 'Map' group.
- 4) Press the **ENT** Key.

- 5) Highlight the 'Auto Zoom' on/off field, and select 'Off' or 'On' using the small **FMS** Knob.
- 6) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Auto Zoom' display selection field.
- 7) Select 'MFD', 'PFD', or 'All' using the small **FMS** Knob.
- 8) Press the **ENT** Key to accept the selected option. The flashing cursor highlights the 'Max Look FWD' field. Times are from zero to 999 minutes.
- 9) Use the **FMS** Knobs to set the time. Press the **ENT** Key.
- 10) Repeat step 9 for 'Min Look FWD' (zero to 99 minutes) and 'Time Out' (zero to 99 minutes).
- 11) Press the **FMS** Knob to return to the Navigation Map Page.

PANNING THE MAP

- 1) Push the **Joystick** to display the Map Pointer.
- 2) Move the **Joystick** to move the Map Pointer around the map.
- 3) Push the **Joystick** to remove the Map Pointer and recenter the map on the aircraft's current position.

REVIEWING INFORMATION FOR AN AIRPORT, NAVAID, OR USER WAYPOINT

- 1) Place the Map Pointer on a waypoint.
- 2) Press the **ENT** Key to display the Waypoint Information Page for the selected waypoint.
- 3) Select the **Go Back** Softkey, the **CLR** Key, or the **ENT** Key to exit the Waypoint Information Page and return to the Navigation Map showing the selected waypoint.

VIEWING AIRSPACE INFORMATION FOR A SPECIAL-USE OR CONTROLLED AIRSPACE

- 1) Place the Map Pointer on the boundary of an airspace.
- 2) Push the **Joystick** to remove the Map Pointer and center the map on the aircraft.

DISPLAYING/REMOVING TOPOGRAPHIC DATA ON THE PFD INSET MAP OR THE HSI MAP

- 1) Select the **Map/HSI** Softkey.
- 2) Select the **Topo** Softkey.
- 3) Select the **Topo** Softkey again to remove topographic data from the PFD Inset Map or the HSI Map. When topographic data is removed from the PFD Map or HSI Map, all navigation data is presented on a black background.

DISPLAYING/REMOVING TOPOGRAPHIC DATA USING THE NAVIGATION MAP PAGE MENU

- 1) Press the **MENU** Key with the Navigation Map Page displayed. The cursor flashes on the 'Map Settings' option.
- 2) Press the **ENT** Key. The Map Settings Menu is displayed.
- 3) Select the 'Map' group.
- 4) Press the **ENT** Key.
- 5) Highlight the 'Terrain Display' field.
- 6) Select 'Topo' or 'Off'.
- 7) Press the **FMS** Knob to return to the Navigation Map Page.

SETTING UP THE 'LAND', 'AVIATION' OR 'AIRSPACE' GROUP ITEMS

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

DECLUTTERING THE MAP

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

DECLUTTERING THE PFD INSET MAP

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

DISPLAYING/REMOVING AIRWAYS

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

SELECTING AN AIRWAY RANGE (LOW ALT AIRWAYS OR HIGH ALT AIRWAYS)

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

DISPLAYING/REMOVING THE TRACK VECTOR

- 1) Press the **MENU** Key with the Navigation Map Page displayed. The cursor flashes on the 'Map Setting' option.
- 2) Press the **ENT** Key. The Map Settings Menu is displayed.
- 3) Select the 'Map' group.
- 4) Press the **ENT** Key.
- 5) Highlight the 'Track Vector' field.
- 6) Select 'On' or 'Off'. Press the **ENT** Key to accept the selected option. The flashing cursor highlights the look ahead time field. Use the **FMS** Knob to select the desired time. Press the **ENT** Key.
- 7) Press the **FMS** Knob to return to the Navigation Map Page.

DISPLAYING/REMOVING THE FUEL RANGE RING AND SELECTING A FUEL RANGE TIME

- 1) Press the **MENU** Key with the Navigation Map Page displayed. The cursor flashes on the 'Map Settings' option.
- 2) Press the **ENT** Key. The Map Settings Menu is displayed.
- 3) Select the 'Map' group.
- 4) Press the **ENT** Key.
- 5) Highlight the 'Fuel Range (RSV)' field.
- 6) Select 'On' or 'Off'.
- 7) Highlight the fuel reserve time field. This time should be set to the amount of flight time equal to the amount of fuel reserve desired.
- 8) To change the reserve fuel time, enter a time (00+00 to 23+59; hours+minutes). The default setting is 00+45 minutes.
- 9) Press the **ENT** Key.
- 10) Press the **FMS** Knob to return to the Navigation Map Page.

DISPLAYING/REMOVING THE SELECTED ALTITUDE INTERCEPT ARC

- 1) Press the **MENU** Key with the Navigation Map Page displayed. The cursor flashes on the 'Map Settings' option.
- 2) Press the **ENT** Key. The Map Settings Menu is displayed.
- 3) Select the 'Map' group.
- 4) Press the **ENT** Key.
- 5) Highlight the 'Select ALT Arc' field.
- 6) Select 'On' or 'Off'.
- 7) Press the FMS Knob to return to the Navigation Map Page.

WAYPOINTS

SELECTING AN AIRPORT FOR REVIEW BY IDENTIFIER, FACILITY NAME, OR LOCATION

- 1) From the Airport Information Page, press the **FMS** Knob.
- 2) Use the **FMS** Knobs and enter an identifier, facility name, or location.
- 3) Press the **ENT** Key.
- 4) Press the **FMS** Knob to remove the cursor.

SELECTING A RUNWAY

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

VIEWING A DESTINATION AIRPORT

From the Airport Information Page press the **MENU** Key. Select 'View Destination Airport'. The Destination Airport is displayed.

VIEWING INFORMATION FOR A NEAREST AIRPORT ON THE PFD

- 1) Select the **Nearest** Softkey to display the Nearest Airports Window.
- 2) Highlight the airport identifier with the **FMS** Knob and press the **ENT** Key to display the Airport Information Window.
- 3) To return to the Nearest Airports Window press the **ENT** Key (with the cursor on 'BACK') or press the **CLR** Key. The cursor is now on the next airport in the nearest airports list. (Repeatedly pressing the **ENT** Key moves through the airport list, alternating between the Nearest Airports Window and the Airport Information Window.)
- 4) Press the **CLR** Key or the **Nearest** Softkey to close the PFD Nearest Airports Window.

VIEWING INFORMATION FOR A NEAREST AIRPORT ON THE MFD

- 1) Turn the large **FMS** Knob to select the NRST page group.
- 2) Turn the small **FMS** Knob to select the Nearest Airports Page (it is the first page of the group, so it may already be selected). If there are no Nearest Airports available, "None Within 200nm" is displayed.
- 3) Select the **APT** Softkey; or press the **FMS** Knob; or press the **MENU** Key, highlight 'Select Airport Window' and press the **ENT** Key. The cursor is placed in the 'Nearest Airports' Box. The first airport in the nearest airports list is highlighted.
- 4) Turn the **FMS** Knob to highlight the desired airport. (Pressing the **ENT** Key also moves to the next airport.)
- 5) Press the **FMS** Knob to remove the flashing cursor.

VIEWING RUNWAY INFORMATION FOR A SPECIFIC AIRPORT

- 1) With the Nearest Airports Page displayed, select the **RNWX** Softkey; or press the **MENU** Key, highlight 'Select Runway Window'; and press the **ENT** Key. The cursor is placed in the 'Runways' Box.
- 2) Turn the small **FMS** Knob to select the desired runway.
- 3) Press the **FMS** Knob to remove the flashing cursor.

SELECTING AN INTERSECTION

- 1) With the Intersection Information Page displayed, enter an identifier in the Intersection Box.
- 2) Press the **ENT** Key.
- 3) Press the **FMS** Knob to remove the flashing cursor.

SELECTING AN NDB

- 1) With the NDB Information Page displayed, enter an identifier, the name of the NDB, or the city in which it's located in the NDB Box.
- 2) Press the **ENT** Key.
- 3) Press the **FMS** Knob to remove the flashing cursor.

SELECTING A VOR

- 1) With the VOR Information Page displayed, enter an identifier, the name of the VOR, or the city in which it's located in the VOR Box.
- 2) Press the **ENT** Key.
- 3) Press the **FMS** Knob to remove the flashing cursor.

SELECTING A VRP

- 1) With the VRP Information Page displayed, enter the identifier or the name of the VRP in the VRP Box.
- 2) Press the **ENT** Key.
- 3) Press the **FMS** Knob to remove the flashing cursor.

SELECTING A USER WAYPOINT

- 1) With the User Waypoint Information Page displayed, enter the name of the User Waypoint, or scroll to the desired waypoint in the User Waypoint List using the large **FMS** Knob.
- 2) Press the **ENT** Key.
- 3) Press the **FMS** Knob to remove the flashing cursor.

CREATING USER WAYPOINTS FROM THE USER WAYPOINT INFORMATION PAGE

- 1) With the User Waypoint Information Page displayed, press the **New** Softkey, **or** press the **MENU** Key and select 'Create New User Waypoint'.
- 2) Enter a user waypoint name (up to six characters).
- 3) Press the **ENT** Key. The current aircraft position is the default location of the new waypoint.
- 4) If desired, define the type and location of the waypoint in one of the following ways:

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

Or:

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

Or:

Select "LAT/LON" using the small **FMS** Knob, press the **ENT** Key, and enter the latitude and longitude into the Information window using the **FMS** Knobs.

- 5) Press the **ENT** Key to accept the new waypoint.
- 6) If desired, change the storage method of the waypoint to "Temporary" or "Normal" by moving the cursor to "Temporary" and selecting the **ENT** Key to check or uncheck the box.
- 7) Press the **FMS** Knob to remove the flashing cursor.

CREATING USER WAYPOINTS FROM MAP PAGES

- 1) Push the **Joystick** to activate the panning function and pan to the map location of the desired user waypoint.
- 2) Press the **ENT** Key. The User Waypoint Information Page is displayed with the captured position.
- 3) Enter a user waypoint name (up to six characters).

- 4) Press the **ENT** Key to accept the selected name. The first reference waypoint box is highlighted.
- 5) If desired, define the type and location of the waypoint in one of the following ways:

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

Or:

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

Or:

Select "LAT/LON" using the small **FMS** Knob, press the **ENT** Key, and enter the latitude and longitude into the Information window using the **FMS** Knobs.

- 6) Press the **ENT** Key to accept the new waypoint.
- 7) If desired, change the storage method of the waypoint to "Temporary" or "Normal" by moving the cursor to "Temporary" and selecting the **ENT** Key to check or uncheck the box.
- 8) Press the **FMS** Knob to remove the flashing cursor.
- 9) Press the **Go Back** Softkey to return to the map page.

CHANGING THE ALTITUDE BUFFER DISTANCE SETTING

- 1) Use the **FMS** Knob to select the AUX - System Setup 1 Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the altitude buffer field in the Airspace Alerts Box.
- 4) Use the **FMS** Knob to enter an altitude buffer value and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

AIRSPACES

TURNING AN AIRSPACE ALERT ON OR OFF

- 1) Use the **FMS** Knob to select the AUX - System Setup 1 Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the desired field in the Airspace Alerts Box.
- 4) Turn the small **FMS** Knob clockwise to turn the airspace alert ON or counterclockwise to turn the alert OFF.
- 5) Press the **FMS** Knob to remove the flashing cursor.

SELECTING AND VIEWING AN AIRSPACE ALERT WITH ITS ASSOCIATED INFORMATION

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

TURNING SMART AIRSPACE ON OR OFF

- 1) Use the **FMS** Knob to select the Navigation Map Page.
- 2) Press the **MENU** Key, and press the **ENT** Key. The cursor is placed in the 'Group' Box.
- 3) Turn the small **FMS** Knob to highlight the 'Airspace' in the 'Group' Box and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to highlight the 'Smart Airspace' field in the Aviation Map Setup Window.
- 5) Turn the small **FMS** Knob clockwise to turn smart airspace 'On' or counterclockwise to turn smart airspace 'Off'.
- 6) Press the **FMS** Knob to remove the flashing cursor.

DIRECT-TO NAVIGATION

ENTERING A WAYPOINT IDENTIFIER, FACILITY NAME, OR CITY AS A DIRECT-TO DESTINATION

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

SELECTING AN ACTIVE FLIGHT PLAN WAYPOINT AS A DIRECT-TO DESTINATION

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

SELECTING A NEAREST, RECENT OR USER WAYPOINT AS A DIRECT-TO DESTINATION

- 1) Press the **Direct-to** Key. The Direct-to Window is displayed (with the active flight plan destination as the default selection or a blank destination if no flight plan is active).

- 2) Turn the small **FMS** Knob counter-clockwise to display a list of flight plan waypoints (the FPL list is populated only when navigating a flight plan).
- 3) Turn the small **FMS** Knob clockwise to display the Nearest, Recent or User waypoints.
- 4) Turn the large **FMS** Knob clockwise to select the desired waypoint.
- 5) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
- 6) Press the **ENT** Key again to activate the direct-to.

CANCELLING A DIRECT-TO

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

SELECTING A MANUAL DIRECT-TO COURSE

- 1) Press the **Direct-to** Key. The Direct-to Window is displayed with the destination field highlighted.
- 2) Highlight the course field.
- 3) Enter the desired course.
- 4) Press the **ENT** Key. The cursor is now displayed on 'Activate?'.
- 5) Press the **ENT** Key again to activate the direct-to.

ENTERING A VNV ALTITUDE AND ALONG-TRACK OFFSET FOR THE WAYPOINT

- 1) Press the **Direct-to** Key to display the Direct-to Window.
- 2) Turn the large **FMS** Knob to place the cursor over the 'VNV' altitude field.
- 3) Enter the desired altitude.
- 4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an airport, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.
- 5) The cursor is now flashing in the VNV offset distance field.

- 6) Enter the desired along-track distance before the waypoint.
- 7) Press the **ENT** Key. The 'Activate?' field is highlighted.
- 8) Press the **ENT** Key to activate.

REMOVING A VNV ALTITUDE CONSTRAINT

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

FLIGHT PLANNING

CREATING AN ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key.
- 2) Press the small **FMS** Knob to activate the cursor (only on MFD).
- 3) Select the origin airport and runway.
 - a) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, or user waypoints).
 - b) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The Set Runway Window is displayed with the Runway field highlighted.
 - c) Turn the small **FMS** Knob to select the runway and press the **ENT** Key.
 - d) Press the **ENT** Key again to add the runway to the flight plan.
- 4) Turn the large **FMS** Knob to highlight the destination airport identifier field.
- 5) Select the destination airport and runway.
 - a) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, or user waypoints).

- b) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The Set Runway Window is displayed with the Runway field highlighted.
 - c) Turn the small **FMS** Knob to select the runway and press the **ENT** Key.
 - d) Press the **ENT** Key again to add the runway to the flight plan.
- 6) Turn the large **FMS** Knob to highlight the Enroute Header, an enroute waypoint, or the dashes below the header. (If the header is selected, the new waypoint is placed following the header. If an enroute waypoint or the dashes are selected, the new waypoint will be placed ahead of the selected item.)
- a) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, or user waypoints).
 - b) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The active flight plan is modified as each waypoint is entered.
- 7) Repeat step number 6 to enter each additional enroute waypoint.
- 8) When all waypoints have been entered, press the **FMS** Knob to remove the cursor.

ADDING A WAYPOINT TO THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key.
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD).
- 3) Select the point in the flight plan before which to add the new waypoint. The new waypoint is placed directly in front of the highlighted waypoint.
- 4) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).

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

CREATING AND ADDING USER WAYPOINTS TO THE ACTIVE FLIGHT PLAN

- 1) Push the **Joystick** to activate the panning function on the Active Flight Plan Page and pan to the map location of the desired user waypoint.
- 2) Select the **LD WPT** Softkey; or press the **MENU** Key, select 'Load Waypoint', and press the **ENT** Key. The user waypoint is created with a name of USRxxx (using the next available in sequence) and is added to the end of the active flight plan.

ADDING AN AIRWAY TO 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) Press the **MENU** Key and select "Load Airway". The Select Airway Page is displayed.
- 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.

COLLAPSE/EXPAND AIRWAYS IN A FLIGHT PLAN

- 1) Press the **FPL** Key.
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD).
- 3) Press the **MENU** Key, highlight 'Collapse Airways' or 'Expand Airways' and press the **ENT** Key. All airways are collapsed/expanded.

STORING AN ACTIVE FLIGHT PLAN FROM THE ACTIVE FLIGHT PLAN PAGE OR THE ACTIVE FLIGHT PLAN WINDOW

- 1) Press the **MENU** Key.
- 2) Highlight 'Store Flight Plan'.
- 3) Press the **ENT** Key.
- 4) With 'OK' highlighted, press the **ENT** Key. The flight plan is stored in the next available position in the flight plan list on the Flight Plan Catalog Page.

ACTIVATING A STORED FLIGHT PLAN ON THE MFD

- 1) Press the **FPL** Key and turn the small **FMS** Knob to display the Flight Plan Catalog Page.
- 2) Press the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.
- 3) Select the **Activate** Softkey; or press the **ENT** Key twice; or press the **MENU** Key, highlight 'Activate Flight Plan', and press the **ENT** Key. The 'Activate Stored Flight Plan?' window is displayed.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

INVERTING AND ACTIVATING A STORED FLIGHT PLAN ON THE MFD

- 1) Press the **FPL** Key and turn the small **FMS** Knob to display the Flight Plan Catalog Page.
- 2) Press the **FMS** Knob to activate the cursor, and turn the **FMS** Knob to highlight the desired flight plan.
- 3) Select the **Invert** Softkey; or press the **MENU** Key, highlight 'Invert & Activate FPL?', and press the **ENT** Key. The 'Invert and activate stored flight plan?' window is displayed.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

IMPORT A FLIGHT PLAN FROM AN SD CARD

- 1) Insert the SD card containing the flight plan in the top card slot on the MFD.
- 2) Press the **FPL** Key on the MFD to display the Active Flight Plan Page on the MFD.

- 3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
- 4) Press the **FMS** Knob to activate the cursor.
- 5) Turn either **FMS** Knob to highlight an empty or existing flight plan.
- 6) Press the **Import** Softkey.

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

Or:

If an existing flight plan is selected, an 'Overwrite existing flight plan? OK or CANCEL' prompt is displayed. Press the **ENT** Key to choose to overwrite the selected flight plan and see a list of the available flight plans on the SD card. If overwriting the existing flight plan is not desired, select 'CANCEL' using the **FMS** Knob, press the **ENT** Key, select another existing or empty flight plan, and again press the **Import** Softkey.

- 7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.
- 8) Press the **ENT** Key to confirm the import.

EXPORT A FLIGHT PLAN TO AN SD CARD

- 1) Insert the SD card into the top card slot on the MFD.
- 2) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
- 4) Press the **FMS** Knob to activate the cursor.
- 5) Turn the large **FMS** Knob to highlight the flight plan to be exported.
- 6) Press the **Export** Softkey.
- 7) Press the **ENT** Key to confirm the export.

Flight plans can be transferred to or from a mobile device via the Flight Stream 510 Bluetooth wireless connection. Transfer of a flight plan to a mobile device is controlled by the mobile device.

PREVIEWING A FLIGHT PLAN TRANSFER FROM A WIRELESS CONNECTION:

- 1) When a flight plan transfer has been initiated from a mobile device, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and a Connex announcement appears to the right of the MFD page name.
- 2) Press the **ENT** Key to display the Preview Flight Plan Page on the MFD.

IGNORING A FLIGHT PLAN TRANSFER FROM A WIRELESS CONNECTION:

- 1) When a flight plan transfer has been initiated from a mobile device, a Pending Flight Plan pop-up alert appears in the lower right corner of the MFD, and an Connex announcement appears to the right of the MFD page name.
- 2) Press the **CLR** Key to remove the pop-up alert and ignore the pending flight plan. The pending flight plan will still be available on the Flight Plan Catalog page.

STORING A PENDING FLIGHT PLAN:

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

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

DELETING A PENDING FLIGHT PLAN:

- 1) Press the **FPL** Key.
- 2) Turn the small **FMS** Knob to display the Flight Plan Catalog Page.

- 3) Press the **FMS** Knob to activate the cursor.
- 4) Turn the **FMS** Knob to highlight the desired pending flight plan.
- 5) Press the **Delete** Softkey. The 'Delete Flight Plan XX?' window is displayed.
- 6) With 'OK' highlighted, press the **ENT** Key to delete the pending flight plan. The pending flight plan is removed from the Flight Plan Catalog Page. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

DELETING ALL PENDING FLIGHT PLANS:

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

DELETING THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Delete Flight Plan', and press the **ENT** Key. The 'Delete all waypoints in flight plan?' window is displayed.
- 3) With 'OK' highlighted, press the **ENT** Key to delete the active flight plan. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

DELETING AN INDIVIDUAL WAYPOINT FROM THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the waypoint to be deleted.
- 3) Press the **CLR** Key. The 'Remove XXXXX?' window is displayed.

- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

Flight Instruments
EIS
Nav/Com/XPDR/Audio
Flight Management
Hazard Avoidance
AFCs
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

DELETING AN ENTIRE AIRWAY FROM THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the header of the airway to be deleted.
- 3) Press the **CLR** Key. The 'Remove <airway name> from flight plan?' window is displayed.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

DELETING AN ENTIRE PROCEDURE FROM THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the header of the procedure to be deleted.
- 3) Press the **CLR** Key. The 'Remove <procedure name> from flight plan?' window is displayed.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

ENTERING AN ALONG TRACK OFFSET DISTANCE

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the waypoint for the along track offset.

- 3) Select the **ATK OFS** Softkey (MFD only); or press the **MENU** Key, highlight 'Create ATK Offset Waypoint', and press the **ENT** Key.
- 4) Enter a positive or negative offset distance in the range of +/- 1 to 999 nm (limited by leg distances).
- 5) Press the **ENT** Key to create the offset waypoint.
- 6) Press the **FMS** Knob to remove the flashing cursor.

ACTIVATING PARALLEL TRACK

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The Parallel Track Window is displayed with the 'Direction' field highlighted.
- 3) Turn the small **FMS** Knob to select 'LEFT' or 'RIGHT' and press the **ENT** Key. The 'Distance' field is highlighted.
- 4) Turn the small **FMS** Knob to enter a distance from 1-99 nm and press the **ENT** Key. 'Activate Parallel Track' is highlighted.
- 5) Press the **ENT** Key to activate parallel track. Press the **FMS** Knob or the **CLR** Key to cancel the parallel track activation.

CANCELLING PARALLEL TRACK

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Parallel Track', and press the **ENT** Key. The Parallel Track Window is displayed with 'Cancel Parallel Track?' highlighted.
- 3) Press the **ENT** Key.

ACTIVATING A FLIGHT PLAN LEG

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the destination waypoint for the desired leg.

- 3) Select the **ACT Leg** Softkey (MFD only); or press the **MENU** Key, highlight 'Activate Leg', and press the **ENT** Key. A confirmation window is displayed with 'Activate' highlighted.
- 4) Press the **ENT** Key to activate the flight plan leg. To cancel, press the **CLR** Key, or highlight 'Cancel' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

INVERTING THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Invert Flight Plan', and press the **ENT** Key. An 'Invert Active Flight Plan?' confirmation window is displayed.
- 3) Select 'OK'.
- 4) Press the **ENT** Key to invert and activate the active flight plan. To cancel, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

INVERTING AND ACTIVATING 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, and turn the **FMS** Knob to highlight the desired flight plan.
- 3) Select the **Invert** Softkey; or press the **MENU** Key, highlight 'Invert & Activate FPL?', and press the **ENT** Key. The 'Invert and activate stored flight plan?' window is displayed.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the request, press the **CLR** Key, or highlight 'CANCEL' and press the **ENT** Key.

SWITCHING BETWEEN LEG-TO-LEG WAYPOINT DISTANCE AND CUMULATIVE WAYPOINT DISTANCE

- 1) Press the **FPL** Key on the MFD to display the Active Flight Plan Page.
- 2) Select the **View** Softkey to display the **CUM** and **Leg-Leg** Softkeys.
- 3) Select the **CUM** Softkey to view cumulative waypoint distance, or select the **Leg-Leg** Softkey to view leg-to-leg waypoint distance.
- 4) Select the **Back** Softkey to return to the top level active flight plan softkeys.

DETERMINING THE CLOSEST POINT ALONG THE ACTIVE FLIGHT PLAN TO A SELECTED WAYPOINT

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Closest Point Of FPL', and press the **ENT** Key. A window appears with the reference waypoint field highlighted.
- 3) Enter the identifier of the reference waypoint and press the **ENT** Key. The system displays the bearing (BRG) and distance (DIS) to the closest point along the flight plan to the selected reference waypoint and creates a user waypoint at this location. The name for the new user waypoint is derived from the identifier of the reference waypoint.

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

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the waypoint for the hold.
- 3) Press the **MENU** Key, highlight 'Hold At Waypoint', and press the **ENT** Key. The 'Hold at' window appears with the course field highlighted.
- 4) Use the **FMS** Knobs to edit the entry course, and press the **ENT** Key.
- 5) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
- 6) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
- 7) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
- 8) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
- 9) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC Time), and press the **ENT** Key.
- 10) Press the **ENT** Key while 'Load?' is highlighted to insert the hold into the flight plan.

CREATING A USER-DEFINED HOLD AT THE AIRCRAFT PRESENT POSITION

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, highlight 'Hold At Present Position', and press the **ENT** Key. The 'Hold at' window appears with the course field highlighted.
- 3) If desired, use the **FMS** Knobs to edit the entry course, and press the **ENT** Key.
- 4) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
- 5) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
- 6) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
- 7) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
- 8) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC Time), and press the **ENT** Key.
- 9) Press the **ENT** Key while 'Activate?' is highlighted to create an Offroute Direct-to hold waypoint at the aircraft present position and activate the hold.

CREATING A USER-DEFINED HOLD AT A DIRECT-TO WAYPOINT

- 1) Press a **Direct-to** Key and set up the direct-to waypoint as desired, but select 'Hold?' instead of 'Activate?' when finished (MFD or PFD).
- 2) Use the **FMS** Knobs to edit the entry course, and press the **ENT** Key.
- 3) Use the small **FMS** Knob to select 'Inbound' or 'Outbound' course direction, and press the **ENT** Key.
- 4) Use the small **FMS** Knob to select 'Time' or 'Distance' length mode, and press the **ENT** Key.
- 5) Use the **FMS** Knobs to edit the length, and press the **ENT** Key.
- 6) Use the small **FMS** Knob to select 'Right' or 'Left' turn direction, and press the **ENT** Key.
- 7) Use the **FMS** Knobs to edit the Expect Further Clearance Time (EFC TIME), and press the **ENT** Key.

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

EXITING A USER-DEFINED HOLD INSERTED INTO THE ACTIVE FLIGHT PLAN

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

REMOVING A USER-DEFINED HOLD INSERTED INTO THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **FMS** Knob to activate the cursor (not required on the PFD) and turn the large **FMS** Knob to highlight the HOLD waypoint.
- 3) Press the **CLR** Key. A 'Remove Holding Pattern?' confirmation window is displayed.
- 4) Select 'OK' and press the **ENT** Key. The holding pattern is removed from the active flight plan. Select 'CANCEL' and press the **ENT** Key to cancel the removal of the holding pattern.

REMOVING A USER-DEFINED HOLD AT AN OFF-ROUTE DIRECT-TO

- 1) Press a **Direct To** Key to display the Direct To Window (PFD or MFD).
- 2) Press the **MENU** Key to display the Page Menu with the cursor on the 'Cancel Direct-To NAV' selection.
- 3) Press the **ENT** Key. The holding pattern is removed.

VERTICAL NAVIGATION

ENABLING VNV GUIDANCE

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Select the **ENBL VNV** Softkey; or press the **MENU** Key, highlight 'Enable VNV', and press the **ENT** Key. Vertical navigation is enabled, and vertical guidance begins with the waypoint shown in the Active VNV Profile box (defaults first waypoint in the active flight plan with an altitude enabled for vertical navigation).

DISABLING VNV GUIDANCE

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Select the **Cncl VNV** Softkey; or press the **MENU** Key, highlight 'Cancel VNV', and press the **ENT** Key. Vertical navigation is disabled.

ALTITUDE CONSTRAINTS

The system can use altitude constraints associated with lateral waypoints to give guidance for vertical navigation. These altitudes are, depending on the specific instance, manually entered or retrieved from the published altitudes in the navigation database.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management**
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Active Flight Plan
KMKC / KCOS

	DTK	DIS	ALT
BRK	353°	21.5NM	12000FT
KCOS-RNAV_{GPS} Y 35R LPV			
HABUK iaf	164°	8.0NM	10280FT
FALUR	290°	5.3NM	8600FT 
CEGIX faf	352°	6.4NM	8100FT
RW35R map	352°	6.1NM	
6600FT	352°	0.9NM	<u>6600FT</u>
ADANE mahp	056°	15.6NM	<u>9000FT</u>
HOLD	297°	7.0NM	

Displayed Text Examples

White Text

Cyan Text with Pencil Icon

Cyan Text

White Text with Altitude Restriction Bar

Altitude Constraint Examples

2300FT

Cross AT 2,300 ft

5000FT

Cross AT or ABOVE 5,000 ft

3000FT

Cross AT or BELOW 3,000 ft

6646FT 

Temperature Compensated

White Text	Cyan Text
<p style="text-align: center;">5000FT</p> <p>Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. No white line above or below to indicate a potential constraint.</p> <p style="text-align: center;">5000FT</p> <p>Altitude retrieved from the navigation database. White line above or below indicates the type of constraint, as shown in the preceding figure. These altitudes are provided as a reference, and are not designated to be used in determining vertical guidance.</p>	<p style="text-align: center;">5000FT</p> <p>Altitude is designated for use in determining vertical guidance. A pencil icon indicates manual designation or manual data entry.</p> <p style="text-align: center;">5000FT</p> <p>The system cannot use this altitude in determining vertical guidance because of an invalid constraint condition.</p>

Altitudes associated with approach procedures are “auto-designated”. This means the system automatically uses the altitudes loaded with the approach for giving vertical speed and deviation guidance. Note that these altitudes are displayed as cyan text up to, but not including, the FAF. The FAF is always a “reference only” altitude and cannot be designated, unless the selected approach does not provide vertical guidance. In this case, the FAF altitude can be designated.

Altitudes that have been designated for use in vertical guidance can be “un-designated” using the **CLR** Key. The altitude is now displayed only as a reference. It is not used to give vertical guidance. Other displayed altitudes may change due to recalculations or be rendered invalid as a result of manually changing an altitude to a non-designated altitude.

DESIGNATING A WAYPOINT ALTITUDE TO BE USED FOR VERTICAL GUIDANCE

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude.
- 3) Turn the small **FMS** Knob to enter editing mode.
- 4) Press the **ENT** Key. The altitude is now shown in cyan, indicating it is usable for vertical guidance.

- Flight Instruments
- FIS
- Nav/Com/XPDR/Audio
- Flight Management**
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

ENTERING/MODIFYING AN ALTITUDE CONSTRAINT

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Enter an altitude constraint value using the **FMS** Knobs. To enter altitudes as a flight level, turn the small **FMS** Knob counter-clockwise past zero or clockwise past 9 on the first character, and the system automatically changes to show units of Flight Level. Turn the large **FMS** Knob clockwise to highlight the first zero and enter the three digit flight level.
- 4) Press the **ENT** Key to accept the altitude constraint; if the selected waypoint is an airport without a runway selected, an additional choice is displayed. Turn the small **FMS** Knob to choose 'MSL' or 'AGL', and press the **ENT** Key to accept the altitude.

An altitude constraint is invalid if:

- Meeting the constraint requires the aircraft to climb
- Meeting the constraint requires the maximum flight path angle or maximum vertical speed to be exceeded
- The altitude constraint results in a TOD behind the aircraft present position
- The constraint is within a leg type for which altitude constraints are not supported
- The altitude constraint is added to the FAF of an approach that provides vertical guidance (i.e., ILS or GPS SBAS approach)
- The altitude constraint is added to a waypoint past the FAF.

ACTIVATING A VERTICAL NAVIGATION DIRECT-TO

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob to activate the cursor and turn the **FMS** Knob to highlight the desired waypoint.
- 3) Select the **VNV Direct-To** Softkey; or press the **MENU** Key, highlight 'VNV Direct-To', and press the **ENT** Key. An 'Activate vertical Direct-to to: NNNNNFT at XXXXXX?' confirmation window is displayed.

- 4) Press the **ENT** Key. Vertical guidance begins to the altitude constraint for the selected waypoint.
- 5) Press the **FMS** Knob to remove the flashing cursor.

MODIFYING THE VS TGT AND FPA

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

DELETING AN ALTITUDE CONSTRAINT PROVIDED BY THE NAVIGATION DATABASE

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Press the **CLR** Key. A 'Remove VNV altitude constraint?' confirmation window is displayed.
- 4) Select 'OK' and press the **ENT** Key.

DELETING AN ALTITUDE CONSTRAINT THAT HAS BEEN MANUALLY ENTERED

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Press the **CLR** Key. A 'Remove or Revert to published VNV altitude of nnnnnFT?' confirmation window is displayed.
- 4) Select 'REMOVE' and press the **ENT** Key. The manually entered altitude is deleted (it is replaced by a system calculated altitude, if available).

REVERTING A MANUALLY ENTERED ALTITUDE CONSTRAINT BACK TO THE NAVIGATION DATABASE VALUE

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Press the **CLR** Key. A 'Remove or Revert to published VNV altitude of nnnnnFT?' confirmation window is displayed.
- 4) Select 'REVERT' and press the **ENT** Key. The altitude is changed to the navigation database value.
- 5) Press the **FMS** Knob to remove the flashing cursor.

MODIFYING A SYSTEM CALCULATED ALTITUDE CONSTRAINT

- 1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
- 2) Press the **FMS** Knob, and turn to highlight the desired waypoint altitude constraint.
- 3) Press the **CLR** Key. An 'Edit or Revert to published VNV altitude of nnnnnFT?' confirmation window is displayed.
- 4) Select 'EDIT' and press the **ENT** Key.
- 5) Edit the value using the **FMS** Knobs, and press the **ENT** Key.
- 6) Press the **FMS** Knob to remove the flashing cursor.

PROCEDURES

VIEWING AVAILABLE PROCEDURES AT AN AIRPORT

- 1) From the Airport Information Page (first page in the WPT group):
Select the **DP** Softkey. The Departure Information Page is displayed, defaulting to the airport displayed on the Airport information Page.
Or.
Select the **STAR** Softkey. The Arrival Information Page is displayed, defaulting to the airport displayed on the Airport information Page.
Or.

Select the **APR** Softkey. The Approach Information Page is displayed, defaulting to the airport displayed on the Airport information Page.

- 2) Press the **FMS** Knob to activate the cursor. To select another airport, enter an identifier/facility name/city, and press the **ENT** Key.
- 3) Turn the large **FMS** Knob to highlight the procedure. The procedure is previewed on the map.
- 4) Turn the small **FMS** Knob to view the available procedures. Press the **ENT** Key to select the procedure. The cursor moves to the next box (runway or transition). The procedure is previewed on the map.
- 5) Turn the **FMS** Knobs, as required, to highlight a runway or transition. Press the **ENT** Key to select the runway or transition. The cursor moves to the next box. The procedure is previewed on the map.
- 6) Repeat Step 5, until desired information has been viewed for the chosen procedure.
- 7) Press the **Info 1** Softkey or the **Info 2** Softkey to return to the Airport Information Page.

LOADING A DEPARTURE INTO THE ACTIVE FLIGHT PLAN USING THE PROC KEY

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Flight Instruments

REMOVING A DEPARTURE PROCEDURE FROM THE ACTIVE FLIGHT PLAN

EIS

Nav/Com/XPDR/Audio

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, and highlight 'Remove Departure'.
- 3) Press the **ENT** Key. A confirmation window is displayed listing the departure procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal request, highlight 'CANCEL' and press the **ENT** Key.

Flight Management

LOADING AN ARRIVAL INTO THE ACTIVE FLIGHT PLAN USING THE PROC KEY

Hazard Avoidance

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

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

HSI Annunciation	Description
LNAV	RNAV GPS approach using published LNAV minima
LNAV+V	RNAV GPS approach using published LNAV minima. Advisory vertical guidance is provided
L/VNAV (available only if SBAS available)	RNAV GPS approach using published LNAV/VNAV minima (downgrades to L/VNAV (Baro VNAV) if SBAS unavailable)
LP (available only if SBAS available)	RNAV GPS approach using published LP minima (downgrades to LNAV if SBAS unavailable)
LP+V (available only if SBAS available)	RNAV GPS approach using published LP minima Advisory vertical guidance is provided (downgrades to LNAV if SBAS unavailable)
LPV (available only if SBAS available)	RNAV GPS approach using published LPV minima (downgrades to L/VNAV (Baro VNAV) if SBAS unavailable)

Approach Service Levels

LOADING AN APPROACH INTO THE ACTIVE FLIGHT PLAN USING THE PROC KEY

- 1) Press the **PROC** Key. The Procedures Window is displayed.
- 2) Highlight 'Select Approach', and press the **ENT** Key. The Approach Loading Page is displayed.
- 3) Select the airport and approach:
 - a) Use the **FMS** Knob to select an airport and press the **ENT** Key.
 - b) Select an approach from the list and press the **ENT** Key.

Or:

 - a) If necessary, push the **FMS** Knob to exit the approach list, and use the large **FMS** Knob to move the cursor to the Approach Channel field.
 - b) Use the **FMS** Knob to enter the approach channel number, and press the **ENT** Key to accept the approach channel number. The airport and approach are selected.
- 4) Select a transition (if required) and press the **ENT** Key.
- 5) Minimums
 - a) To set 'Minimums', turn the small **FMS** Knob to select 'BARO' or 'TEMP COMP' and press the **ENT** Key. Turn the small **FMS** Knob to select the altitude, and press the **ENT** Key.
 - b) If 'TEMP COMP' was selected, the cursor moves to the temperature field. Turn the small **FMS** Knob to select the temperature, and press the **ENT** Key.

Or:

To skip setting minimums, press the **ENT** Key.
- 6) Press the **ENT** Key with 'Load?' highlighted to load the approach procedure; or turn the large **FMS** Knob to highlight 'Activate' and press the **ENT** Key to load and activate the approach procedure.

ACTIVATING A PREVIOUSLY LOADED APPROACH WITH VECTORS TO FINAL

- 1) Press the **PROC** Key to display the Procedures Window.
- 2) Highlight 'Activate Vector-to-Final' and press the **ENT** Key.

REMOVING AN APPROACH FROM THE ACTIVE FLIGHT PLAN

- 1) Press the **FPL** Key to display the Active Flight Plan Page (MFD) or the Active Flight Plan Window (PFD).
- 2) Press the **MENU** Key, and highlight 'Remove Approach'.
- 3) Press the **ENT** Key. A confirmation window is displayed listing the approach procedure.
- 4) With 'OK' highlighted, press the **ENT** Key. To cancel the removal, highlight 'CANCEL' and press the **ENT** Key.
- 5) Press the **FMS** Knob to remove the flashing cursor.

ACTIVATING A MISSED APPROACH IN THE ACTIVE FLIGHT PLAN

- 1) Press the **PROC** Key.
- 2) Turn the **FMS** Knob to highlight 'Activate Missed Approach'.
- 3) Press the **ENT** Key. The aircraft automatically sequences to the MAHP.

Or:

Press the Go-Around Button.

ACTIVATING TEMPERATURE COMPENSATED ALTITUDE

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

CANCELLING TEMPERATURE COMPENSATED ALTITUDE

- 1) From the Active Flight Plan Page, press the **MENU** Key. The Page Menu is displayed.
- 2) Turn the **FMS** Knob to highlight 'Temperature Compensation'.

- 3) Press the **ENT** Key. The Temperature Compensation Window is displayed.
- 4) Press the **ENT** Key. 'Cancel Compensation?' is highlighted.
- 5) Press the **ENT** Key. The temperature compensated altitude at the FAF is cancelled.

TRIP PLANNING

SELECTING AUTOMATIC OR MANUAL PAGE MODE

Select the **Auto** Softkey or the **Manual** Softkey; or press the **MENU** Key, highlight 'Auto Mode' or 'Manual Mode', and press the **ENT** Key.

SELECTING FLIGHT PLAN OR WAYPOINT MODE

Select the **FPL** Softkey or the **WPTs** Softkey; or press the **MENU** Key, highlight 'Flight Plan Mode' or 'Waypoints Mode', and press the **ENT** Key.

SELECTING A FLIGHT PLAN AND LEG FOR TRIP STATISTICS

- 1) Press the **FMS** Knob to activate the cursor in the flight plan number field.
- 2) Turn the small **FMS** Knob to select the desired flight plan number.
- 3) Turn the large **FMS** Knob to highlight 'CUM' or 'REM'. The statistics for each leg can be viewed by turning the small **FMS** Knob to select the desired leg. The Inset Map also displays the selected data.

SELECTING WAYPOINTS FOR WAYPOINT MODE

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

ENTERING MANUAL DATA FOR TRIP STATISTICS CALCULATIONS

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

RAIM PREDICTION

PREDICTING RAIM AVAILABILITY AT A SELECTED WAYPOINT

- 1) Select the AUX-GPS Status Page.
- 2) Press the **FMS** Knob. The RAIM Prediction 'Waypoint' field is highlighted.
- 3) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).
- 4) Enter the identifier, facility, or city name of the departure waypoint; or select a waypoint from the submenu of waypoints and press the **ENT** Key to accept the waypoint entry.
- 5) Turn the FMS Knobs to enter an arrival time and press the **ENT** Key.
- 6) Turn the FMS Knobs to enter an arrival date and press the **ENT** Key.
- 7) Press the **ENT** Key with 'Compute RAIM?' highlighted to begin the computation.

PREDICTING RAIM AVAILABILITY AT THE AIRCRAFT PRESENT POSITION

- 1) Select the AUX-GPS Status Page.
- 2) Press the **FMS** Knob. The RAIM Prediction 'Waypoint' field is highlighted.
- 3) Press the **MENU** Key, highlight 'Set WPT to Present Position', and press the **ENT** Key.
- 4) Press the **ENT** Key to accept the waypoint entry.
- 5) Turn the FMS Knobs to enter an arrival time and press the **ENT** Key.
- 6) Turn the FMS Knobs to enter an arrival date and press the **ENT** Key.
- 7) Press the **ENT** Key with 'Compute RAIM?' highlighted to begin the computation.

ENABLING/DISABLING SBAS

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

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

**Flight
Management**

Hazard
Avoidance

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

HAZARD AVOIDANCE

- Flight Instruments
- FIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Customizing the Hazard Displays on the Navigation Map Page:

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

STORMSCOPE® (OPTIONAL)



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

Displaying Stormscope Lightning Data on the Navigation Map Page

- 1) Select the **Map Opt** Softkey.
- 2) Select the **STRMSCP** Softkey.

Displaying Stormscope information on PFD maps:

- 1) On the PFD, press the **Map/HSI** Softkey.
- 2) Press the **Lightning** Softkey.
- 3) Press the **STRMSCP** Softkey.

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

Change the Stormscope Lightning Mode Between 'Cell' and 'Strike'

- 1) Select the Stormscope Page.
- 2) Press the **Mode** Softkey. The **Cell** and **Strike** Softkeys are displayed. Press the **Cell** Softkey to display 'CELL' data or press the **Strike** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box located in the upper left corner of the Stormscope Page.



NOTE: "Cell mode" uses a clustering program to identify clusters of electrical activity that indicate cells.

Manually Clearing Stormscope Data on the Navigation Map Page

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

Manually Clearing Stormscope Data on the Stormscope Page

Press the **Clear** Softkey.

SIRIUSXM WEATHER (OPTIONAL)



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



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

Changing the Data Link Weather Source to Display SiriusXM Weather

- 1) If necessary, turn the large **FMS** Knob to select the Map Page Group.
- 2) If necessary, turn the small **FMS** Knob to select the Weather Data Link Page. If the name of another source besides '(XM)' is in the page title, continue to Step 3.

- 3) Press the **MENU** Key.
- 4) If necessary, turn the large **FMS** Knob to highlight 'Display XM Weather' and press the **ENT** Key.

Displaying SiriusXM Weather on the Navigation Map Page

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

Displaying Sirius Weather Legends on the Navigation Map Page

- 1) Press the **Map Opt** Softkey.
- 2) Press the **Legend** Softkey to display or remove the legend.

Display METAR and TAF information on the Airport Information Page

- 1) Turn the large **FMS** Knob to select the WPT Page Group.
- 2) Turn the small **FMS** Knob to select the Airport Information Page.
- 3) Press the **WX** Softkey to display METAR and TAF text.
- 4) Press the **FMS** Knob to enable the cursor, then turn the small **FMS** Knob as needed to **FMS** knob to scroll through the text.
- 5) After viewing text, press the **FMS** Knob to disable the cursor.

Displaying Weather on the Weather Data Link (XM) 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 (XM) Page.
- 3) Press the available softkeys to select the desired SiriusXM Weather product.
- 4) Press the **Legend** Softkey to view the legends for the selected products. If necessary, turn either **FMS** Knob to scroll through the list. Press the small **FMS** Knob or the **ENT** Key to return to the map.

Enabling/disabling NEXRAD Animation on the Weather Data Link (XM) 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 (XM) Page.

- 3) Press the **MENU** Key.
- 4) Turn the **FMS** Knob to select 'Weather Setup' and press the **ENT** Key.
- 5) Turn the large **FMS** Knob to highlight the NEXRAD Animation on/off field.
- 6) Turn the small **FMS** Knob to select 'On' or 'Off' then press the **ENT** Key.

Map Panning Information – Weather Data Link (XM) Page

- 1) Push in the **Joystick** to activate the Map Pointer.
- 2) Move the **Joystick** to place the Map Pointer over graphical weather information. For Cloud Tops, Echo Tops, METAR flags, Storm Cells, and County Warnings, an information box appears near the Map Pointer. If the Map Pointer has highlighted a SIGMET, AIRMET, PIREP, AIREP, or TFR, press the **ENT** Key to view additional information such as report text, then press the **ENT** Key or the **CLR** Key to remove the information.

Note when a METAR flag or airport is highlighted, pressing the **ENT** Key shows the WPT - Weather Information Page. The decoded and original METAR text is available on this page as well as the TAF, if provided. When finished, press the **Go Back** Softkey or press the **CLR** Key to return to the Weather Data Link (XM) Page.

Enabling/disabling winds aloft data display in the Vertical Situation Display (VSD):

- 1) Select the Navigation Map Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Settings' highlighted, press the **ENT** Key
- 4) Turn the small **FMS** Knob to select the 'VSD' Group and press the **ENT** Key
- 5) Turn the large **FMS** Knob to select the Winds On/Off field.
- 6) Turn the small **FMS** Knob to select 'On' or 'Off'.
- 7) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

NOTE: NEXRAD data cannot be displayed simultaneously on the same map as relative terrain, echo tops, turbulence, icing, or airborne weather radar is displayed.

SiriusXM Weather Products and Symbols

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
NEXRAD		30	5 (U.S.) 10 (Canada)
Cloud Top (CLD TOP)		60	15 (69/69A)
			30 (69/69A SXM)
Echo Top (ECHO TOP)		30	7.5
SiriusXM Lightning (LTNG)		30	5
Cell Movement (CELL MOV)		30	1.25
SIGMETs/AIRMETs (SIG/AIR)		60	12
METARs		90	12
City Forecast (CITY)		90	12
Surface Analysis (SFC)		60	12
Freezing Levels (FRZ LVL)		120	12
Winds Aloft (WIND)		90	12
County Warnings (COUNTY)		60	5
Cyclone Warnings (CYCLONE)		60	12

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Icing Potential (CIP and SLD) (ICNG)		90	22
Pilot Weather Report (PIREPs)		90	12
Air Report (AIREPs)		90	12
Turbulence (TURB)		180	12
Radar Coverage Not Available	No product image	30	5
TFRs	No product image	60	12
TAFs	No product image	60	12

FIS-B WEATHER



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



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

The GTX 345R transponder receives Flight Information Services - Broadcast (FIS-B) weather data from a network of UAT ground-based transceivers (GBTs).

FIS-B weather data reception requires the aircraft being within range and line-of-sight of an operating GBT broadcasting FIS-B weather data. Reception may be affected by factors including altitude or terrain.

Reception of FIS-B weather data occurs automatically without any pilot action. FIS-B broadcasts provide weather data in a repeating cycle which may take approximately ten minutes to transmit all available weather data. Therefore, not all available weather data may be available immediately upon initial FIS-B signal acquisition.

Viewing the Weather Data Link (FIS-B) 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 (FIS-B or XM) Page.
- 3) If the page title displays a weather data link weather source other than 'FIS-B', such as 'XM', proceed to the following steps to change the data link weather source.
- 4) Press the **MENU** Key.
- 5) Turn the small **FMS** Knob to select 'Display FIS-B Weather'.
- 6) Press the **ENT** Key. The page title will display 'Map - Weather Data Link (FIS-B)' to indicate FIS-B is now the selected data link weather source.

Enabling/Disabling FIS-B Weather

- 1) Select the Weather Data Link (FIS-B) Page.
- 2) Press the **MENU** Key.
- 3) Turn the small **FMS** Knob to highlight 'Enable FIS-B Weather' or 'Disable FIS-B Weather', and press the **ENT** Key.

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

Weather Product Symbols and Data Timing

Setting Up and Customizing the Weather Data Link (FIS-B) Page

- 1) Select the Weather Data Link (FIS-B) Page.
- 2) Press the **MENU** Key.
- 3) With 'Weather Setup' highlighted, press the **ENT** Key.
- 4) Turn the small **FMS** Knob to select 'Product Group 1', and press the **ENT** Key.
- 5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
- 6) Turn the small **FMS** Knob to scroll through options for each product (On/Off, range settings, etc.).

- 7) Press the **ENT** Key to select an option.
- 8) Press the **FMS** Knob or **CLR** Key to return to the Weather Data Link (FIS-B) Page with the changed settings.

Setting Up and Customizing FIS-B Weather on the Navigation Map Page

- 1) Select the Navigation Map Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Settings' highlighted, press the **ENT** Key.
- 4) Turn the small **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
- 5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
- 6) Turn the small **FMS** Knob to scroll through options for each product (ON/OFF, range settings).
- 7) Press the **ENT** Key to select an option.
- 8) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

Displaying/Removing the Weather Product Information Box on PFD Maps

- 1) On the PFD, press the **Map/HSI** Softkey.
- 2) Press the **Layout** Softkey.
- 3) Press the **WX LGND** Softkey to display/remove the weather product information box.

Viewing Legends for Displayed Weather Products on the Weather Data Link (FIS-B) Page

- 1) Select the Weather Data Link (FIS-B) Page.
 - 2) Press the **Legend** Softkey to display the legends for the displayed weather products.
- Or:**

- a) Press the **MENU** Key.
 - b) Select 'Weather Legend' and press the **ENT** Key.
- 3) To remove the Legend Window, press the **Legend** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Viewing Legends for Displayed Weather Products on the Navigation Map Page

- 1) Select the Navigation Map Page.
- 2) Press the **Map Opt** Softkey.
- 3) Press the **Legend** Softkey (available if one or more FIS-B weather products are enabled for display).
- 4) To remove the Legend Window, press the **Legend** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Displaying Weather on the Weather Data Link (FIS-B) 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 (FIS-B) Page.
- 3) Press the available softkeys to enable/disable the display of the desired FIS-B Weather product.

Displaying the NEXRAD weather product on the Weather Data Link (FIS-B) Page

- 1) Select the Weather Data Link (FIS-B) Page.
- 2) Press the **NEXRAD** Softkey. Each softkey press cycles through a coverage option as the softkey name changes (**US**, **RGNL**, or **US/RGNL**.)

Displaying the NEXRAD weather product on the Navigation Map Page

- 1) Press the **Map Opt** Softkey.
- 2) Press the **NEXRAD** Softkey.
- 3) To change the type of NEXRAD displayed, press the **MENU** Key.
- 4) With 'Map Settings' highlighted, press the **ENT** Key.
- 5) Turn the small **FMS** Knob to select the 'Weather' Group, then press the **ENT** Key.
- 6) Turn the large **FMS** Knob to highlight the NEXRAD Data Region field.

- 7) Turn the small **FMS** Knob to highlight 'CONUS' (continental United States), 'RGNL' (regional), or 'Combined', then press the **ENT** Key. This selection also affects display of NEXRAD on the PFD Maps.
- 8) When finished, press the **FMS** Knob or press the **CLR** Key.

Display METAR and TAF information on the Airport Information Page

- 1) Turn the large **FMS** Knob to select the WPT Page Group.
- 2) Turn the small **FMS** Knob to select the Airport Information Page.
- 3) Press the **WX** Softkey to display METAR and TAF text.
- 4) Press the **FMS** Knob to enable the cursor, then turn the small **FMS** Knob as needed to **FMS** knob to scroll through the text.
- 5) After viewing text, press the **FMS** Knob to disable the cursor.

Map Panning Information – Weather Data Link (FIS-B) Page

- 1) Push in the **Joystick** to activate the Map Pointer.
- 2) Move the **Joystick** to place the Map Pointer over graphical weather information. For Cloud Tops, Echo Tops, METAR flags, Storm Cells, and County Warnings, an information box appears near the Map Pointer. If the Map Pointer has highlighted a SIGMET, AIRMET, PIREP, or TFR, press the **ENT** Key to view additional information such as report text, then press the **ENT** Key or the **CLR** Key to remove the information.

Note when a METAR flag or airport is highlighted, pressing the **ENT** Key shows the WPT - Weather Information Page. The decoded and original METAR text is available on this page as well as the TAF, if provided. When finished, press the **Go Back** Softkey or press the **CLR** Key to return to the Weather Data Link (XM) Page.

Enabling/disabling winds aloft data display in the VSD

- 1) Select the Navigation Map Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Settings' highlighted, press the **ENT** Key
- 4) Turn the small **FMS** Knob to select the 'VSD' Group and press the **ENT** Key
- 5) Turn the large **FMS** Knob to select the Winds On/Off field.
- 6) Turn the small **FMS** Knob to select 'On' or 'Off'.
- 7) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

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 10 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) Select the Weather Radar Page in the Map Page Group with the **FMS** Knob.
- 2) Press the **Mode** Softkey.
- 3) While on the ground, press the **Standby** Softkey.
 - a) Press the **Weather** Softkey. A confirmation window is displayed.
 - b) Turn the small **FMS** Knob to highlight **YES** and press the **ENT** Key to continue radar activation.

Or:

If the aircraft is airborne, select the **Weather** Softkey. After the warm-up is complete, the radar begins transmitting.

- 4) Turn the **Joystick** to select the desired map range.
- 5) The horizontal scan is initially displayed. If desired, select the **Vertical** Softkey to change to vertical scanning.

Weather Mode Color	Intensity (in dBZ)	Approximate Precipitation Rate (in/hr.)
Black	< 23 dBZ	< .01
Green	23 dBZ to < 33 dBZ	.01 - 0.1
Yellow	33 dBZ to < 41 dBZ	0.1 - 0.5
Red	41 dBZ and greater	greater than 0.5
Magenta (Optional)	TURB- (Optional) Turbulence Detection uses the color magenta to show areas of rain or hail that may also contain turbulence	

Table 6-6 Precipitation Intensity Levels in Weather Mode

Vertically Scan a Storm Cell



NOTE: Vertical scanning of a storm cell should be done with the aircraft wings level to avoid constant adjustment of the Bearing Line.

- 1) While in the Horizontal Scan view, select the **BRG** Softkey. This places the cursor in the Bearing field and displays the Bearing Line.
If the Bearing Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select Show Bearing Line. Press the **ENT** Key.
- 2) Press the **ENT** Key.
- 3) Turn the small **FMS** Knob to place the Bearing Line on the desired storm cell or other area to be vertically scanned.
- 4) Press the **Vertical** Softkey. A vertical scan of the selected area is now displayed.
- 5) The small **FMS** Knob may be used to move the scanned bearing line a few degrees right or left.
- 6) Turn the **Joystick** to adjust the range.
- 7) Press the **FMS** Knob to remove the cursor.
- 8) To select a new area to be vertically scanned, press the **Horizon** Softkey to return to the Horizontal Scan view and repeat the previous steps.

Adjusting antenna tilt on the Horizontal Scan display

- 1) Press the **FMS** Knob to activate the cursor in the Tilt field.
- 2) Turn the small **FMS** Knob to select the desired antenna tilt angle.
- 3) Press the **ENT** Key.
- 4) Press the **FMS** Knob to remove the cursor.

Adjusting antenna tilt on the Vertical Scan display

- 1) Press the **Tilt** Softkey to activate the cursor in the Tilt field and display the Tilt Line.
If the Tilt Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select Show Tilt Line. Press the **ENT** Key.
- 2) Turn the small **FMS** Knob to adjust the antenna tilt angle. The selected tilt angle is implemented when Horizontal Scan is again selected.
The **Joystick** can also be used to adjust tilt.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Enabling/disabling manual gain adjustment



WARNING: Changing the gain in weather mode causes 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) Press 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) Press the **Gain** Softkey again to return to the calibrated gain setting. 'Calibrated' is displayed in the Gain field.

Enabling/disabling Sector Scanning

- 1) While in horizontal scan mode, select the **BRG** Softkey to display the Bearing Line and place the cursor in the Bearing field. If the Bearing Line is not displayed, press the **MENU** Key and turn the large **FMS** Knob to select Show Bearing Line.
- 2) Press the **ENT** Key.
- 3) Turn the small **FMS** Knob to place the Bearing Line in the desired position. The location of the Bearing Line becomes the center point of the Sector Scan.
- 4) Turn the large **FMS** Knob to place the cursor in the Sector Scan field.
- 5) Turn the small **FMS** Knob to highlight the desired scan. Selecting 'Full' enables a 90° scan.
- 6) If desired, readjust the Bearing Line as discussed previously to change the center of the Sector Scan.
- 7) Select the **BRG** Softkey again to remove the Bearing Line and cursor. The bearing reference is reset to 0°.

Enabling/disabling antenna stabilization

- 1) On the Weather Radar Page, press the **Mode** Softkey.
- 2) Select the **STAB** Softkey to enable/disable antenna stabilization. The current stabilization condition is, 'STAB On' or 'STAB Off' is shown in the upper right of the Weather Radar Page.

Operation in Ground Map Mode

- 1) On the Weather Radar Page, press the **Mode** Softkey.
- 2) Select the **Ground** Softkey to place the radar in Ground Map mode.
- 3) Select the **Back** Softkey.
- 4) Press the **FMS** Knob to activate the cursor.
- 5) Turn the large **FMS** Knob to place the cursor in the Tilt field.
- 6) Adjust the antenna tilt angle by turning the small **FMS** Knob to display ground returns at the desired distance.
- 7) Press the **FMS** Knob to remove the cursor.

Ground Map Mode Color	Intensity
Black	0 dB
Cyan	> 0 dB to < 9 dB
Yellow	9 dB to < 18 dB
Magenta	18 dB to < 27 dB
Blue	27 dB and greater

Ground Target Return Intensity Levels

Enabling/disabling Airborne Weather Radar Overlay on the Navigation Map Page

- 1) Select the Navigation Map Page.
- 2) Select the **Map Opt** Softkey.
- 3) Select the **WX Radar** Softkey.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Adjusting the bearing and antenna tilt angle on the Navigation Map Page

- 1) With the weather radar overlay enabled, push the **Joystick** twice. The bearing and tilt legend is displayed.
- 2) Move the **Joystick** up to adjust the antenna tilt angle downward, or move the **Joystick** down to adjust the antenna tilt angle upward.
- 3) Move the **Joystick** left or right to adjust the bearing line in the desired direction. A white dashed bearing line is displayed during and momentarily after adjustment.

Controlling weather radar information on the HSI Map:

- 1) If necessary, enable the HSI Map on the PFD.
- 2) On the PFD, press the **Map/HSI** Softkey.
- 3) Press the **Wx Radar** Softkey to enable/disable the airborne weather radar HSI Map overlay.
- 4) Press the **RDR Opt** Softkey.
- 5) To select a weather radar mode, press the **Mode SEL** Softkey
 - a) Press a softkey for the desired mode: **Off**, **Standby**, **Weather**, or **Ground**. The selected mode only affects the PFD on which the softkey is selected.
 - b) When finished, press the **Back** Softkey.
- 6) Press the **Gain-** Softkey to decrease the gain setting or press the **Gain+** Softkey to increase the gain setting in increments of 0.5 with each press, or press and hold the softkey for continuous adjustment. A gain setting of 0.0 is equivalent to the calibrated gain setting.
- 7) Move the PFD **Joystick** up to adjust the antenna tilt angle downward, or move the **Joystick** down to adjust the antenna tilt angle upward.
- 8) Press the **STAB** Softkey to enable/disable antenna stabilization feature.
- 9) Press the **ACT** Softkey to enable/disable the Altitude Compensated Tilt feature.
- 10) Press the **GCS** Softkey to enable/disable the optional Ground Clutter Suppression feature.
- 11) Press the **TURB** Softkey to enable/disable the optional Turbulence Detection feature.

- 12) When finished adjusting the HSI Map display of the airborne weather radar, press the **Back** Softkey.

TRAFFIC (TAS/ADS-B)










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



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



NOTE: ADS-B traffic symbols are only displayed if the equipment installed in the aircraft is capable of receiving ADS-B In traffic reports.

Symbol	Description
	Traffic Advisory with ADS-B directional information. Points in the direction of the intruder aircraft track.
	Traffic Advisory without ADS-B directional information.
	Traffic Advisory out of the selected display range with ADS-B directional information. Displayed at outer range ring at proper bearing.
	Traffic Advisory out of the selected display range without ADS-B directional information. Displayed at outer range ring at proper bearing.
	Proximity Advisory with ADS-B directional information. Points in the direction of the aircraft track.
	Proximity Advisory without ADS-B directional information.
	Other Non-Threat traffic with ADS-B directional information. Points in the direction of the intruder aircraft track.

Symbol	Description
	Other Non-Threat traffic without ADS-B directional information.
	Traffic located on the ground with ADS-B directional information. Points in the direction of the aircraft track. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic with ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.
	Non-aircraft ground traffic without ADS-B directional information. Ground traffic is only displayed when ADS-B is in Surface (SURF) Mode or own aircraft is on the ground.

Displaying Traffic on the Traffic Map Page:

- 1) Turn the large **FMS** Knob to select the Map Page Group.
- 2) Turn the small **FMS** Knob to select the Traffic Map Page.
- 3) Press the **TAS OPER** Softkey to begin displaying TAS traffic. 'OPERATING' is displayed in the Traffic Mode field.
- 4) Press the **ADS-B** Softkey to begin display ADS-B traffic.
- 5) Press the **ALT Mode** Softkey to change the altitude volume. Select the desired altitude volume by pressing the **Above, Normal, Below, or UNREST** (unrestricted) Softkey. The selection is displayed in the Altitude Mode field. Press the **Back** Softkey to return to the previous level softkeys.
- 6) Press the **Motion** Softkey.
- 7) Press one of the following softkeys:
 - Absolute:** Displays the motion vector pointing in the absolute direction.
 - Relative:** Displays the motion vector relative to own aircraft
 - Off:** Disables the display of the motion vector.
- 8) Press the **Back** Softkey to return to the previous level softkeys.
- 9) Press the **TAS STBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.
- 10) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

System Self Test

- 1) With the Traffic Map Page displayed, set the range to 2/6 nm.
- 2) Press the **TAS STBY** Softkey.
- 3) Press the **Test** Softkey.
- 4) Self test takes approximately eight seconds to complete. When completed successfully, traffic symbols are displayed and a voice alert "TAS System Test OK" is heard. If the self test fails, the system reverts to Standby Mode and a voice alert "TAS System Test Fail" is heard.

Displaying Traffic on the Navigation Map

- 1) Ensure the TAS system is operating. With the Navigation Map displayed, press the **Map Opt** Softkey.
- 2) Press the **Traffic** Softkey. Traffic is now displayed on the map.

TERRAIN AWARENESS & WARNING SYSTEM (TAWS-B)



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



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



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

Enabling/disabling relative terrain information on MFD navigation maps

- 1) Press the **Map Opt** Softkey.
- 2) Press the **TER** Softkey to cycle through a terrain option with each press. The selected mode is displayed in cyan: Off, Topo, REL. Press the **TER** Softkey as needed until 'REL' is displayed on the softkey.

Displaying relative terrain information (PFD Maps)

- 1) Press the **Map/HSI** Softkey.
- 2) Press the **Rel Ter** Softkey.

TAWS On-Ground Legend



TAWS In-Air Legend



TAWS Relative Terrain Legends

Customizing terrain and obstacle display on the Navigation Map Page:

- 1) Select the Navigation Map Page.
- 2) Press the **MENU** Key.
- 3) With 'Map Settings' highlighted, press the **ENT** Key.
- 4) Turn the small **FMS** Knob to select the 'Map' Group and press the **ENT** Key.
- 5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
 - Terrain Display – Selects terrain 'Off' for no terrain, 'Topo' for topographic information, or relative terrain 'Rel'. The distance field selects the maximum map range to display terrain information before it is removed from the map.
 - Obstacle Data – Turns the display of obstacles on or off. The distance field selects the maximum map range to display obstacle symbols before they are removed from the map.
- 6) Turn the small **FMS** Knob to scroll through options for each product (ON/OFF, range settings).

- 7) Press the **ENT** Key to select an option.
- 8) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

Displaying 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-B Page.

Showing/hiding aviation information on the TAWS Page

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

Manually testing the TAWS System

- 1) With the aircraft on the ground, select the TAWS-B Page.
- 2) Press the **MENU** Key.
- 3) Turn the **FMS** Knob to highlight 'Test TAWS System' and press the **ENT** Key to confirm the selection.

Inhibiting/enabling FLTA and PDA alerting

- 1) Select the TAWS Page.
- 2) Select the **Inhibit** Softkey to inhibit or enable TAWS (choice dependent on current state).

Or:

- 1) Press the **MENU** Key.
- 2) Select 'Inhibit TAWS' or 'Enable TAWS' (choice dependent on current state) and press the **ENT** Key.

Flight
Instruments

EIS

Nav/Com/
XPDR/Audio

Flight
Management

**Hazard
Avoidance**

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index

Blank Page

AUTOMATIC FLIGHT CONTROL SYSTEM



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

ACTIVATING THE FLIGHT DIRECTOR

An initial press of a key listed in the following table (when the flight director is not active) activates the flight director in the listed modes. The flight director may be turned off and the Command Bars removed from the display by pressing the **FD** Key again. The **FD** Key is disabled when the autopilot is engaged.

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

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

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation	Reference Range	Reference Change Increment
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/ descend to the Selected Altitude	(default)	PIT	-15° to +20°	0.5°
Selected Altitude Capture	Captures the Selected Altitude	*	ALTS		
Altitude Hold	Holds the current Altitude Reference	ALT Key	ALT nnnnn FT		
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/ descend to the Selected Altitude	VS Key	VS nnnn FPM	-2000 to +1500 fpm	100 fpm
Flight Level Change, IAS Hold	Maintains the current aircraft airspeed in IAS while the aircraft is climbing/descending to the Selected Altitude	FLC Key	FLC nnn KT	90 to 210 kt	1 kt

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

Flight Instruments
EIS
Nav/Com/XPDR/Audio
Flight Management
Hazard Avoidance
AFCS
Additional Features
Abnormal Operation
Annun/Alerts
Appendix
Index

LATERAL MODES

Lateral Mode	Description	Control	Annunciation	Maximum Roll Command Limit
Roll Hold	Holds the current aircraft roll attitude or rolls the wings level, depending on the commanded bank angle	(default)	ROL	25°
Heading Select	Captures and tracks the Selected Heading	HDG Key	HDG	25°
Navigation, GPS Arm/Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	NAV Key	GPS	25° Capture 10° Track
Navigation, VOR Enroute Arm/Capture/Track			VOR	25° Capture 10° Track
Navigation, LOC Arm/Capture/Track (No Glideslope)			LOC	25° Capture 10° Track

* 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.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

COMBINATION MODES (VNV, APR, NAV, BC, GA)

Mode	Description	Control	Annunciation	Maximum Roll Command Limit	Reference Range
Vertical Path Tracking	Captures and tracks descent legs of an active vertical profile	VNV Key	VPTH		
VNV Target Altitude Capture	Captures the Vertical Navigation (VNV) Target Altitude	*	ALTV		
Glidepath	Captures and tracks the SBAS glidepath on approach	APR Key	GP		
Glideslope	Captures and tracks the ILS glideslope on approach		GS		
Backcourse Arm/Capture/Track	Captures and tracks a localizer signal for backcourse approaches	NAV Key	BC	25° Capture 10° Track	
Approach, GPS Arm/Capture/Track	Captures and tracks the selected navigation source (GPS, VOR, LOC)	APR Key	GPS	25° Capture 10° Track	
Approach, VOR Arm/Capture/Track			VAPP	25° Capture 10° Track	
Approach, ILS Arm/Capture/Track (Glideslope Mode automatically armed)			LOC	25° Capture 10° Track	
Go Around**	Commands a constant pitch angle and wings level in the air	GA Button	GA		7°
Level	Commands a zero degree pitch angle and wings level	LVL Button	LVL		Pitch angle to maintain 0 fpm VS

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

***Go Around mode disengages the autopilot unless a compatible lift computer is installed.*

ADDITIONAL FEATURES

TERMINAL PROCEDURE CHARTS



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

SafeTaxi®

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

Pressing the **Detail** Softkey once removes the taxiway markings and airport identification labels. Pressing the **Detail** Softkey twice removes VOR station ID, the VOR symbol, and intersection names if within the airport plan view. Pressing the **Detail** Softkey a third time removes the airport runway layout, unless the airport in view is part of an active route structure. Pressing the **Detail** Softkey again cycles back to the original map detail.

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

ChartView

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

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

FliteCharts®

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

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

Selecting Terminal Procedures Charts:

While viewing the Navigation Map Page, Nearest Airport Page, or Flight Plan Page, select the **Charts** Softkey.

Or:

- 1) Press the **MENU** Key to display the Page Menu.
- 2) Turn the large **FMS** Knob to scroll through the Options Menu to Charts.
- 3) Press the **ENT** Key to display the chart.

Selecting Additional Information:

- 1) While viewing the Airport Taxi Diagram, select the **Full SCN** Softkey to display the information windows (Airport, Info).
- 2) Press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to highlight the Airport, Info, Runways, or Frequencies Box.
- 4) Turn the small **FMS** Knob to select the Info Box choices. If multiple choices are available, scroll to the desired choice with the large **FMS** Knob and press the **ENT** Key to complete the selection.
- 5) Press the **FMS** Knob again to deactivate the cursor.

Selecting full screen On or Off:

- 1) While viewing a terminal chart press the **MENU** Key to display the Page Menu Options.
- 2) Turn the large **FMS** Knob to highlight the Chart Setup menu option and press the **ENT** Key.
- 3) Turn the large **FMS** Knob to move between the Full Screen and Color Scheme options.
- 4) Turn the small **FMS** Knob to choose between the On and Off Full Screen options.

Selecting Day, Night, or Automatic View:

- 1) While viewing a terminal chart press the **MENU** Key to display the Page Menu Options.
- 2) Turn the large **FMS** Knob to highlight the Chart Setup menu option and press the **ENT** Key.
- 3) Turn the large **FMS** Knob to move to the Color Scheme option.
- 4) Turn the small **FMS** Knob to choose between Day, Auto, and Night options.
- 5) If Auto Mode is selected, turn the large **FMS** Knob to select the percentage field. Use the small **FMS** Knob to change the percentage value. The percentage value is the day/night crossover point based on the percentage of backlighting intensity. For example, if the value is set to 15%, the day/night display changes when the display backlight reaches 15% of full brightness.

The display must be changed in order for the new setting to become active. This may be accomplished by selecting another page or changing the display range.

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

SURFACEWATCH

Inhibit/Uninhibit SurfaceWatch:

- 1) Select the Aux - System Setup 1 Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor..
- 3) Turn the large **FMS** Knob to highlight the SurfaceWatch field.
- 4) Turn the small **FMS** Knob to toggle the SurfaceWatch alerts on or off.

Entering origin/destination airport:

- 1) Select the 'FPL - SurfaceWatch Setup' Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob if necessary to highlight the Origin or Destination Airport field.
- 4) Use the **FMS** Knobs to input the desired Origin or Destination Airport.

Selecting origin/destination runway:

- 1) Select the 'FPL - SurfaceWatch Setup' Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob if necessary to highlight the Runway or Landing Runway field.
- 4) Turn the small **FMS** Knob to select the desired available Runway or Landing Runway. As the small **FMS** Knob is turned, the preview of the selected runway or landing runway is also displayed.

Selecting required takeoff/landing distance:

- 1) Select the 'FPL - SurfaceWatch Setup' Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob if necessary to highlight the REQD Takeoff DIS or REQD Landing DIS field.
- 4) Use the **FMS** Knobs to enter the required takeoff or landing distance. Upon pressing the **FMS** Knob and committing the required takeoff or landing distance, the Runway Length field will turn amber if an insufficient runway length exists.

AIRPORT DIRECTORY

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

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

Selecting the Airport Directory 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. Initially, information for the airport closest to the aircraft's present position is displayed.
- 3) If necessary, select the Info softkey until **Info 2** is displayed.

ELECTRONIC CHECKLISTS

The system accesses the checklists from an SD card inserted into the bezel slot. If the SD card contains an invalid checklist file or no checklist, the Power-up Page messages display ‘Checklist File: Invalid’ or ‘Checklist File: N/A’ (not available) and the **Checklist** Softkey is not available.



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

Accessing and navigating checklists:

- 1) From any page on the MFD (except the EIS Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the Checklist Page.
- 2) Press the **Group** Softkey to select the ‘Group’ field.
- 3) Turn the small **FMS** Knob to select the desired procedure and press the **ENT** Key.
- 4) Turn the large **FMS** Knob to select the ‘Checklist’ field.
- 5) Turn the **FMS** Knob to select the desired checklist and press the **ENT** Key. The selected checklist item is indicated with white text surrounded by a white box.
- 6) Press the **ENT** Key or **Check** Softkey to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking.
 Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.
 Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.
- 7) When all checklist items have been checked, ‘*Checklist Finished*’ is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not been checked, ‘*Checklist Not Finished*’ will be displayed in yellow text.
- 8) Press the **ENT** Key. ‘Go To Next Checklist’ will be highlighted in cyan by the cursor; if highlighted in grey there is not another checklist.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

- 9) Press the **ENT** Key to advance to the next checklist.
- 10) Press the **Exit** Softkey to exit the Checklist Page and return to the page last viewed.

Accessing emergency procedures:

- 1) From any page on the MFD (except the EIS Pages), press the **Checklist** Softkey or turn the large **FMS** Knob to select the Checklist Page.
- 2) Press the **EMER** Softkey.
- 3) Turn the **FMS** Knob to select the desired emergency checklist and press the **ENT** Key.
- 4) Press the **ENT** Key or **Check** Softkey to check the selected emergency checklist item. The line item turns green and a checkmark is placed in the box next to it. The next line item is automatically highlighted for checking. Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.

Press the **CLR** Key or **Uncheck** Softkey to remove a check mark from an item.

- 5) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window. If all items in the checklist have not be checked, '*CHECKLIST NOT FINISHED*' will be displayed in yellow text.
- 6) Press the **ENT** Key. 'GO TO NEXT CHECKLIST?' will be highlighted by the cursor.
- 7) Press the **ENT** Key to advance to the next checklist.
- 8) Press the **Return** Softkey to return to the previous checklist.
- 9) Press the **Exit** Softkey to exit the Checklist Page and return to the page last viewed.

SIRIUSXM™ RADIO ENTERTAINMENT

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

Selecting the XM Radio Page

- 1) Turn the large **FMS** Knob to select the Auxiliary Page Group.
- 2) Turn the small **FMS** Knob to select the displayed Aux - XM Radio Page.

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 channel from the channel list:

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

Or:

- 1) Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.
- 2) Press the **ENT** Key to activate the selected channel.

Selecting a channel directly:

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

Selecting a Category

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

- 1) Press the **Category** Softkey on the XM Radio Page.
- 2) Press the **CAT +** and **CAT -** Softkeys to cycle through the categories.

Or:

Turn the small **FMS** Knob to display the Categories list. Highlight the desired category with the small **FMS** Knob and press the **ENT** Key. Selecting All Categories places all channels in the list.

Setting a preset channel number:

- 1) On the XM Radio Page, while listening to an Active Channel that is wanted for a preset, press the **Presets** Softkey to access the first five preset channels (**Preset 1 - Preset 5**).
- 2) Press the **More** Softkey to access the next five channels (**Preset 6 – Preset 10**), and again to access the last five channels (**Preset 11 – Preset 15**). Pressing the **More** Softkey repeatedly cycles through the preset channels.
- 3) Press any one of the (**Preset 1 - Preset 15**) softkeys to assign a number to the active channel.
- 4) Press the **Set** Softkey on the desired channel number to save the channel as a preset.

Adjusting Volume

- 1) With the XM Radio Page displayed, press the **Volume** Softkey.
- 2) Press the **VOL –** Softkey to reduce volume or press the **VOL +** Softkey to increase volume. (Once the **VOL** Softkey is pressed, the volume can also be adjusted using the small **FMS** Knob.)

SiriusXM Radio volume may also be adjusted on each passenger headset.

Mute SiriusXM audio:

- 1) Select the XM Radio Page or XM Information Page.
- 2) Press the **Mute** Softkey to mute the audio. Press the **Mute** Softkey again to unmute the audio.

MAINTENANCE LOGS



NOTE: An account must be established with Garmin ConnexTM to make full use of the Maintenance Logs feature.

The system provides recording of CAS, CMC, exceedances, and other critical aircraft data that occur while the aircraft is on the ground or in flight. This may include, but is not limited to, engine trend, exceedance and/or aircraft position data.

Viewing the Maintenance Logs Page

- 1) Turn the large **FMS** Knob to select the AUX page group.
- 2) Turn the small **FMS** Knob to select AUX-Maintenance Logs Page.

Selecting the Desired Log Folder

- 1) While viewing the Maintenance Logs Page, press the small **FMS** Knob to activate the cursor in the Folders.
- 2) Turn the small **FMS** Knob to display the list of available folders. 'INT' displayed next to the folder name indicates that folder of log files is stored in internal system memory. 'EXT' displayed next to a folder name indicates the folder, and its contents are saved to the SD Card located in the bottom card slot of the MFD.
- 3) Turn either **FMS** Knob to select the desired folder.
- 4) Press the **ENT** Key. The log files for the selected folder are displayed.
- 5) Press the small **FMS** Knob to remove the cursor.

Copying a log file to an SD Card

- 1) Place an SD Card in the top card slot of the MFD.
- 2) While viewing the Maintenance Logs Page, press the **FMS** Knob to activate the cursor.
- 3) Turn the large **FMS** Knob to display the list of available folders.
- 4) Turn either **FMS** Knob to select the desired folder.
- 5) Press the **ENT** Key.
- 6) Turn the large **FMS** Knob to highlight "Save All Logs in Folder".
- 7) Press the **ENT** Key. The Export Log Window is displayed and the 'OK' Button highlighted.
- 8) Press the **ENT** Key. A .csv file is copied to the SD Card in top card slot of the MFD.

Deleting All Logs From a Selected Folder

- 1) While viewing the Maintenance Logs Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to display the list of available folders.

- 3) Turn either **FMS** Knob to select the desired folder.
- 4) Press the **ENT** Key.
- 5) Press the **MENU** Key to display the Page Menu.
- 6) Turn either **FMS** Knob to highlight 'Delete All Logs In Folder'.
- 7) Press the **ENT** Key. The Confirmation Window is displayed.
- 8) With 'YES' highlighted, press the **ENT** Key.

Deleting All Logs From Internal Memory

- 1) While viewing the Maintenance Logs Page, press the **MENU** Key to display the Page Menu.
- 2) Turn either **FMS** Knob to highlight 'Delete All Logs'.
- 3) Press the **ENT** Key. The Confirmation Window is displayed.

SCHEDULER

The Scheduler feature can be used to enter and display reminder messages (e.g., Change oil, Switch fuel tanks, or Altimeter-Transponder Check) in the Alerts Window on the PFD. Messages can be set to display based on a specific date and time (event), once the message timer reaches zero (one-time; default setting), or recurrently whenever the message timer reaches zero (periodic). Message timers set to periodic alerting automatically reset to the original timer value once the message is displayed. When power is cycled, all messages are retained until deleted, and message timer countdown is resumed

Entering a scheduler message:

- 1) Select the Aux - Utility Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the first empty scheduler message naming field.
- 4) Use the **FMS** Knob to enter the message text to be displayed in the Messages Window and press the **ENT** Key.
- 5) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the field next to Type.
- 6) Turn the small **FMS** Knob to select the message type:
 - Event—Message issued at the specified date/time

- One time—Message issued when the message timer reaches zero (default setting)
 - Periodic—Message issued each time the message timer reaches zero
- 7) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
 - 8) For periodic and one-time messages, use the **FMS** Knob to enter the timer value (HHH:MM:SS) from which to countdown and press the **ENT** Key.
 - 9) For event-based messages:
 - a) Use the **FMS** Knob to enter the desired date (DD-MM-YY) and press the **ENT** Key.
 - b) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to the next field.
 - c) Use the **FMS** Knob to enter the desired time (HH:MM) and press the **ENT** Key.
 - 10) Press the **ENT** Key again or use the large **FMS** Knob to move the cursor to enter the next message.

Deleting a scheduler message:

- 1) Select the Aux - Utility Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the name field of the scheduler message to be deleted.
- 4) Press the **CLR** Key to clear the message text. If the **CLR** Key is pressed again, the message is restored.
- 5) Press the **ENT** Key while the message line is cleared to clear the message time.

CREW PROFILES

Creating a profile:

- 1) Select the Aux - System Setup Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight 'Create' in the Crew Profile Box.
- 4) Press the **ENT** Key. A 'Create Profile' window is displayed.

- 5) Use the **FMS** Knob to enter a profile name up to 16 characters long and press the **ENT** Key. Crew profile names cannot begin with a blank as the first letter.
- 6) In the next field, use the small **FMS** Knob to select the desired settings upon which to base the new profile. Profiles can be created based on Garmin factory defaults, default profile settings (initially based on Garmin factory defaults unless edited by the pilot), or other previously created profile settings.
- 7) Press the **ENT** Key.
- 8) With 'Create' highlighted, press the **ENT** Key to create the profile
Or:
Use the large **FMS** Knob to select 'Create & Activate' and press the **ENT** Key to activate the new profile.
- 9) To cancel the process, select 'Cancel' with the large FMS Knob and press the **ENT** Key.

Selecting an active profile:

- 1) Select the Aux - System Setup Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight the active profile field in the Crew Profile Box.
- 4) Turn the small **FMS** Knob to display the crew profile list and highlight the desired profile.
- 5) Press the **ENT** Key. The system loads and displays the system settings for the selected profile.

Renaming a profile:

- 1) Select the Aux - System Setup Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight 'Rename' in the Crew Profile Box.
- 4) Press the **ENT** Key.
- 5) In the 'Rename Profile' window, turn the **FMS** Knob to select the profile to rename.

- 6) Press the **ENT** Key.
- 7) Use the **FMS** Knob to enter a new profile name up to 16 characters long and press the **ENT** Key.
- 8) With 'Rename' highlighted, press the **ENT** Key.
- 9) To cancel the process, use the large **FMS** Knob to select 'Cancel' and press the **ENT** Key.

Deleting a profile:

- 1) Select the Aux - System Setup Page.
- 2) Press the **FMS** Knob momentarily to activate the flashing cursor.
- 3) Turn the large **FMS** Knob to highlight 'Delete' in the Crew Profile Box.
- 4) Press the **ENT** Key.
- 5) In the 'Delete Profile' window, turn the **FMS** Knob to select the profile to delete.
- 6) Press the **ENT** Key.
- 7) With 'Delete' highlighted, press the **ENT** Key.
- 8) To cancel the process, use the large **FMS** Knob to select 'Cancel' and press the **ENT** Key.

Importing a profile from an SD card:

- 1) Insert an SD card containing the crew profile(s) into the top card slot on the MFD.
- 2) Turn the **FMS** Knob to select the Aux - System Setup Page.
- 3) Select the **Import** Softkey.

Or:

 - a) Press the **MENU** Key.
 - b) Turn the **FMS** Knob to highlight 'Import Crew Profile' and press the **ENT** Key.
- 4) The system displays the Crew Profile Importing window with 'Import' highlighted. Turn the large **FMS** Knob to highlight the 'Profile Name' field, then scroll to the desired profile name with the large and small **FMS** Knobs, then press the **ENT** Key. Then press the **ENT** Key with 'Import' highlighted.

- 5) If the imported profile name is the same as an existing profile on the system, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace profile on the system with the profile imported from the SD card, or turn the **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key to return to the Crew Profile Importing window.
- 6) If successful, the system displays 'Crew profile import succeeded.' in the window below. With 'OK' highlighted, press the **ENT** or **CLR** Keys or press the **FMS** Knob to return to the Aux - System Setup Page. The imported profile becomes the active profile.

Exporting a profile to an SD card:

- 1) Insert the SD card for storing the Crew Profile into the top card slot on the MFD.
- 2) Turn the **FMS** Knob to select the Aux - System Setup Page.
- 3) Select the **Export** Softkey. The system displays the Crew Profile Exporting window.

Or:

- a) Press the **MENU** Key.
- b) Turn the **FMS** Knob to highlight 'Export Crew Profile' and press the **ENT** Key.
- 5) To export the crew profile using the current selected profile, press the **ENT** Key with 'Export' highlighted. To change the selected profile, turn the large **FMS** Knob to highlight the 'Profile Name' field, then scroll to the desired profile name with the large and small FMS Knobs, then press the **ENT** Key. Then press the **ENT** Key with 'Export' highlighted.
- 6) If the selected profile to be exported is the same as an existing profile file name on the SD card, the system displays an 'Overwrite existing profile? OK or CANCEL' prompt. Press the **ENT** Key to replace the profile on the SD card with the profile to be exported, or turn the FMS Knob to highlight 'CANCEL' and press the **ENT** Key to return to the Pilot Profile Exporting window without exporting the profile.
- 7) If successful, the window displays 'Crew profile export succeeded.' With 'OK' highlighted, press the **ENT** or **CLR** Keys, or press the **FMS** Knob to return to the Aux - System Setup Page.

ELECTRONIC STABILITY & PROTECTION

Electronic Stability and Protection (Garmin ESP™) is an optional feature that is intended to discourage the exceedance of attitude and established airspeed parameters. This feature will only function when the aircraft is above 200 feet AGL and the autopilot is not engaged.

ESP engages when the aircraft exceeds one or more conditions (pitch, roll, low airspeed, and/or Vmo) beyond the normal flight parameters. Enhanced stability for each condition is provided by applying a force to the appropriate control surface to return the aircraft to the normal flight envelope. This is perceived by the pilot as resistance to control movement in the undesired direction when the aircraft approaches a steep attitude or high airspeed.

ESP can be enabled or disabled on the Aux-System Setup 2 Page on the MFD.

Enabling/Disabling ESP

- 1) Turn the large **FMS** Knob to select the Aux Page Group.
- 2) Turn the small **FMS** Knob to select the System Setup Page.
- 3) If necessary, select the **Setup 2** Softkey to display the Aux-System Setup 2 Page. If the Aux-System Setup 2 is already displayed, proceed to step 4.
- 4) Press the **FMS** Knob to activate the cursor.
- 5) Turn the large **FMS** Knob to place the cursor in the Stability & Protection field.
- 6) Turn the small **FMS** Knob to select 'ENABLE' or 'DISABLE'.
- 7) Press the **FMS** Knob to remove the cursor.

ESP is automatically enabled on system power up.

Roll Engagement

Roll Limit Indicators are displayed on the roll scale at 45° right and left, indicating where ESP will engage. As roll attitude exceeds 45°, ESP will engage and the on-side Roll Limit Indicator will move to 30°.

Pitch Engagement

ESP engages at 21° nose-up and 21° nose-down. Once ESP is engaged, it will apply opposing force between 19° and 50° nose-up and between 19° and 50° nose-down. Maximum opposing force is applied between 25° and 50° nose-up and between 25° and 50° nose-down.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

The opposing force increases or decreases depending on the pitch angle and the direction of pitch travel. This force is intended to encourage movement in the pitch axis in the direction of the normal pitch attitude range for the aircraft.

There are no indications marking the pitch ESP engage and disengage limits in these nose-up/nose-down conditions.

Underspeed Protection

Decreasing airspeed to the point of an impending stall will result in ESP applying force to lower the nose of the aircraft. In addition the ESP applied force, an 'UNDERSPEED PROTECT ACTIVE' warning alert is displayed. When the underspeed condition is remedied, ESP force is no longer applied.

High Airspeed Protection

Exceeding Vmo will result in ESP applying force to raise the nose of the aircraft. When the high airspeed condition is remedied, ESP force is no longer applied.

CONNEXT SETUP

The Connext Setup Page allows for setting up the installed Flight Stream device for a Bluetooth connection between the system and a mobile device running the Garmin Pilot™ application.

The mobile device must be 'paired' with the system in order to use the various functions. Pairing is accomplished by first placing the system in pairing mode by displaying the Connext Setup Page. The system is 'discoverable' whenever this page is displayed. The pairing operation is completed from the mobile device and the Garmin Pilot application. See the device Bluetooth pairing instructions and the connection instructions in the Garmin Pilot application.

Viewing the Connext Setup Page

- 1) Turn the large **FMS** Knob on the MFD to select the Aux page group.
- 2) Turn the small **FMS** Knob to select the Connext Setup page.

Changing the Bluetooth Name

- 1) While viewing the Connext Setup Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to place the cursor in the 'Bluetooth Name' field.
- 3) Enter the desired name by using the large **FMS** Knob to select the character

field, and the small **FMS** Knob select the desired alphanumeric character for that field.

- 4) Press the **ENT** Key. The cursor is removed and the new name is displayed.

Enabling/Disabling Flight Plan Importing from Garmin Pilot

- 1) While viewing the Connex Setup Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to place the cursor in the 'Flight Plan Import' field.
- 3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'.
- 4) Press the **FMS** Knob to remove the cursor.

Enabling/Disabling Automatic Reconnection of a Specific Paired Device

- 1) While viewing the Connex Setup Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to highlight the desired paired device.
- 3) Turn the small **FMS** Knob to select 'Enabled' or 'Disabled'. Selecting 'Enabled' allows the system to automatically connect to a previously paired device when detected.
- 4) Press the **FMS** Knob to remove the cursor.

Remove a Specific Paired Device from the List of Paired Devices:

- 1) While viewing the Connex Setup Page, press the **FMS** Knob to activate the cursor.
- 2) Turn the large **FMS** Knob to highlight the desired paired device.
- 3) Press the **Remove** Softkey. A confirmation screen is displayed.
- 4) If necessary, turn the large **FMS** Knob to select 'YES'.
- 5) Press the **ENT** Key to remove the device from the list of paired devices.

AUXILIARY VIDEO

The system provides a control and display interface to an optional auxiliary video system. The system can display video for up to two inputs.

Video Softkeys

While on the Aux - Video Page, pressing the **Zoom+** or **Zoom-** Softkeys increases or decreases video display magnification between 1x and 2x.

Pressing the **Hide Map** Softkey removes the map and displays video on the full screen. The softkey label changes to grey with black characters. Pressing the **Hide Map** Softkey again restores the map view and the small video image. The softkey label returns to white characters on a black background.

Pressing the **Setup** Softkey advances to the next level of softkeys: **Contrast-**, **Contrast+**, **Bright -**, **Bright +**, **SAT -**, **SAT +**, **Reset**, and **Back**.

Pressing the **Contrast-** and **Contrast+** Softkeys adjust display contrast in five percent increments from 0 to 100%. Pressing the **Bright -** and **Bright +** Softkeys adjust display brightness in five percent increments from 0 to 100%. Pressing the **SAT -** and **SAT +** Softkeys adjust display saturation in five percent increments from 0 to 100%.

Pressing the **Input** Softkey switches between Input 1 and Input 2. Pressing the **Reset** Softkey returns all video adjustments options to the default settings.

While viewing the **Setup** Softkeys, pressing the **Back** Softkey or after 45 seconds of softkey inactivity, the system reverts to the Aux - Video Page softkeys.

The video adjustment options can also be selected by using the page menu option.

Selecting video adjustment options:

- 1) While viewing the Aux - Video Page press the **Menu** Key to display the Page Menu Options.
- 2) Turn the large **FMS** Knob to highlight the desired video adjustment option and press the **ENT** Key.

Once the **ENT** key is pressed on any option, the page menu closes and returns to the Aux - Video Page.

Zoom/Range

Pressing the **Zoom+** or **Zoom-** Softkeys increases or decreases video display magnification between 1x and 10x.

The **Joystick** can be used to increase or decrease the range setting on the map display or zoom in and out on the video display. While in the Split-Screen mode, pressing the **MAP ACTV** or **VID ACTV** Softkey determines which display the **Joystick** adjusts. Pressing the softkey to display MAP ACTV allows the **Joystick** to control the range setting of the map display. Pressing the softkey to display VID ACTV allows the **Joystick** to control the zoom setting of the video display.

When zooming in on the video display, a Zoom Window will appear in the upper right of the display. A box within this window indicates the portion of the display currently being viewed. The currently displayed portion of the full display may be adjusted by using Joystick.

ABNORMAL OPERATION

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

REVERSIONARY MODE

In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

Reversionary display mode can be manually activated by the pilot.

- **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.



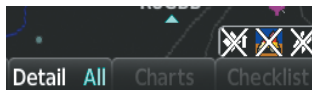
NOTE: *The Pilot's Operating Handbook (POH) always takes precedence over the information found in this section.*

ABNORMAL COM OPERATION

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

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

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



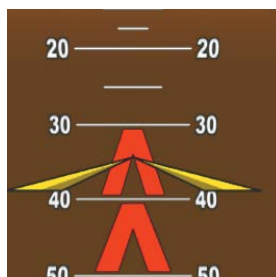
Loss of Hazard Functions with Loss of GPS Position

UNUSUAL ATTITUDES

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

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

- Traffic Annunciations
- AFCS Annunciations
- Flight director Command Bars
- Inset Map
- Temperatures
- DME Information Window
- Wind Data
- Selected Heading Box
- Selected Course Box
- Transponder Status Box
- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
 - Timer/References
 - Nearest Airports
 - Flight Plan
 - Messages
 - Procedures
 - 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 on the system 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/SBAS 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 may not be capable of estimating your position and, consequently, the system may display a path that is different than the actual movement of the aircraft. Estimated position information displayed by the 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/SBAS Mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction compounds the relative inaccuracy of DR Mode. Because of this degraded accuracy, the crew must maintain position awareness using other navigation equipment until GPS-derived position data is restored.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index



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


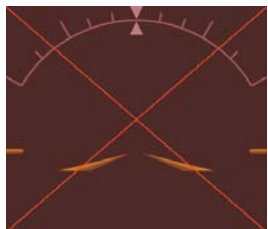



Also, while the system is in DR Mode, the autopilot will couple to GPS for up to 20 minutes. TAWS are also disabled. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

ANNUNCIATIONS & ALERTS

SYSTEM ANNUNCIATIONS

When an LRU or an LRU function fails, a large red “X” is typically displayed on windows associated with the failed data. Refer to the Pilot’s Operating Handbook (POH) for additional information regarding pilot responses to these annunciations

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

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features




Abnormal Operation

Annun/Alerts

Appendix

Index

SYSTEM ANNUNCIATIONS (CONT.)

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

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

AIRCRAFT ALERTS

The following alerts are configured specifically for the the Kodiak 100 aircraft. See the Kodiak 100 Pilot's Operating Handbook (POH) for information regarding pilot responses.

WARNING Alerts

Annunciation Window Text	Alerts Window Message	Audio Alert/ (Repeating)
AFCS CONFIG	AFCS config error. Config service req'd.	Chime
CARGO DOOR	Cargo door is not closed and locked (in air).	Chime
CHIP DETECTOR	Chip has been detected in prop gearbox.	Chime
FLAP OVRSPD	Maximum flap speed has been exceeded.	Chime
FUEL OFF L-R	Both fuel selectors are off.	Chime
INLET NOT BP	Engine inlet in normal position. Select bypass.	Chime
INLET NOT BP	Engine inlet failed to reach bypass position.	Chime
ITT	ITT red line has been exceeded.	Chime
NG OVERSPEED	NG red line has been exceeded	Chime
NP OVERSPEED	NP red line has been exceeded	Chime
OIL PRESS LOW	Engine oil pressure is low.	Chime
OVERSPD WARN	Maximum airspeed exceeded.	Chime
PROP RPM	Prop RPM too low. Increase Prop RPM above 1050.	Chime
RESERVOIR FUEL	Fuel starvation imminent.	Chime
STALL WARNING	Stall warning indicator is active.	Chime
TKS LOW QTY	TKS fluid quantity low. Less than 1.5 gallons.	Chime
TKS LOW FLOW	Low TKS flow rate.	Chime
TKS LOW PRESS	Low TKS fluid pressure.	Chime
TORQUE	Engine torque red line has been exceeded.	Chime
UNDERSPEED PROTECT ACTV	Underspeed protection is active	Chime

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

CAUTION Alerts

Annunciation Window Text	Alerts Window Message	Audio Alert
ALTERNATR FL	Alternator is inoperative.	Single Chime
CARGO DOOR	Cargo door is not closed and locked (on ground).	Single Chime
EMER PWR LVR	Emergency power lever is active.	Single Chime
FLAP FAIL	Flaps system is inoperative.	Single Chime
FLAP TRIM FAIL	Flap Trim failure.	Single Chime
FUEL LOW L	Left fuel tank quantity is low.	Single Chime
FUEL LOW R	Right fuel tank quantity is low.	Single Chime
FUEL LOW L-R	Fuel quantity is low.	Single Chime
FUEL PRESS LO	Fuel pressure is low.	Single Chime
GEN FAIL	Generator is inoperative.	Single Chime
HI ICE SPEED	Ice protection airspeed high.	Single Chime
INLET NOT NRM	Engine inlet failed to reach normal position.	Single Chime
INLET SW FAULT	Engine inlet position switch fault.	Single Chime
LO ICE SPEED	Ice protection airspeed low.	Single Chime
PITOT FL L	Left pitot heater is inoperative.	Single Chime
PITOT FL R	Right pitot heater is inoperative.	Single Chime
PITOT FL L-R	Both pitot heaters are inoperative.	Single Chime
PITOT OFF L	Left pitot heater is off.	Single Chime
PITOT OFF R	Right pitot heater is off.	Single Chime
PITOT OFF L-R	Both pitot heaters are off.	Single Chime
PTCH INHIB FAIL	TRIM GND INHIBIT FAIL.	Single Chime
STALL HT FL	Stall/AOA vane heater failure.	Single Chime
TKS BACKUP	Backup TKS pump selected.	Single Chime
TKS LOW QTY	TKS fluid quantity low. Less than 23 minutes.	Single Chime
TKS HI FLOW	High TKS flow rate.	Single Chime
TKS HI PRESS	High TKS fluid pressure.	Single Chime
VOLTAGE LOW	Bus voltage is below 24.0 V.	Single Chime

Annunciation Advisory

Annunciation Window Text	Alerts Window Message	Audio Alert
AIR COND INH	Air conditioning inhibited due to insufficient Ng.	None
AUX PUMP ON	Auxiliary fuel pump is on.	None
BETA	Propeller system is operating in beta mode.	None
CVDR RECORDING	Cockpit Voice Data Recorder is recording.	None
ENG INLET BP	Engine inlet in bypass position.	None
FAULT CVDR	Cockpit Voice Data Recorder fault.	None
FLAP TRIM TEST	Ground Inhibit Override.	None
FUEL OFF L	Left fuel selector is off.	None
FUEL OFF R	Right fuel selector is off.	None
IGNITION ON	Engine ignition is active.	None
NOT RECORDING CVDR	Cockpit Voice Data Recorder is not recording.	None
SFW INHIBIT	The SurfaceWatch system has been inhibited from providing alerts.	None
SFW NOT AVAIL	The SurfaceWatch system has is not available due to invalid inputs or configuration.	None
SFW DISABLED	The SurfaceWatch system has been disabled due to excessive north or south latitude.	None
STARTER ON	Engine starter is active.	None
TKS HI MODE	TKS high mode selected.	None
TKS MAX MODE	TKS max mode selected.	None
TKS NRM MODE	TKS normal mode selected.	None

Normal Operating Advisory

Annunciation Window Text	Alerts Window Message	Audio Alert
ENG INLET NRM	Engine Inlet in normal position.	None

Message Advisory Alerts

Alerts Window Message	Audio Alert
AVN FAN 1 FAIL – Avionics cooling fan #1 is inoperative.	None
AVN FAN 2 FAIL – Avionics cooling fan #2 is inoperative.	None

COMPARATOR ANNUNCIATIONS

Comparator Annunciation	Condition
ALT	Difference in altitude sensors is > 200 ft.
IAS	If both airspeed sensors detect < 35 knots, this is inhibited.
	If either airspeed sensor detects > 35 knots, and the difference in sensors is > 10 knots.
	If either airspeed sensor detects > 80 knots, and the difference in sensors is > 7 knots.
HDG	Difference in heading sensors is > 6 degrees.
PIT	Difference in pitch sensors is > 5 degrees.
ROL	Difference in roll sensors is > 6 degrees.
VDI	Difference in temperature compensated altitudes is > 50 ft.
ALT	No data from one or both altitude sensors.
IAS	No data from one or both airspeed sensors.
HDG	No data from one or both heading sensors.
PIT	No data from one or both pitch sensors.
ROL	No data from one or both roll sensors.
VDI	No temperature compensated altitude data available.

REVERSIONARY SENSOR ANNUNCIATIONS







Reversionary Sensor Annunciation	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 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.

Reversionary Sensor Annunciation	Condition
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.
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 AHRS1	PFD2 is displaying data from the #1 AHRS.
USING AHRS2	PFD1 is displaying data from the #2 AHRS.
USING GPS1	PFD2 is displaying data from the #1 GPS.
USING GPS2	PFD1 is displaying data from the #2 GPS.

AFCS ALERTS

Condition	Annunciation	Description
Pitch Failure	PTCH	Pitch axis control failure. AP is inoperative.
Roll Failure	ROLL	Roll axis control failure. AP is inoperative.
Yaw Damper Failure	YAW	YD control failure; AP is inoperative
MEPT Switch Stuck, or Pitch Trim Failure	PTRM	If AP engaged, take control of the aircraft and disengage AP If AP disengaged, move MEPT switches separately to unstuck
System Failure	AFCS	AP and MEPT are unavailable. FD may still be available.
Elevator Mistrim Up	↑ELE	A condition has developed causing the pitch servo to provide a sustained force. Be prepared to apply nose up control wheel force upon autopilot disconnect.
Elevator Mistrim Down	↓ELE	A condition has developed causing the pitch servo to provide a sustained force. Be prepared to apply nose down control wheel force upon autopilot disconnect.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annunciations
- Appendix
- Index

Condition	Annunciation	Description
Aileron Mistrim Left		A condition has developed causing the roll servo to provide a sustained left force. Ensure the slip/skid indicator is centered and observe any maximum fuel imbalance limits.
Aileron Mistrim Right		A condition has developed causing the roll servo to provide a sustained right force. Ensure the slip/skid indicator is centered and observe any maximum fuel imbalance limits.
Rudder Mistrim Left		A condition has developed causing the yaw servo to provide a sustained force. Ensure the slip/skid indicator is centered and observe any maximum fuel imbalance limits.
Rudder Mistrim Right		A condition has developed causing the yaw servo to provide a sustained force. Ensure the slip/skid indicator is centered and observe any maximum fuel imbalance limits.
Preflight Test		Performing preflight system test; aural alert sounds at completion. Do not press the AP DISC Switch during servo power-up and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power-up tests). Power must be cycled to the servos to remedy the situation.
		Preflight system test has failed.

VOICE ALERTS

Voice 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"	Played when a Traffic Advisory (TA) is issued with the TIS system or the optional GTS 800 TAS system. See the Hazard Avoidance section for additional details on GTS 800 voice alerts..
"Traffic, Traffic"	Played when a Traffic Advisory (TA) is issued with the optional SKY 497 TAS system. See the Skywatch PG for additional details on voice alerts.
"TIS Not Available"	The aircraft is outside the Traffic Information Service (TIS) coverage area.

Voice Alert	Description
"Traffic Advisory System Test Passed" "TAS System Test Passed"	Played when the optional traffic system passes a pilot-initiated self test. - SKY 497 TAS - GTS 800 TAS
"Traffic Advisory System Test Failed" "TAS System Test Failed"	Played when the optional traffic system fails a pilot-initiated self test. - SKY 497 TAS - GTS 800 TAS
"One o'clock" through "Twelve o'clock" or "No Bearing"	Intruder bearing (GTS 800 only).
"High", "Low", "Same Altitude" (if within 200 feet of own altitude), or "Altitude not available"	Intruder relative altitude (GTS 800 only).
"Less than one mile", "One Mile" through "Ten Miles", or "More than ten miles"	Intruder distance (GTS 800 only).

TAWS B ALERTS

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

	Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Flight Instruments EIS	Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP or OBSTACLE AHEAD - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up" or "Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up"
Nav/Com/ XPDR/Audio Flight Management	Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE AHEAD - PULL-UP or OBSTACLE - PULL-UP	"Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up" or "Obstacle, Obstacle; Pull Up, Pull Up"
Hazard Avoidance	Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN or TERRAIN AHEAD	"Caution, Terrain; Caution, Terrain" or "Terrain Ahead; Terrain Ahead"
AFCS	Imminent Terrain Impact Caution (ITI)	TERRAIN	TERRAIN AHEAD or CAUTION - TERRAIN	"Terrain Ahead; Terrain Ahead" or "Caution, Terrain; Caution, Terrain"
Additional Features	Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE or OBSTACLE AHEAD	"Caution, Obstacle; Caution, Obstacle" or "Obstacle Ahead; Obstacle Ahead"
Abnormal Operation	Imminent Obstacle Impact Caution (IOI)	TERRAIN	OBSTACLE AHEAD or CAUTION - OBSTACLE	"Obstacle Ahead; Obstacle Ahead" or "Caution, Obstacle; Caution, Obstacle"
Annun/Alerts	Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"
Appendix	Altitude Callout "500"	None	None	"Five-Hundred"
Index	Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
	Negative Climb Rate Caution (NCR)	TERRAIN	DON'T SINK or TOO LOW - TERRAIN	"Don't Sink" or "Too Low, Terrain"

TAWS-B SYSTEM STATUS ANNUNCIATIONS

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

GDL 69A SXM DATA LINK RECEIVER MESSAGES

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

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annunciations
- Appendix
- Index

	Message	Message Location	Description
Flight Instruments	LOADING	XM Radio Page (MFD)	Acquiring channel audio or information
EIS	OFF AIR	XM Radio Page (MFD)	Channel not in service
	-----	XM Radio Page (MFD)	Missing channel information
Nav/Com/XPDR/Audio	WEATHER DATA LINK FAILED	Weather Datalink Page (MFD)	No communication from Data Link Receiver within last 5 minutes
	ACTIVATION REQUIRED	XM Information Page (MFD)	Sirius SXM subscription is not activated
Flight Management	DETECTING ACTIVATION	Weather Datalink Page (MFD)	Sirius SXM subscription is activating.
Hazard Avoidance	WAITING FOR DATA...	Weather Datalink Page (MFD)	Sirius SXM subscription confirmed downloading weather data.

SYSTEM MESSAGES

	Alerts Window Message	Comments
AFCS	ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
Additional Features	AHRS1 CAL – AHRS1 calibration version error. Srvc req'd.	The #1 AHRS calibration version error. The system should be serviced.
	AHRS2 CAL – AHRS2 calibration version error. Srvc req'd.	The #2 AHRS calibration version error. The system should be serviced.
Abnormal Operation	ADC1 SERVICE – ADC1 needs service. Return unit for repair.	The GDC1 should be serviced.
Annun/Alerts	ADC2 SERVICE – ADC2 needs service. Return unit for repair.	The GDC2 should be serviced.
	AHRS1 CAL – AHRS1 calibration version error. Srvc req'd.	The #1 AHRS calibration version error. The system should be serviced.
Appendix	AHRS1 CONFIG – AHRS1 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
Index	AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.

Alerts Window Message	Comments
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 SERVICE – AHRS1 needs service. Return unit for repair.	A failure has been detected in the #1 AHRS or #2 AHRS. The system should be serviced.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
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 CAL – AHRS2 calibration version error. Svc req'd.	The #2 AHRS calibration version error. The system should be serviced.
AHRS2 CONFIG – AHRS2 config error. Config service req'd.	AHRS configuration settings do not match those of backup configuration memory. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. 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.
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The #2 AHRS is not receiving backup GPS information. The system should be serviced.
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.
AHRS2 SERVICE – AHRS2 needs service. Return unit for repair.	A failure has been detected in the #2 AHRS. The system should be serviced.
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.
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.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

	Alerts Window Message	Comments
Flight Instruments	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.
EIS	APPR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.
Nav/Com/XPDR/Audio	APR ADVISORY – SBAS VNAV not available. Using Baro VNAV.	SBAS not available. The system is calculating the VNAV profile using Baro VNAV.
	APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV-only minimums.
Flight Management	ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the special use airspace within 10 minutes.
	ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
Hazard Avoidance	ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
AFCs	CHECK CRS – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
	CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
Additional Features	CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
Abnormal Operation	COM1 CONFIG – COM1 config error. Config service req'd.	COM1 configuration settings do not match backup configuration memory. The system should be serviced.
	COM1 MANIFEST – COM1 software mismatch, communication halted.	COM1 software mismatch. The system should be serviced.
Annun/Alerts	COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 external push-to-talk switch is stuck in the enable (or “pressed”) position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
Appendix	COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 transfer switch is stuck in the enabled (or “pressed”) position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.

Alerts Window Message	Comments
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1. COM1 may still be usable. The system should be serviced when possible.
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
COM2 CONFIG – COM2 config error. Config service req'd.	COM2 configuration settings do not match backup configuration memory. The system should be serviced.
COM2 MANIFEST – COM2 software mismatch, communication halted.	COM2 software mismatch. The system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	The COM2 external push-to-talk switch is stuck in the enable (or “pressed”) position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	The COM2 transfer switch is stuck in the enabled (or “pressed”) position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 SERVICE – COM2 needs service. Return unit for repair.	The system has detected a failure in COM2. COM2 may still be usable. The system should be serviced when possible.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM2. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFD with preferred settings, if desired.
DB CHANGE – Database changed. Verify user modified procedures.	This occurs when a stored flight plan contains a procedure that is no longer consistent with the navigation database. This alert is issued only after a navigation database update. Verify that the user-modified procedures in stored flight plans are correct and up to date.
DB CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after a navigation database update. Verify use of airways in stored flight plans and reload airways as needed.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

	Alerts Window Message	Comments
Flight Instruments	DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFDs and MFD have different navigation database versions or regions installed. Crossfill is off. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
EIS		
Nav/Com/XPDR/Audio	DB MISMATCH – Obstacle database mismatch.	The PFDs and MFD have different obstacle database versions or regions installed. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
Flight Management		
Hazard Avoidance	DB MISMATCH – Standby Navigation database mismatch.	The PFDs and MFD have different standby navigation database versions or regions installed. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
AFCs		
Additional Features	DB MISMATCH – Terrain database mismatch.	The PFDs and MFD have different terrain database versions or regions installed. Check the Aux-System Status Page to determine versions or regions. Also, check the Aux-System Status Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
Abnormal Operation	ESP DEGRADE – ESP IAS mode is inoperative.	IAS mode of ESP is inoperative. The system should be serviced.
	ESP FAIL – ESP is inoperative.	The ESP function has failed and is inoperative. The system should be serviced.
Annun/Alerts	ESP OFF – ESP selected off.	Electronic Stability and Protection has been disabled on the Aux-System Setup 2 page.
	FAILED PATH – A data path has failed.	A data path connected to the GDU or the GIA 63/W has failed.
Appendix	FPL TRUNC – Flight plan has been truncated.	This occurs when a newly installed navigation database eliminates an obsolete approach or arrival used by a stored flight plan. The obsolete procedure is removed from the flight plan. Update flight plan with current arrival or approach.

Alerts Window Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	<p>Upon power-up, the system detects that a stored flight plan waypoint is locked. This occurs when an navigation database update eliminates an obsolete waypoint. The flight plan cannot find the specified waypoint and flags this message. This can also occur with user waypoints in a flight plan that is deleted.</p> <p>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.</p>
G/S1 FAIL – G/S1 is inoperative.	A fault has been detected in glideslope receiver 1 and/or receiver 2. The system should be serviced.
G/S2 FAIL – G/S2 is inoperative.	
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A fault 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.	
GDC1 MANIFEST – GDC1 software mismatch, communication halted.	The GDC1 or GDC 2 has incorrect software installed. The system should be serviced.
GDC2 MANIFEST – GDC2 software mismatch, communication halted.	
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69A SXM configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69A SXM. The receiver is unavailable. The system should be serviced
GDL69 MANIFEST – GDL software mismatch, communication halted.	The GDL 69A SXM has incorrect software installed. The system should be serviced.
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.
GEA1 MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA 71 has incorrect software installed. The System should be serviced.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

	Alerts Window Message	Comments
Flight Instruments	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.
EIS	GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	
Nav/Com/XPDR/Audio	GFC MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
Flight Management	GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 have an error in the audio configuration. The system should be serviced.
	GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 configuration settings do not match backup configuration memory. The system should be serviced.
Hazard Avoidance	GIA1 COOLING – GIA1 over temperature.	The GIA1 temperature is too high. If problem persists, the system should be serviced.
	GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
AFCs	GIA1 MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 1 has incorrect software installed. The system should be serviced.
Additional Features	GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 self-test has detected a problem in the unit. The system should be serviced.
	GIA2 CONFIG – GIA2 audio config error. Config service req'd.	The GIA2 have an error in the audio configuration. The system should be serviced.
Abnormal Operation	GIA2 CONFIG – GIA2 config error. Config service req'd.	The GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
	GIA2 COOLING – GIA2 over temperature.	The GIA2 temperature is too high. If problem persists, the system should be serviced.
Annun/Alerts	GIA2 COOLING – GIA2 temperature too low.	The GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
	GIA2 MANIFEST – GIA2 software mismatch, communication halted.	The GIA 2 has incorrect software installed. The system should be serviced.
Appendix	GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	The GIA2 self-test has detected a problem in the unit. The system should be serviced.
Index	GMA1 AUX MANIFEST – GMA 1 AUX software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.

Alerts Window Message	Comments
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA1 MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.
GMA2 AUX MANIFEST – GMA 2 AUX software mismatch, communication halted.	The digital audio controller has incorrect software installed. The system should be serviced.
GMA2 CONFIG – GMA2 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
GMA2 FAIL – GMA2 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA2 MANIFEST – GMA2 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
GMA2 SERVICE – GMA2 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.
GMA XTALK – GMA crosstalk error has occurred.	An error has occurred in transferring data between the two GMAs. The system should be serviced.
GMC CNFG – GMC Config error. Config service req'd.	Error in the configuration of the GMC 710.
GMC FAIL – GMC is inoperative.	A failure has been detected in the GMC 710. The GMC 710 is unavailable.
GMC KEYSTK – GMC [keyname] Key is stuck	A key is stuck on the GMC 710 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
GMC MANIFEST – GMC software mismatch, communication halted.	The GMC 710 has incorrect software installed. The system should be serviced.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

	Alerts Window Message	Comments
Flight Instruments	GMU1 MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
EIS	GMU2 MANIFEST – GMU2 software mismatch, communication halted.	
Nav/Com/XPDR/Audio	GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.
Flight Management	GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
	GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS fault.
Hazard Avoidance	GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A fault has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
	GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
AFCS	GRS1 MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.
	GRS2 MANIFEST – GRS2 software mismatch, communication halted.	The #2 AHRS has incorrect software installed. The system should be serviced.
Additional Features	GTS CONFIG – GTS Config error. Config service req'd.	The GTS and GDU have different copies of the GTS configuration, or the Mode S address is invalid. The system should be serviced.
	GTS MANIFEST – GTS software mismatch, communication halted.	The GTS has incorrect software installed. The system should be serviced.
Abnormal Operation	GTX1 MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
Annun/Alerts	GWX CONFIG – GWX config error. Config service req'd.	GWX 70R 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 70R is reporting a fault. The GWX 70R radar system should be serviced.
Appendix	GWX MANIFEST – GWX software mismatch, communication halted.	The GWX 70R has incorrect software installed. The system should be serviced.
Index		

Alerts Window Message	Comments
GWX SERVICE – Needs service. Return unit for repair.	A failure has been detected in the GWX 70R. The GWX 70R may still be usable.
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HDG FAULT – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HOLD EXPIRED – Holding EFC time expired.	Expect Further Clearance (EFC) time has expired for the User Defined Hold.
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable. The system should be serviced.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
INSIDE ARSPC – Inside airspace.	The aircraft is inside the special use airspace.
INVALID ADM – Invalid ADM: ATN communication halted.	Data link avionics were not configured correctly and therefore will not be able to communicate with the ground network.
LOCKED FPL – Cannot navigate locked flight plan.	This occurs when the pilot attempts to activate a stored flight plan that contains locked waypoint. Remove locked waypoint from flight plan. Update flight plan with current waypoint.
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.
LRG MAG VAR – Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
MFD SOFTWARE – MFD mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
MFD TERRAIN DSP – MFD Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the specified GDU is missing or invalid.
MFD1 BACKLIGHT CALIBRATION – MFD1 calibration. Return for repair.	The specified GDU's backlight calibration cannot be found or is invalid. The system should be serviced.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annunciations/Alerts
- Appendix
- Index

	Alerts Window Message	Comments
Flight Instruments	MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
EIS	MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	The MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
Nav/Com/XPDR/Audio	MFD1 DB ERR – MFD1 Airport Directory database error exists.	The MFD detected a failure in the Airport Directory database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Flight Management	MFD1 DB ERR – MFD1 basemap database error exists.	The MFD detected a failure in the basemap database.
Hazard Avoidance	MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD detected a failure in the ChartView database (optional feature). Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
AFCS	MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD detected a failure in the FliteCharts database (optional feature). Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Additional Features	MFD1 DB ERR – MFD1 multiple database errors exists.	The MFD detected a failure in more than one database. If problem persists, the system should be serviced.
Abnormal Operation	MFD1 DB ERR – MFD1 navigation database error exists.	The MFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
Annun/Alerts	MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD 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.
Appendix	MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
Index	MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD detected a failure in the Safe Taxi database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
	MFD1 DB ERR – MFD1 terrain database error exists.	The MFD 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.
	MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.

Alerts Window Message	Comments
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	The MFD self-test has detected a problem. The system should be serviced.
MFD1 KEYSTK – MFD1 [key name] is stuck.	A key is stuck on the MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.
NAV1 MANIFEST – NAV1 software mismatch, communication halted.	NAV1 software mismatch. The system should be serviced.
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 transfer switch is stuck in the enabled (or “pressed”) state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 receiver. The receiver may still be available. The system should be serviced.
NAV2 MANIFEST – NAV2 software mismatch, communication halted.	NAV2 software mismatch. The system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	The remote NAV2 transfer switch is stuck in the enabled (or “pressed”) state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	A failure has been detected in the NAV2 receiver. The receiver may still be available. The system should be serviced.
NON-MAG UNITS – Non-magnetic NAV ANGLE display units are active.	Navigation angle is not set to MAGNETIC at power-up.
NON WGS84 WPT – Non WGS 84 waypoint for navigation -[xxxx]	The position of the selected waypoint [xxxx] is not calculated based on the WGS84 map reference datum and may be positioned in error as displayed. Do not use GPS to navigate to the selected non-WGS84 waypoint.
PFD POSITIONS DIFFERENT – PFD positions mismatch. Check position sensors.	There is a mismatch in the position sensed by the PFDs. Check position sensor settings. If message persists the system should be serviced.
PFD1 BACKLIGHT CALIBRATION – PFD1 bklt cal lost or mismatch. Return for repair.	The specified GDU’s backlight calibration cannot be found or found or is invalid. The system should be serviced.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

	Alerts Window Message	Comments
Flight Instruments	PFD1 CARD 1 ERR – PFD1 card 1 is invalid.	The SD card in the top card slot of the specified PFD contains invalid data.
EIS	PFD1 CARD 1 REM – PFD1 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD. The SD card needs to be reinserted.
Nav/Com/XPDR/Audio	PFD1 CARD 2 ERR – PFD1 card 2 is invalid.	The SD card in the bottom card slot of the specified PFD contains invalid data.
Flight Management	PFD1 CARD 2 REM – PFD1 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD. The SD card needs to be reinserted.
	PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
	PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
Hazard Avoidance	PFD1 DB ERR – MFD1 Airport Directory database error exists.	The PFD detected a failure in the Airport Directory database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
AFCs	PFD1 DB ERR – MFD1 basemap database error exists.	The PFD detected a failure in the basemap database.
Additional Features	PFD1 DB ERR – MFD1 Chartview database error exists.	The PFD 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.
Abnormal Operation	PFD1 DB ERR – MFD1 FliteCharts database error exists.	The PFD detected a failure in the FliteCharts database (optional feature). Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Annun/Alerts	PFD1 DB ERR – PFD1 multiple database errors exists.	The PFD detected a failure in more than one database. If problem persists, the system should be serviced.
	PFD1 DB ERR – PFD1 navigation database error exists.	The PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
Appendix	PFD1 DB ERR – MFD1 obstacle database error exists.	The PFD detected a failure in the obstacle database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Index	PFD1 DB ERR – MFD1 Safe Taxi database error exists.	The PFD detected a failure in the Safe Taxi database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.

Alerts Window Message	Comments
PFD1 DB ERR – MFD1 terrain database error exists.	The PFD detected a failure in the terrain database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	The PFD detected a failure in the terrain database. Ensure that the terrain card is properly inserted in display. Replace terrain card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD1 MANIFEST – PFD1 software mismatch, communication halted.	The PFD has incorrect software installed. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD a self-test has detected a problem. The system should be serviced.
PFD1 SOFTWARE – PFD1 mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
PFD1 TERRAIN DSP – PFD1 Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in PFD1 is missing or invalid.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PFD1 BACKLIGHT CALIBRATION – PFD2 bklt cal lost or mismatch. Return for repair.	The specified GDU's backlight calibration cannot be found or found or is invalid. The system should be serviced.
PFD2 CARD 1 ERR – PFD2 card 1 is invalid.	The SD card in the top card slot of the specified PFD contains invalid data.
PFD2 CARD 1 REM – PFD2 card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD. The SD card needs to be reinserted.
PFD2 CARD 2 ERR – PFD2 card 2 is invalid.	The SD card in the bottom card slot of the specified PFD contains invalid data.
PFD2 CARD 2 REM – PFD2 card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD. The SD card needs to be reinserted.
PFD2 CONFIG – PFD2 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

	Alerts Window Message	Comments
Flight Instruments	PFD2 COOLING – PFD2 has poor cooling. Reducing power usage.	The PFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
EIS	PFD2 DB ERR – PFD2 Airport Directory database error exists.	The PFD detected a failure in the Airport Directory database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Nav/Com/XPDR/Audio	PFD2 DB ERR – PFD2 basemap database error exists.	The PFD detected a failure in the basemap database.
Flight Management	PFD2 DB ERR – PFD2 Chartview database error exists.	The PFD 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.
Hazard Avoidance	PFD2 DB ERR – PFD2 FliteCharts database error exists.	The PFD detected a failure in the FliteCharts database (optional feature). Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
AFCs	PFD2 DB ERR – PFD2 multiple database errors exists.	The PFD detected a failure in more than one database. If problem persists, the system should be serviced.
Additional Features	PFD2 DB ERR – PFD2 navigation database error exists.	The PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
Abnormal Operation	PFD2 DB ERR – PFD2 obstacle database error exists.	The PFD detected a failure in the obstacle database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Annun/Alerts	PFD2 DB ERR – PFD2 Safe Taxi database error exists.	The PFD detected a failure in the Safe Taxi database. Ensure the data card is properly programmed if present. If problem persists, the system should be serviced.
Appendix	PFD2 DB ERR – PFD2 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
Index	PFD2 KEYSTK – PFD2 [key name] Key is stuck.	A key is stuck on the PFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
	PFD2 MANIFEST – PFD2 software mismatch, communication halted.	The PFD has incorrect software installed. The system should be serviced.

Alerts Window Message	Comments
PFD2 SERVICE – PFD2 needs service. Return unit for repair.	The PFD self-test has detected a problem. The system should be serviced.
PFD2 SOFTWARE – PFD2 mismatch, communication halted.	The specified GDU has different software versions installed. The system should be serviced.
PFD2 TERRAIN DSP – PFD2 Terrain awareness display unavailable.	One of the terrain, or obstacle databases required for TAWS in PFD2 is missing or invalid.
PFD2 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 voltage is low. The system should be serviced.
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.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT MAG – Select MAGNETIC NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to Magnetic.
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.
SLCT NON-MAG – Select alternate NAV ANGLE display units.	The system notifies the pilot to set the Nav Angle units on the Avionics Settings Screen to True.
SPD KEY DISABLED - The SPD key is disabled for this model aircraft.	The SPD Key on GMC 710 has no function in this aircraft model.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
STRMSCP FAIL – Stormscope has failed.	Stormscope has failed. The system should be serviced.
SURFACEWATCH DISABLED - Too far north/south.	The SurfaceWatch system has been disabled.
SURFACEWATCH FAIL - Invalid audio configuration.	The SurfaceWatch system has failed due to an invalid audio configuration.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annunciations
- Appendix
- Index

	Alerts Window Message	Comments
Flight Instruments	SURFACEWATCH FAIL - Invalid configurable alerts.	The SurfaceWatch system has failed due to invalid configurable alerts.
EIS	SURFACEWATCH FAIL - One or more inputs invalid.	The SurfaceWatch system has failed due to one or more invalid inputs.
	SURFACEWATCH INHIBITED - Surfacewatch inhibited.	The SurfaceWatch system has been inhibited.
Nav/Com/XPDR/Audio	SVT DISABLED – Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
Flight Management	SVT DISABLED – Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (0.9 arc-second or better) is not currently installed.
Hazard Avoidance	TERRAIN AUD CFG – Trn Awareness audio config error. Service req'd.	Terrain audio alerts are not configured properly. The system should be serviced
AFCs	TERRAIN DISABLED – Terrain Awareness DB resolution too low.	TAWS is disabled because a terrain database of sufficient resolution (0.9 arc-second or better) is not currently installed.
Additional Features	TERRAIN DSP – [PFD1, PFD2 or MFD1] Terrain awareness display unavailable.	One of the terrain or obstacle databases required for TAWS in the specified PFD or MFD is missing or invalid.
Abnormal Operation	TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.
Annun/Alerts	TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
Appendix	TRN AUD FAIL – Trn Awareness audio source unavailable.	The audio source for terrain awareness is offline. Check GIA1 or GIA 2.
Index	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 – Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
	VNV UNAVAILABLE – Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
	VNV UNAVAILABLE – Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.

Alerts Window Message	Comments
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.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
WX ALERT – Possible severe weather ahead.	The GWX 70R indicates severe weather within ± 10 degrees of the aircraft heading at a range of 80 to 320 nm.
XPDR1 ADS-B 1090 – Datalink: ADS-B 1090 receiver has failed.	A failure has been detected in the 1090 receiver.
XPDR1 ADS-B FAIL – Transponder: XPDR1 is unable to transmit ADS-B messages.	ADS-B is inoperative. The transponder may not be receiving a valid GPS position. Other transponder functions may be available. Service when possible.
XPDR1 ADS-B NO POS – Transponder: ADS-B is not transmitting position.	The transponder is not able to receive position information.
XPDR1 ADS-B TRFC – Transponder: ADS-B traffic has failed	The Transponder is incapable of processing traffic information.
XPDR1 ADS-B UAT – Datalink: ADS-B in UAT receiver has failed.	A failure has been detected in the UAT receiver.
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR1 CSA FAIL - Traffic: ADS-B In traffic alerting has failed.	ADS-B Conflict Situational Awareness (CSA) is unavailable.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 or #2 transponder.
XPDR1 FAULT – Datalink: ADSB-B in has failed.	The transponder is unable to receive ADS-B information.
XPDR1 FIS-B WX – Datalink: FIS-B Weather has failed.	The transponder is unable to receive FIS-B weather information.
XPDR1 OVER TEMP - Transponder: Transponder over temp.	The system has detected an over temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
XPDR1 PRES ALT –Transponder: ADS-B no pressure altitude.	Unable to provide pressure altitude information.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCS
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

Alerts Window Message	Comments
XPDR1 SERVICE – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.
XPDR1 UNDER TEMP - Transponder: Transponder under temp.	The system has detected an under temperature condition in XPDR1. The transmitter operates at reduced power. If the problem persists, the system should be serviced.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFD are not communicating with each other. The system should be serviced.

FLIGHT PLAN IMPORT/EXPORT MESSAGES

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

Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. One or more of these waypoints did not import successfully.
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints that the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.

Flight Plan Import/Export Results	Description
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

CREW PROFILE IMPORT/EXPORT MESSAGES

Crew Profile Import/Export Results	Description
'No pilot profile plan files found to import.'	Displayed if the SD card does not have one or more valid pilot profile filenames.
'Overwrite existing profile?'	Displayed if the profile name matches the name of existing profile.
'Profile name invalid. Enter a different profile name.'	Displayed if the profile name is invalid.
'All available pilot profiles in use. Delete a profile before importing another.'	Displayed if the maximum number for pilot profiles has been reached.
'Pilot profile import failed.'	Displayed if the importing operation fails for any other reason.
'Pilot profile import succeeded.'	Displayed if the importing operation succeeds.
'Overwrite existing file?'	Displayed if the filename matches the name of an existing file on the SD card.
'Pilot profile export failed.'	Displayed if the export operation fails.
'Pilot profile export succeeded.'	Displayed if the export operation succeeds.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Blank Page

APPENDIX

PF D SOFTKEYS

Level 1	Level 2	Level 3	Level 4	Description
Map/HSI				Displays the PFD Map display settings softkeys.
	Layout			Displays the PFD Map selection softkeys.
		Map Off		Removes the PFD map from display (Inset, HSI, or Traffic)
		Inset Map		Displays the Inset Map
		HSI Map		Displays the HSI Map
		TFC Map		Replaces the PFD Map with a dedicated traffic display.
		Wx LGND		Displays/removes the name of the selected data link weather provider (SiriusXM, Connex) and the weather product icon and age box (for enabled weather products).
	Detail			Selects desired amount of map detail: All (No Declutter): All map features visible Detail 3 : Declutters land data Detail 2 : Declutters land and SUA data Detail 1 : Removes everything except for the active flight plan
	Traffic			Displays traffic information on PFD Map.
	Topo			Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on PFD Map
	Rel Ter			Displays relative terrain information on the PFD Map
	NEXRAD			Displays XM NEXRAD weather and coverage on PFD Map (subscription optional)
	METAR			Displays METAR information on Inset Map (subscription optional)

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

	Level 1	Level 2	Level 3	Level 4	Description
Flight Instruments		Lightning			Adds/removes the display of SiriusXM lightning information on PFD Map.
EIS			LTNG Off		Disables lightning function on PFD Map. The softkey annunciator is green when the lightning function is off.
Nav/Com/XPDR/Audio			Datalink		Selects the data link weather source for the PFD Map.
Flight Management			STRMSCP		Adds or removes the display of Stormscope information on the PFD Map. The softkey annunciator is green when the function is on. When the function is off, the annunciator is gray (optional).
Hazard Avoidance		Wx Radar			When enabled, displays the airborne weather radar overlay on HSI Map.
		RDR Opt			Displays softkeys for airborne weather radar options.
AFCS			Mode SEL		Displays softkeys for weather radar mode selection.
				Off	Disables weather radar mode.
Additional Features				Standby	Selects Standby weather radar mode.
				Weather	Activates Weather radar mode.
Abnormal Operation				Ground	Activates Ground Map weather radar mode.
Annun/Alerts			Gain -		Decreases weather radar gain setting.
			Gain +		Increases weather radar gain setting.
Appendix			STAB		Activates antenna stabilization feature.
			ACT		Activates Altitude Compensated Tilt feature.
Index	TFC Map				Replaces the PFD Map with a dedicated traffic display.

Level 1	Level 2	Level 3	Level 4	Description
PFD Opt				Displays second-level softkeys for additional PFD options.
	SVT			Displays additional SVT overlay softkeys
		Pathways		Displays Pathway Boxes on the Synthetic Vision Display.
		Terrain		Enables synthetic terrain depiction.
		HDG LBL		Displays compass heading along the Zero-Pitch line.
		APT Sign		Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are displayed when the airport is within about 9 nm.
	Wind			Displays the wind option softkeys
		Option 1		Headwind/Tailwind and crosswind components.
		Option 2		Wind direction arrow and speed.
		Option 3		Wind direction arrow with direction and speed.
		Off		Wind information not displayed.
	Bearing 1			Cycles the Bearing 1 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, and Off.
	Sensors			Displays softkeys for selecting the AHRS or ADC sensor selection softkeys.
		ADC		Displays softkeys for selecting the ADC sensor.
			ADC1	Selects the #1 Air Data Computer.
			ADC2	Selects the #2 Air Data Computer.
		AHRS		Displays softkeys for selecting the AHRS sensor.
			AHRS1	Selects the #1 AHRS.
			AHRS2	Selects the #2 AHRS.

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCs

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

	Level 1	Level 2	Level 3	Level 4	Description
Flight Instruments		Bearing 2			Cycles the Bearing 2 Information Window through NAV1, NAV2, GPS/waypoint identifier and GPS-derived distance information, and Off.
EIS		ALT Units			Displays softkeys to select altitude unit parameters.
Nav/Com/XPDR/Audio			Meters		When enabled, displays altimeter in meters.
Flight Management			IN		Press to display the BARO setting as inches of mercury
			HPA		Press to display the BARO setting as hectopascals.
		STD Baro			Sets barometric pressure to 29.92 in Hg (1013 hPa if metric units are selected)
Hazard Avoidance	OBS				Selects OBS mode on the CDI when navigating by GPS (only available with active leg). When OBS is on, the softkey annunciator is green.
AFCS	CDI				Cycles through FMS, NAV1, and NAV2 navigation modes on the CDI.
Additional Features	XPDR				Displays the transponder selection softkeys.
		Standby			Selects transponder Standby Mode (transponder does not reply to any interrogations).
Abnormal Operation		On			Activates transponder (transponder replies to identification interrogations).
Annun/Alerts		ALT			Altitude Reporting Mode (transponder replies to identification and altitude interrogations).
		VFR			Automatically enters the VFR code (1200 in the U.S.A. only)
		Code			Displays transponder code selection softkeys 0-7.
Appendix			0 - 7		Use numbers to enter code.
			Ident		Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
Index			BKSP		Removes numbers entered, one at a time.

Level 1	Level 2	Level 3	Level 4	Description
	Ident			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
	ADS-B TX			Enables/disables automatic transmission of ADS-B position and speed.
	Ident			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen.
	Tmr/Ref			Displays Timer/References Window.
	Nearest			Displays Nearest Airports Window.
	Alerts			Displays Alerts Window

MFD SOFTKEYS

Level 1	Level 2	Level 3	Description
Engine			Displays second-level softkeys for additional EIS configuration.
	Engine		Displays default EIS display.
	System		Displays system EIS display.
	Fuel		Displays fuel EIS display, and displays fuel quantity modification softkeys.
		DEC Fuel	Decreases calculated fuel remaining by 10 lb for each softkey press.
		INC Fuel	Increases calculated fuel remaining by 10 lb for each softkey press.
		RST Fuel	Resets calculated fuel remaining to default and resets fuel used to zero.
Map Opt			
	Traffic		Displays traffic information on Navigation Map Page.
	Inset		Displays inset window second level softkeys.
		Off	Removes VSD inset from Navigation Map Page.

Level 1	Level 2	Level 3	Description
		VSD	Displays VSD profile information of terrain/obstacles along the current track, vertical track vector, and selected altitude.
		VSD	Selects VSD mode; cycles through the following: Auto: Automatically displays either VSD profile information for active flight plan information or along current track with no active flight plan. FPL: Displays VSD profile info for active flight plan. TRK: Displays VSD profile info along current track.
	TER		Displays terrain on the map; cycles through the following: Off: No terrain information shown on MFD Map. Topo: Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on MFD Map. REL: Displays relative terrain information on the MFD Map.
	AWY		Displays airways on the map; cycles through the following: Off: No airways are displayed. On: All airways are displayed. LO: Only low altitude airways are displayed. HI: Only high altitude airways are displayed.
	STRMSCP		Displays Stormscope information on Navigation Map Page (optional).
	NEXRAD		Displays XM NEXRAD weather and coverage on Navigation Map Page (optional).
	XM LTNG		Displays XM lightning information on Navigation Map Page (optional).
	METAR		Displays METAR information on Inset Map (subscription optional).
	Legend		Displays legends for the displayed XM Weather products (optional).
	WX Radar		Displays XM weather radar information on Navigation Map Page (optional).

Level 1	Level 2	Level 3	Description
Detail			<p>Selects desired amount of map detail; cycles through the following levels:</p> <p>Detail All: All map features visible.</p> <p>Detail-1: Declutters land data.</p> <p>Detail-2: Declutters land and SUA data.</p> <p>Detail-3: Removes all except for active flight plan.</p>
Charts			When available, displays optional airport and terminal procedure charts.
	CHRT Opt		Displays chart display settings softkeys.
	Show Map		Displays the WPT–Airport Information page.
	Info		<p>Displays airport information:</p> <p>Info 1:</p> <p>Info 2:</p>
	DP		Displays departure procedure chart.
	STAR		Displays standard terminal arrival procedure chart.
	APR		Displays approach procedure chart.
	WX		
	NOTAM		Displays NOTAM information for selected airport, when available.
Checklist			When available, displays optional checklists.

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

LOADING UPDATED DATABASES



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



NOTE: *When loading database updates, the 'DB Mismatch' system messages will be displayed until database synchronization is complete, followed by turning system power off, then on. Synchronization can be monitored on the Aux-Database Page.*



NOTE: *Loading a database in the system prior to its effective date will result in the expiration date on the power-up screen and the effective date on the Aux – Databases Page being displayed in amber.*

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

Databases may be loaded through Garmin Pilot and Flight Stream 510. When loading databases through Garmin Pilot and the Flight Stream 510, the Flight Stream 510 must be enabled on the system and the multimedia card inserted in the bottom SD slot of the MFD.

The cycles and dates for both standby and active databases are displayed on the “Aux – Databases” page on the MFD. Any active databases with expiration dates in the past will be highlighted with amber text. When an expired active database has a standby database that is ready to become effective, a cyan double-sided arrow will be displayed between the database cycles. When this arrow is visible, it indicates that the standby and active databases in that row will be switched on the next power cycle, activating the current standby database. Databases can also be manually selected (or deselected) by highlighting a list item and pressing the ENT key, provided a valid, verified standby database is present.

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

Updating Databases Using a Supplemental Data Card

Updating Databases using an SD Card:

- 1) With the system OFF, remove an SD Card from the bottom SD card slot of the MFD.
- 2) Download the databases and install them on an SD card.
- 3) Put the SD Card in the bottom SD card slot of the MFD.
- 4) Turn the system ON.
- 5) Press the **ENT** Key or the right most softkey on MFD display to acknowledge the startup screen.
- 6) Turn the large **FMS** Knob to select the Aux page group on the MFD.
- 7) Turn the small **FMS** Knob to select the Database page group on the MFD.
- 8) Monitor the Sync Status on the Database page. Wait for all databases to complete syncing, indicated by 'Sync Complete' being displayed. A cyan double arrow will appear between the Standby and Active columns to show which Standby databases will be transferred to Active at the next power cycle.
- 9) Verify the correct database cycle information is shown in the Standby Database column.
- 10) Remove power from the system.
- 11) Remove the SD card from the bottom slot of the MFD.
- 12) After restarting the system, turn the large **FMS** Knob and select the Aux page group on the MFD.
- 13) Turn the small **FMS** Knob and select the Databases page.
- 14) Verify that the standby databases transferred and are now in the active database column.
- 15) To view database information for an individual display, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.
- 16) To manually activate any databases that did not transfer to the active column:
 - a) Press the **FMS** Knob. The first database title on the screen will be selected.

- b) Turn the small **FMS** Knob as necessary to select the database title.
- c) Press the **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.
- d) Remove and reapply power to the system.
- e) Verify that the standby databases transferred and are now in the active database column.

Updating Databases Using Flight Stream 510

Updating Databases from any MFD page (except the Aux - Databases page):

- 1) Insert the Flight Stream Multimedia Card in the bottom slot of the MFD.
- 2) Press the **Update** softkey when the Database Update screen appears.
- 3) The Flight Stream 510 will enter WI-FI mode.
- 4) Put the mobile device in WI-FI mode (refer to the Additional Features section).
- 5) Connect the mobile device to the Flight Stream 510 WI-FI (refer to the Additional Features section). The 'WI-FI Not Connected' screen will close when the WI-FI connection is established.
- 6) When the transfer is complete, the following screen will appear.
- 7) Press the **Close** softkey.
- 8) When an existing database is expired and a new one is ready to become active, a 'Database Expired' window will appear. Continue to the next step to restart the system.
- 9) Remove power from the system.
- 10) After restarting the system, turn the large **FMS** Knob and select the Aux page group on the MFD.
- 11) Turn the small **FMS** Knob and select the Databases page.
- 12) Verify that the standby databases transferred and are now in the active database column.
- 13) To view database information for an individual display, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.

- 14) To manually activate any databases that did not transfer to the active column:
 - a) Press the **FMS** Knob. The first database title on the screen will be selected.
 - b) Turn the small **FMS** Knob as necessary to select the database title.
 - c) Press the **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.
 - d) Remove and reapply power to the system.
 - e) Verify that the standby databases transferred and are now in the active database column.

Updating Databases from the Aux - Databases page:

- 1) With the system OFF, insert the Flight Stream Multimedia Card in the bottom slot of the MFD.
- 2) Turn the large **FMS** Knob to select the Aux page group on the MFD.
- 3) Turn the small **FMS** Knob to select the Database page group on the MFD.
- 4) Press the **Device** Softkey.
- 5) The Aux - Databases page will show the databases connected to the mobile device in place of the active databases on the system. Databases selected to load will be indicated by a cyan arrow.
- 6) Press the **Update** softkey. The Flight Stream 510 will enter WI-FI mode.
- 7) Put the mobile device in WI-FI mode (refer to the Additional Features section).
- 8) Connect the mobile device to the Flight Stream 510 WI-FI (refer to the Additional Features section).
- 9) The Database Update status will appear in the Status window at the top of the page.
- 10) Remove power from the system .
- 11) After restarting the system, turn the large **FMS** Knob and select the Aux page group on the MFD.
- 12) Turn the small **FMS** Knob and select the Databases page.
- 13) Verify that the standby databases transferred and are now in the active database column.

- 14)** To view database information for an individual display, press and then turn the **FMS** Knob to select the database, and then press the **Details** Softkey. Press the **ENT** Key or the **FMS** Knob to exit.
- 15)** To manually activate any databases that did not transfer to the active column:
- Press the **FMS** Knob. The first database title on the screen will be selected.
 - Turn the small **FMS** Knob as necessary to select the database title.
 - Press the **ENT** Key. A cyan double-sided arrow will appear indicating that the standby database will become active.
 - Remove and reapply power to the system.
 - Verify that the standby databases transferred and are now in the active database column.

MAGNETIC FIELD VARIATION DATABASE UPDATE



A copy of the current magnetic field variation database (MV DB) is included with the navigation database. At startup, the system compares this version of the MV DB with that presently being used by the AHRS. If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page.















Loading the magnetic field variation database update:

With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed as shown. When the upload is complete, the system is ready for use.







MAP SYMBOLS

Aviation Symbols

Item	Symbol
Unknown Airport	
Non-towered, Non-serviced Airport	

Towered, Non-serviced Airport	
Non-towered, Serviced Airport	
Towered, Serviced Airport	
Restricted (Private) Airport	
Heliport	
Intersection	
LOM (compass locator at outer marker)	
NDB (non-directional radio beacon)	
VOR	
VOR/DME	
VOR/ILS	
VORTAC	
VRP	
TACAN	

Land Symbols


Item	Symbol
User Waypoint	
Interstate Highway	
State Highway	
US Highway	
National Highway	
Large City (> 200,000)	

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index












Item	Symbol
Medium City (> 50,000)	
Small City (> 5,000)	
State or Province Border	
International Border	
Road	
Railroad	
Latitude/Longitude	
River/Lake	
Latitude/Longitude (LAT/LON)	

Airspace Symbols

Item	Symbol
Class B Airspace Altitude Label (ceiling/floor)	
Class C Airspace Altitude Label (ceiling/floor)	
Class D Airspace Altitude Label (ceiling)	
ICAO Control Area Class B Airspace	
Mode C Tower Area	
Warning Area Danger Area Training Area Alert Area Prohibited Area Unknown Area Caution Area Restricted Area	
Class C Terminal Radar Service Area Mode C Area	

Item	Symbol
Military Operations Area (MOA)	

MISCELLANEOUS SYMBOLS

Item	Symbol
ARTCC Frequency or FSS Frequency	
Map Pointer (when panning)	
Measuring Pointer	
User Waypoint	
Vertical Navigation Along Track Waypoint	
Parallel Track Waypoint	
Unanchored Flight Path Waypoint	
Displayed when aircraft GPS location is valid, but heading is invalid.	
Top of Descent (TOD)	
Bottom of Descent (BOD)	
Navigating using Dead Reckoning	

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Flight Instruments

EIS

Nav/Com/XPDR/Audio

Flight Management

Hazard Avoidance

AFCS

Additional Features

Abnormal Operation

Annun/Alerts

Appendix

Index

Blank Page

A

- Active Channel 91
- AC-U-KWIK 88
- Advisory alerts 111
- AHRS 107, 118, 119, 120, 124, 125, 127
- Aircraft alerts 109
- Aircraft range 14–15
- Air Data Computer 112
- Airport
 - Information 25
- Airport Directory 88
- Airport Signs 6
- Airway
 - Collapse/Expand Airways 34
- Along Track Offset 39
- ALT 76
- Altimeter setting 1
- Altitude
 - Constraints 45
- Altitude mode 76
- Altitude volume 76
- Ammeter 10, 12
- AOPA 88
- AOPA's Airport Directory 88
- AP 113
- Approach
 - Activating 53
 - Loading 53
 - Removing 54
- Approach activation 16
- Approach channel 53
- Arrival procedure 52
- Attitude & Heading Reference System (AHRS) 112
- Audio panel controls
 - NAV1, NAV2 15

Autopilot 113

B

- Barometric Altitude Minimums 5
- Bearing Line 71, 72
- Bluetooth 36, 100, 101
- Bus voltage 10, 12

C

- Caution alerts 110
- CDI 3, 4, 15, 133
- Cell 60
- Cell mode 60
- ChartView 85
- Checklists 89, 89–90
- Clearance player 17
- Clearance Recorder 17
- Closest Point 42
- Code selection softkeys 15
- COM 15, 16, 17, 103

D

- Data Link Receiver 117, 118
- Day/Night views 87
- DB Mismatch 146
- Dead Reckoning 105
- Declutter 104
- Deleting
 - An entire airway 39
 - An entire procedure 39
 - An individual waypoint 38, 39
- Departure
 - Procedure 51, 52
 - Select 51, 52, 53
- Direct-to 19, 30, 31
- DR mode 105, 106

- Flight Instruments
- EIS
- Nav/Com/XPDR/Audio
- Flight Management
- Hazard Avoidance
- AFCs
- Additional Features
- Abnormal Operation
- Annun/Alerts
- Appendix
- Index

- E**
- Electrical indications 10
 - Electronic Checklists 89, 90
 - Electronic Stability 99
 - Emergency Checklist 90
 - Endurance 14
 - ESP 99
 - Export a Flight Plan 36
- F**
- Flaps 10, 12, 14
 - Flight Director 81
 - Flight Director (FD) 113
 - Flight path marker 6
 - Flight Plan, Active
 - Creating 32
 - Flight plan import/export messages 136
 - Flight Stream 36, 100
 - FlightStream 510 148
 - FliteCharts® 85
 - FPA 49
 - Frequency Transfer 16
 - Fuel
 - Calculations 13
 - Flow 10, 12, 14
 - Quantity 10, 14
 - Remaining 14
 - Used 14
- G**
- Garmin Pilot 100, 101
 - Generator speed 12, 14
 - Ground Mapping, Weather Radar 73
- H**
- HF 15
 - Horizon heading 6
 - Horizontal Scan 71
 - Horizontal Situation Indicator (HSI) 52
- I**
- Import a Flight Plan 35
 - Interstage Turbine Temperature (ITT) 10, 11, 14
 - Inverting a flight plan 35
 - IOI 116
- J**
- Jeppesen 85
- L**
- Lightning 60
- M**
- Maintenance 93, 94
 - Map panning 62, 69
 - Map symbols 150
 - MET 113
 - METAR 61, 69
 - MFD 16
 - Minimums 114
 - Missed Approach 54
 - Mistrim 113, 114
 - MKR/MUTE 17
 - Mode selection softkeys 15
- N**
- NAV 15, 16
 - NAV1 4, 15
 - NAV2 4, 15
 - Navigation
 - Database 45
 - Nearest
 - Airport 25
 - Airports Page 25

NEXRAD 61
No Compare 112

O

OBS 4
Obstacles 122, 127
Oil
 Pressure 10, 12, 14
 Temperature 10, 12, 14
Overspeed Protection 82

P

Pairing 100
Parallel Track 40
Pathways 6
Pending flight plan 37, 38
PFD 16
Power-up Page 89
Pressure, oil 10, 12, 14
Propeller speed 10, 12, 14

R

RAIM 56, 57
Range, aircraft 14–15
Reversionary mode 103
ROC 116

S

SafeTaxi® 85
SBAS 57, 127
Scheduler 94
Sector Scan 72
Secure Digital (SD) card 89
Sensor 112
Simultaneous COM operation 16
SiriusXM Weather 61, 68
Stabilization, Antenna 73

Standby Navigation Database 147
Stormscope lightning data 60
Strike mode 60
SVT 6
Symbols, map 150
Synthetic Vision (SVT) 134
Synthetic Vision System 6

T

TA 114
TAF 61, 69
TAS 76, 77, 119, 120
TAWS 115
Temperature, Interstage Turbine 10, 11, 14
Temperature, oil 10, 12, 14
Terminal procedures charts 86
Terrain 77, 122
Tilt, Antenna 71
Tilt Line 71
Timer 4
Torque 10, 11, 14
Traffic 59
Traffic Advisory (TA) 114, 115
Traffic map page 76, 77
Transponder 15, 142
Trim 10, 12, 14

U

User-Defined Holding Pattern 44

V

Vertical Navigation (VNAV) 45
 Direct-to 48
 Guidance 47
Vertical track 114
VNAV 31, 134, 135

Flight
Instrument

VNV 104
VNV guidance
 Disabling 45
 Enabling 45

EIS

Voice alerts 109
Voltmeter 10, 12
VRP 26

Nav/Com/
XPDR/Audio

Vspeed 5
VSTGT 49

W

Flight
Management

Warning alerts 109
Waypoint Selection Submenu 30, 32,
 33, 56

Hazard
Avoidance

Weather Attenuated Color Highlight 73
Weather radar 70

AFCS

Additional
Features

Abnormal
Operation

Annun/Alerts

Appendix

Index



Garmin International, Inc.

1200 East 151st Street
Olathe, KS 66062, U.S.A.

Garmin AT, Inc.

2345 Turner Road SE
Salem, OR 97302, U.S.A.

Garmin (Europe) Ltd.

Liberty House, Hounslow Business Park
Southampton, Hampshire SO40 9LR U.K

Garmin Corporation

No. 68, Zhangshu 2nd Road
Xizhi District, New Taipei City, Taiwan.

Contact Garmin Product Support at www.flygarmin.com.

For warranty information refer to www.flygarmin.com.