

GARMIN▲

GI 275™ Pilot's Guide



SYSTEM OVERVIEW

FLIGHT INSTRUMENTS

EIS

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HAZARD AVOIDANCE

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IVSI

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This manual reflects the operation of System Software Version 2.30 or later. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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



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 datalink weather information for maneuvering in, near, or around areas of hazardous weather. Information contained within datalink weather products may not accurately depict current weather conditions.



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



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



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



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



WARNING: Do not rely on the Autopilot to level the aircraft at the minimum approach altitude when flying an approach with vertical guidance.



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



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



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



WARNING: Always use traffic information shown on system displays only as an aid to visually acquiring traffic. Traffic avoidance maneuvers are based upon Traffic Resolution Advisories, ATC guidance, or positive visual acquisition of conflicting traffic.



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



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



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



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



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



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



NOTE All visual depictions contained within this document, including screen images, 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: Refer to the current, pertinent flight manual for operational conditions and alert/advisory corrective procedures.



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. **Anatel Warning:** Este equipamento não tem direito a proteção contra interferência prejudicial e não pode causar interferências em sistemas devidamente autorizados.



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 Multi-Function Instrument (MFI) 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 internal GPS is only for VFR use.



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



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



NOTE: Traffic surveillance is not available during the system test. Use caution when performing a system test during flight.



NOTE: During system startup, if the Autopilot is engaged (though not typical), the MFI will automatically disengage the Autopilot when the sensors initiate alignment at startup.



NOTE: The wireless card on the MFI may take up to two minutes before wireless functionality is available.



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



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

- It is the pilot's responsibility to remain familiar with all FAA regulatory and advisory guidance and information related to the use of databases in the National Airspace System.
- Garmin equipment will only recognize and use databases that are obtained from Garmin or Jeppesen. Databases obtained from Garmin or Jeppesen that have a Type 2 Letter of Authorization (LOA) from the FAA are assured compliance with all data quality requirements (DQRs). A copy of the Type 2 LOA is available for each applicable database and can be viewed at flygarmin.com by selecting 'Aviation Database Declarations.'

- *Use of a current Garmin or Jeppesen database in your Garmin equipment is required for compliance with established FAA regulatory guidance, but does not constitute authorization to fly any and all terminal procedures that may be presented by the system. It is the pilot's responsibility to operate in accordance with established pertinent aircraft documents and regulatory guidance or limitations as applicable to the pilot, the aircraft, and installed equipment.*



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



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



NOTE: *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: *Although the Jeppesen Navigation Database and the Garmin Navigation Database contain much of the same information, pilots may notice differences in behavior, nearest list functionality, direct-to functionality, and 'Map' Page display due to data content variations.*



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



NOTE: *After performing a navigation database update, cross check with any external navigator which is providing flight plan data and verify all flight plan(s) (routes) are current. If there is an obsolete aviation point in a saved route, the route is locked and unusable. A new route with current navigation database points will need to be created.*

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Part Number	Rev.	Date	Page Range	Description
190-02246-01	A	September, 2019	All	Production Release
	B	August, 2020		Enhanced USB Functionality Enhanced Fast Database Sync Enhanced ADI Options Enhanced MFD Functionality GFC 500 Integration
	C	December, 2020		Instantaneous Vertical Speed Indicator Enhanced Rotorcraft Features Glove Qualification
	D	December, 2020		Updated to reflect software version 2.20
	E	January, 2021		Corrected Clerical Error
	F	April, 2021		Updated to reflect software version 2.30 Enhanced Transponder Functionality

SECTION 3 ENGINE INDICATION SYSTEM

3.1 INTRODUCTION



NOTE: Fixed wing configurations only.



NOTE: The display of Engine Indication System Pages depends upon the current configuration and may vary from the examples discussed in this section.



NOTE: When configured as a Primary EIS, a half screen menu is available and individual page options are accessed via the generic Options Button. When configured as a Standby ADI or as an MFD, a full screen menu is available and individual page options are accessed via the page-specific Options button (e.g. Fuel Options Button on the 'Fuel' Page Menu). Page titles may vary depending on configuration as well.

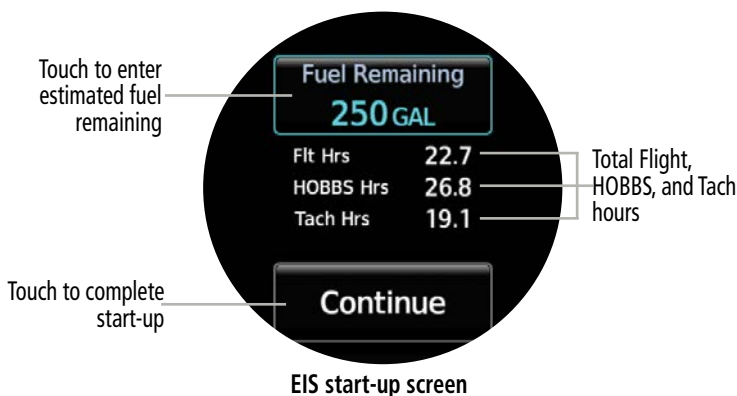
Engine Indication System (EIS) Pages can display engine, fuel, electrical, and other system parameters. A variety of gauge and indicator types (analog indicators, digital data fields, bar graphs, horizontal and vertical bar indicators) are used to display EIS information. Primary Gauges which must be displayed during all phases of flight, such as RPM, Fuel Quantity, and Manifold Pressure (if applicable) are displayed at the top of each EIS Page.

The 'Main' Page displays any alerting gauges. The 'AUX' Page may be available for non-alerting gauges which do not fit on the 'Main' Page. Additionally, other EIS Pages may be configured including the 'EGT' Page, 'CHT' Page, and 'Fuel' Page. See the EIS Pages portion of this section for more information.

Engine data is constantly being monitored, regardless of the current page displayed. If any exceedance of engine parameters (according to the configuration) occurs, a pop-up alert will be issued so that the condition can be quickly reviewed by the pilot. For more information on EIS alerts and annunciations, see the EIS Alerts portion at the end of this section.

START-UP SCREEN

A start-up screen displays Flight, HOBBS, and Tach hours, along with the **Fuel Remaining** Button. Flight hours are metered when airborne; if the MFI is not able to assess the air/ground state, flight hours are metered when the engine RPM exceeds 1,250 RPM. HOBBS hours are metered any time engine oil pressure exceeds 5 psi. Tach hours are metered any time the engine has a positive RPM. Tach hours are incremented with the current engine RPM in proportion to the aircraft cruise RPM value set during installation. Flight, HOBBS, and Tach hours can also be viewed in the system menu.



Entering fuel remaining on start-up screen:

- 1) Power on the MFI. The EIS start-up screen is displayed.
- 2) Select the **Fuel Remaining** Button.
- 3) Use the keypad to enter the estimated fuel on board.
- 4) Select the **Enter** Button to confirm the entry and return to the start-up screen.
- 5) Select the **Continue** Button to complete start-up.

3.2 GAUGE AND INDICATOR TYPES



NOTE: Display indications depend upon the current configuration and may vary from the examples discussed in this section.

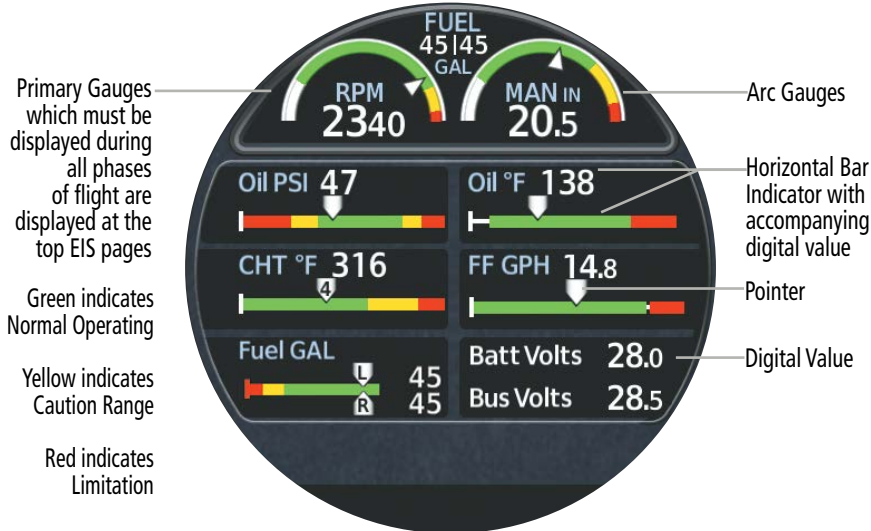


NOTE: For aircraft equipped with a starting vibrator, the RPM reading is not accurate during engine cranking. For aircraft that measure engine RPM using P lead sensors, the reading may momentarily fluctuate when selecting operation on a single magneto.

Gauge format and page layout vary depending on configuration. RPM, Fuel Quantity, and Manifold Pressure (if applicable) will be displayed at the top of every EIS Page. Units of measure, limits, and gauge colors are configured during installation.

Digital Values may be displayed in white text. The color green indicates normal ranges of operation. For a gauge with a green range, white or uncolored markings indicate operating ranges not considered cautionary. When a gauge has no defined range in green or is unmarked, the middle range of the gauge shall be the acceptable operating range.

Yellow radial line or range denotes a caution range. Red minimum/maximum line or range denotes a limitation. For information on annunciations and flashing color or text, see the EIS Alerts portion at the end of the EIS Section.

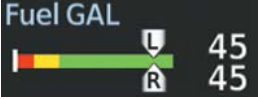
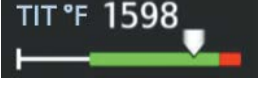
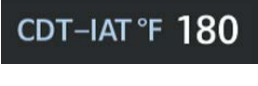
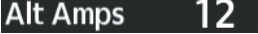


'Main' Page – Example Configuration

Gauges appearing as arc gauges on one page may appear as a vertical or horizontal bar on another. Exceptions include the Tachometer (RPM) and Manifold Pressure (MAN) Gauges which are always displayed as arc gauges. Other indications may display pointers, digital values, curves, or behavior bands.

The following table provides an example of the different kind of gauge and indicator types. This list is not all inclusive; gauge and indication display depend on configuration.

Type	Example
Tachometer (RPM)	
Manifold Pressure Gauge	
Oil Pressure	

	Type	Example
System Overview	Oil Temperature	
Flight Instruments	Fuel Pressure	
EIS	Fuel Flow	
Navigation	Fuel Quantity	
Hazard Avoidance	Cylinder Head Temperature (CHT)	
Autopilot	Exhaust Gas Temperature (EGT)	
IVSI	Turbine Inlet Temperature (TIT)	
Additional Features	Inlet Air Temperature (IAT)	
Appendices	Compressor Discharge Temperature (CDT)	
	IAT CDT Temperature Differential	
Index	Alternator AMPS	

Type	Example
Battery AMPS	Batt Amps 62
Bus Voltage	Bus Volts 28.5
Battery Voltage	Batt Volts 28.0
Carburetor Temperature	Carb °C 10

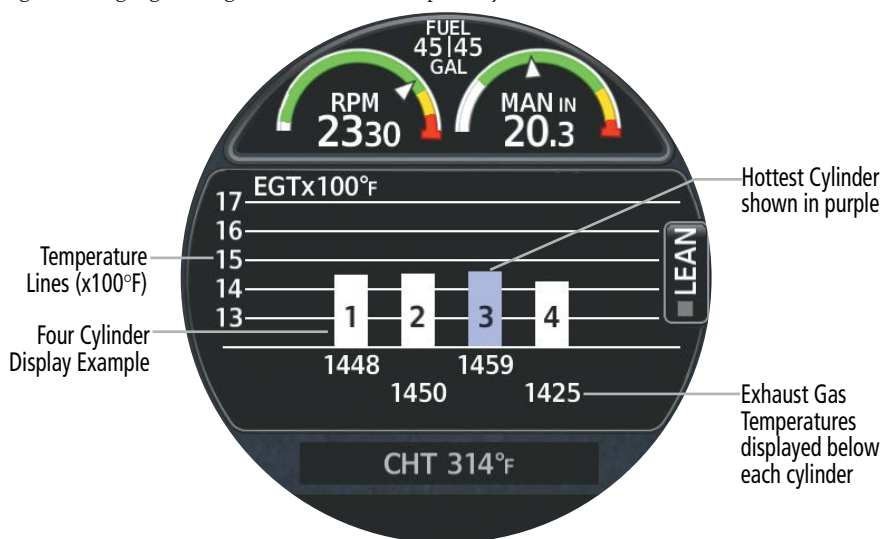
Example Gauge and Indicator Types

BAR GRAPH INDICATIONS

EGT and CHT information may be displayed as a bar graph. Information for each cylinder is shown which can be useful for observing engine indications and performing leaning procedures. Each bar graph contains the following components:

- Dynamic chart depicting cylinder temperature status
- Digital temperature reading of each cylinder
- Limit markings

The size of each graph varies based on engine specifications (i.e. the number of cylinders per engine) and gauge configuration (i.e., TIT or primary EGT).



EGT Bar Graph Example

MULTI-ENGINE INDICATIONS

Display of EIS information for multi-engine aircraft requires one MFI per engine.

Propeller Sync Indicator

A Propeller Sync Indicator can be displayed at the top of each EIS Page. The indicator spins in the direction of the higher-speed propeller when the propellers are out of sync. When two or more MFIs are configured to show EIS, the propeller sync indicator need only be displayed on one MFI; other indications, such as fuel quantity, may be displayed at the top of the EIS Pages on the other MFI(s).



Propeller Sync Indicator Example

3.3 EIS PAGES

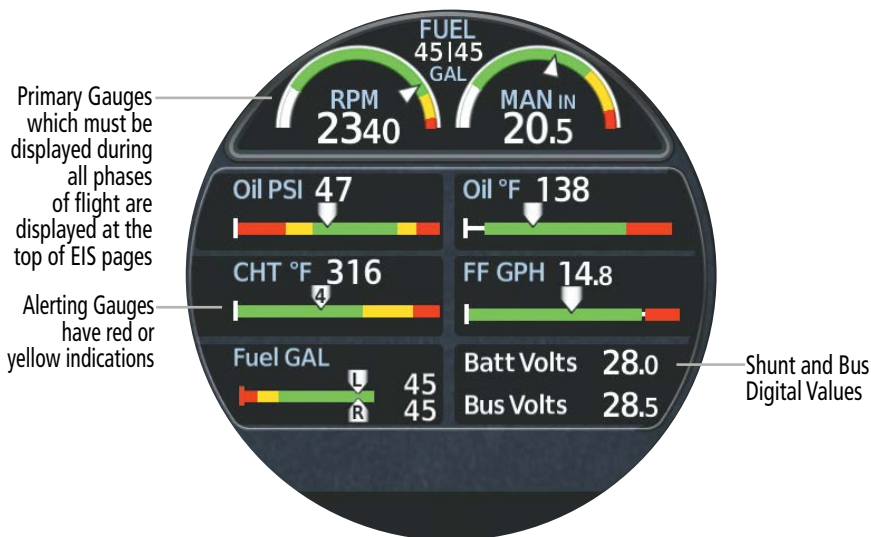


NOTE: Display indications depend upon the current configuration and may vary from the examples discussed in this section.

The EIS can display and monitor engine performance and power. Only a set amount of data is displayed on one page at a time in order to improve pilot monitoring and reduce workload. This section will cover the individual pages which may be available, depending on configuration.

MAIN PAGE

All alerting gauges are displayed on the 'Main' Page (when the MFI is configured as an MFD, Standby ADI, or Standby HSI, this page may, instead, be labeled 'Main EIS' Page). An alerting gauge is any gauge with cautionary (yellow) or limitation (red) indications. See the EIS Alerts portion later in this section for more information on alerts. Shunt and Bus Digital Values may also be displayed on the 'Main' Page.



'Main' Page – Example Configuration

Advisory Options

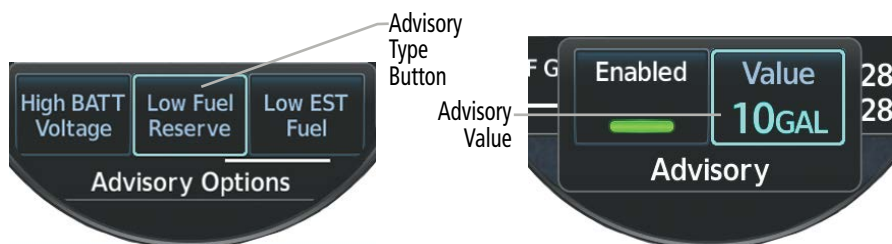
Pilot-defined advisories can be created for certain engine parameters. Advisory options may be adjusted, enabled, or disabled. Access Advisory Options via the page menu on the 'Main' Page.

Pilot-defined advisories can be set for any value within the indicator's range, regardless of pre-configured warning (red) and caution (yellow) limitations. Enabling a pilot-defined advisory does not affect pre-configured warning and caution alerting behavior. See the EIS Alerts portion of this section for more information on warning and caution alerting.

Advisory options are determined by configuration, and may include the following:

- High CHT
- High TIT
- Low Oil Temperature
- High Oil Temperature
- High Bus Voltage
- Low Bus Voltage
- High EGT Differential
- Low Battery Voltage
- High Battery Voltage
- Low Fuel Reserve
- Low Estimated Fuel

When an advisory parameter has been exceeded, an advisory message will be issued. Advisories can be acknowledged in the same manner as other system messages.



Advisory Options

Adjusting engine advisory settings:

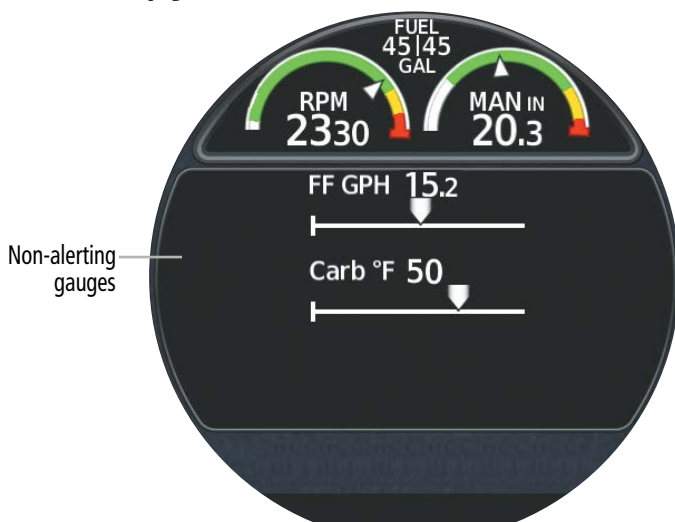
- 1) From the 'Main' Page, open the page menu and select **Options**.
- 2) Select the desired Advisory Type Button.
- 3) Select the **Value** Button and use the Small Knob to enter the advisory value, then select the **Enter** Button to confirm the entry.

Enabling/disabling an engine advisory:

- 1) From the 'Main' Page, open the page menu and select **Options**.
- 2) Select the desired Advisory Type Button.
- 3) Select the **Enable** Button to enable or disable the advisory. The advisory is enabled when the annunciator bar is green.

AUX PAGE

Additional gauges which do not fit on the 'Main' Page and are not alerting gauges, display on the 'AUX' Page (when the MFI is configured as an MFD, Standby ADI, or Standby HSI, this page may, instead, be labeled 'AUX EIS' Page). Advisory Options may be accessed from the page menu on this page as well.

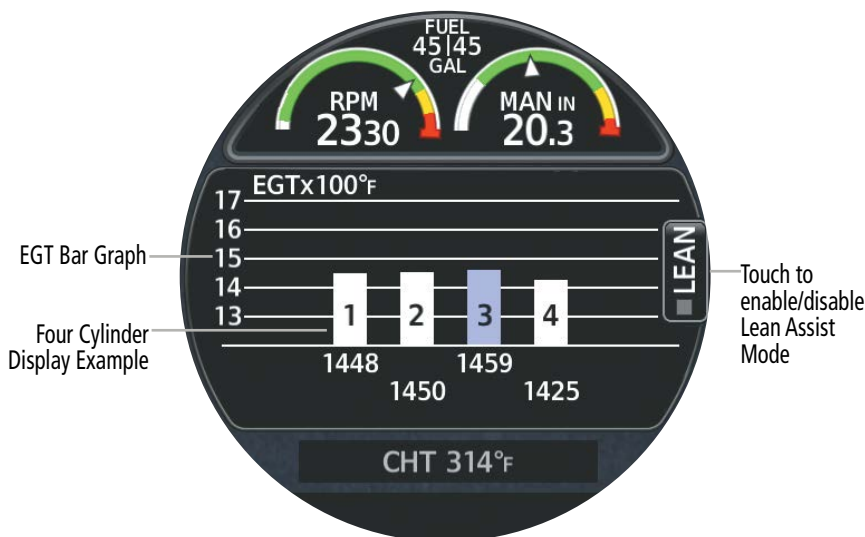


'AUX' Page Example

EGT PAGE

The 'EGT' Page graphically displays EGT data for each cylinder. Graduations are scaled and sized during installation. Other data which may be displayed, including CHT, TIT, or Primary EGT information, depend on the configuration.

Measured EGT is displayed below each bar, and the hottest cylinder is automatically detected, and its bar is colored purple. If available, TIT will be displayed digitally and within the graph at the right side as a blue bar labeled 'T'.



'EGT' Page Example

Lean Assist Functions

Depending on configuration, Lean Assist functions may be available. In Lean Mode, the 'EGT' Page displays markings above each cylinder to indicate Peak EGT during leaning operations.



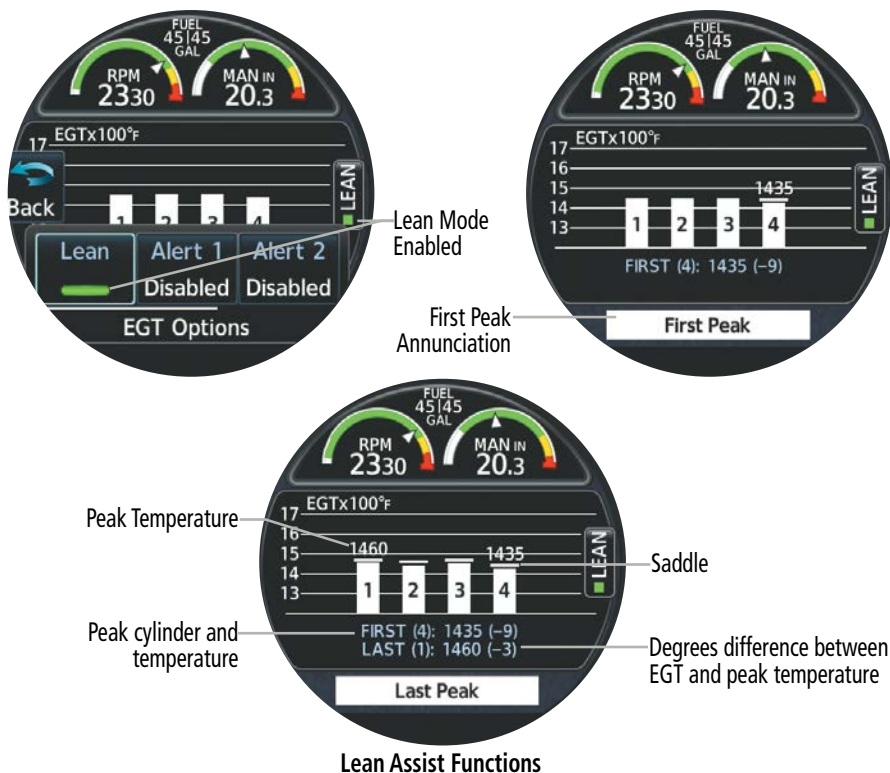
NOTE: See the current, pertinent flight manual for specific engine leaning procedures.

Lean Assist functions can be activated by enabling the Lean Mode. The **LEAN** Button will display a green annunciator when Lean Mode is enabled, and all cylinders are colored white. While Lean Assist is active, the current Fuel Flow is displayed.

Once the temperature rises, peaks, and decreases as configured by the system, Peak EGT is determined, and the following will occur:

- The Peak temperature will be indicated above the corresponding cylinder. The 'First Peak' annunciation is displayed at the bottom of the page, and information about the peak temperature is displayed below the graph.

- A white saddle indicates the maximum temperature value recorded for the sensor. In cases where the system waits for the last engine cylinder to peak, white saddles indicate the maximum temperature of all other peaked cylinders.
- After three seconds, the 'First Peak' annunciation is replaced by a field indicating the first peak cylinder, the peak temperature, and the difference between the first peak and the last peak.
- Once the last cylinder has peaked, the temperature will be indicated above the corresponding cylinder. The 'Last Peak' annunciation is displayed at the bottom of the page, and information about the peak temperature is displayed below the graph.
- The difference between the last peak and the current EGT temperature will be displayed for leaning Rich of Peak (ROP).



Lean Assist Functions

Enabling/Disabling Lean Assist Mode:

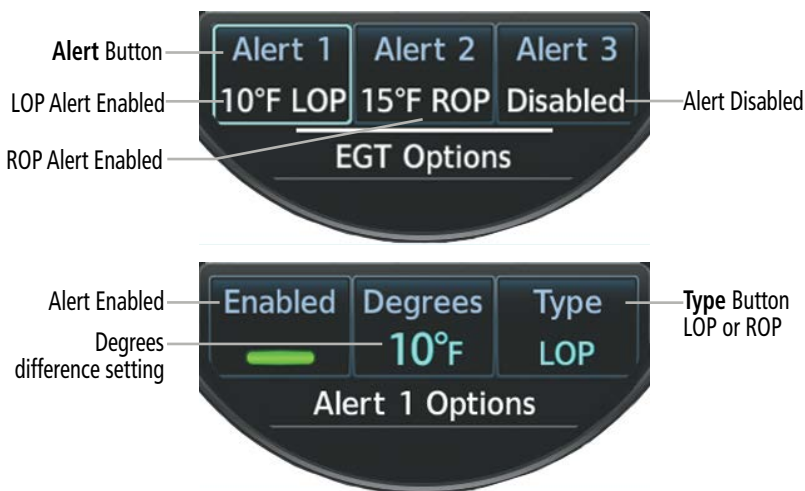
Touch the **LEAN** Button on the 'EGT' Page to enable/disable. Lean Assist Mode is enabled when the annunciator square is green.

Or:

- 1) From the 'EGT' Page, open the page menu and select **Options**.
- 2) Select the **Lean** Button to enable/disable. Lean Assist Mode is enabled when the annunciator bar is green.

ALERT OPTIONS

Lean alert settings may be adjusted, enabled or disabled. The Rich of Peak (ROP) alert indicates the first engine cylinder to reach Peak EGT during the leaning process. The Lean of Peak (LOP) alert indicates the last engine cylinder to reach Peak EGT during the leaning process.



Lean Alert Settings

Adjusting lean alert settings:

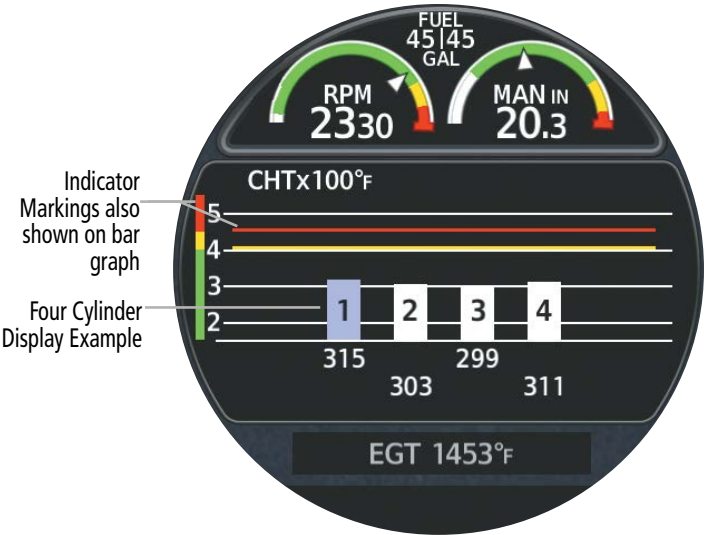
- 1) From the 'EGT' Page, open the page menu and select **Options**.
- 2) Select the desired **Alert** Button.
- 3) Select the **Degrees** Button and use the Small Knob to enter the degree difference from Peak for the alert setting. Then, select the **Enter** Button to confirm the entry.
- 4) Select the **Type** Button to toggle between the ROP and LOP alert type.

Enabling/disabling lean alert settings:

- 1) From the 'EGT' Page, open the page menu and select **Options**.
- 2) Select the desired **Alert** Button.
- 3) Select the **Enabled** Button to enable or disable the alert. The alert is enabled when the annunciator bar is green.

CHT PAGE

The 'CHT' Page graphically displays CHT data for each cylinder. Graduations are scaled and sized during installation. Other data which may be displayed, including EGT or TIT information, depend on the configuration.

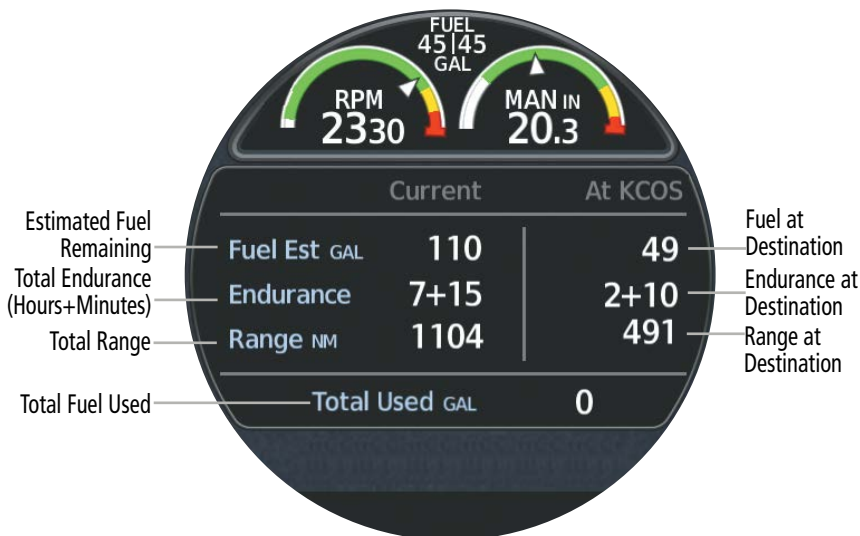


'CHT' Page Example

FUEL PAGE

The 'Fuel' Page displays fuel calculations based on the Estimated Fuel Remaining and GPS ground speed. Estimated Fuel Remaining is input by the pilot at start-up or via the **Fuel Est** Button on the Fuel Options Menu. Alternatively, Estimated Fuel Remaining data may be sourced from an external system with engine fuel flow sensor. If an external system is providing fuel remaining data, the **Fuel Est** Button is subdued.

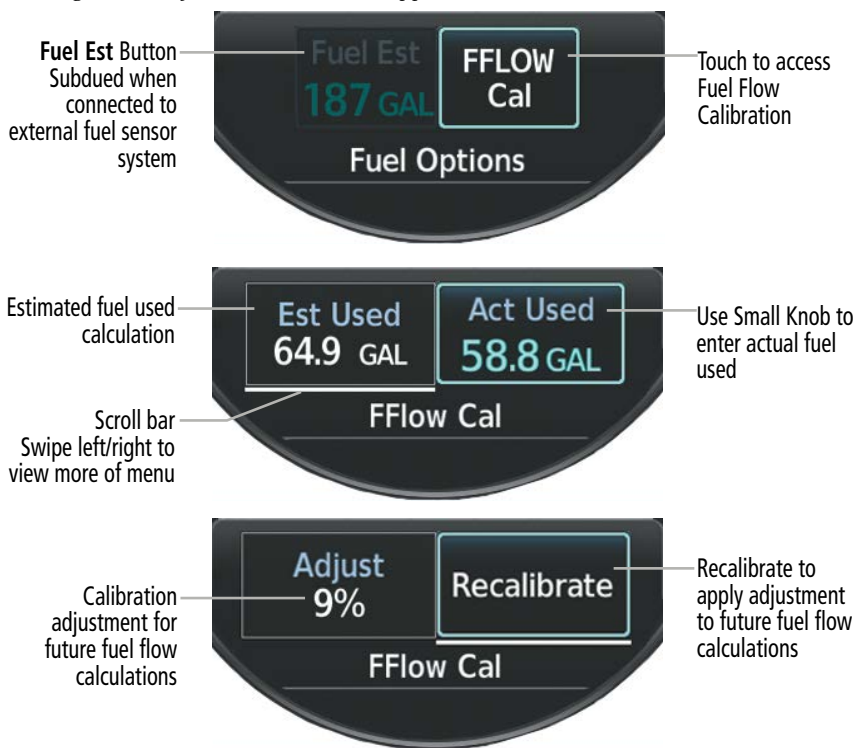
If an external navigator is configured, the 'Fuel' Page will also display fuel calculations based on flight plan information.



'Fuel' Page Example

Fuel Flow Calibration

The Fuel Flow Calibration feature compares the estimated fuel used calculation to the actual fuel used (input by the pilot upon refueling) and a calibration adjustment is displayed as a percentage. This adjustment can then be applied to future fuel flow calculations.



Fuel Flow Calibration

Entering Estimated Fuel Remaining (without external fuel sensor):

- 1) From the 'Fuel' Page, open the page menu and select **Options**.
- 2) Ensure the **Fuel Est** Button is selected (cyan highlight). Then, use the Small Knob to adjust the estimated fuel remaining.

Recalibrating fuel flow calculations:

- 1) From the 'Fuel' Page, open the page menu and select **Options**.
- 2) Select the **FFLOW Cal** Button. A scrolling menu for fuel flow calibration is displayed. Swipe left or right to view all fuel flow calibration buttons.
- 3) Select the **Act Used** Button. Use the Small Knob to enter the actual fuel used and select the **Enter** Button.
- 4) The estimated fuel used value is compared to the actual fuel used input and a calibration adjustment is displayed. Select the **Recalibrate** Button.

- 5) Touch the **Confirm** Button to confirm and apply this adjustment to future fuel flow calculations. To cancel, select the Back Button and return to the fuel flow calibration menu.

3.4 ABNORMAL OPERATIONS

EIS ALERTS



NOTE: Refer to the current aircraft flight manual for alert corrective procedures.



NOTE: Alert indications depend on the current configuration and may vary from the examples discussed in this section.

Yellow and red indications on gauges represent caution and warning limitations, respectively. Exceedance of any caution or warning limitation triggers an alert, and a flashing annunciation is displayed at the bottom the page. The associated gauge, indicator, or text may also flash or change color.

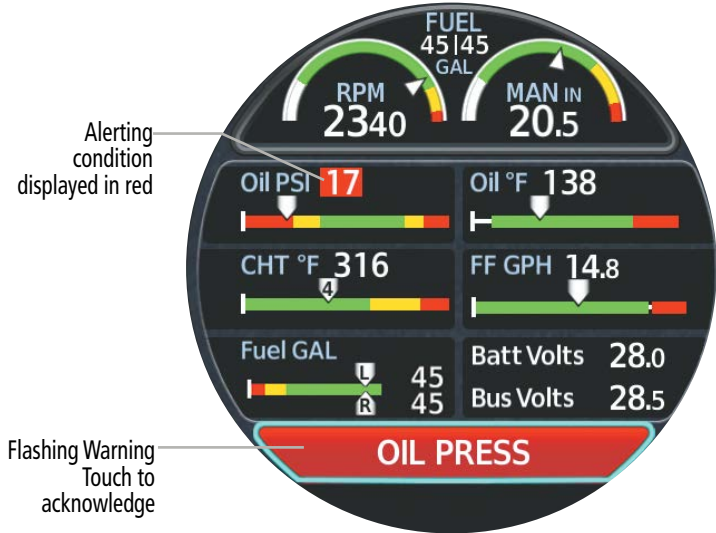
The annunciation banner can be displayed at the bottom of any EIS page. An annunciation will continue to flash until it is acknowledged. To acknowledge an alert, press the Small Knob or touch the flashing annunciation. Regardless of what EIS page the alert is acknowledged from, touching the flashing annunciation (or pushing the Small Knob) automatically displays the 'Main' Page so that the alerting condition may be quickly reviewed.

Once an alert has been acknowledged, the annunciation will stop flashing. However, the annunciation (and cautionary/warning indications) continues to display until normal operating conditions are restored.

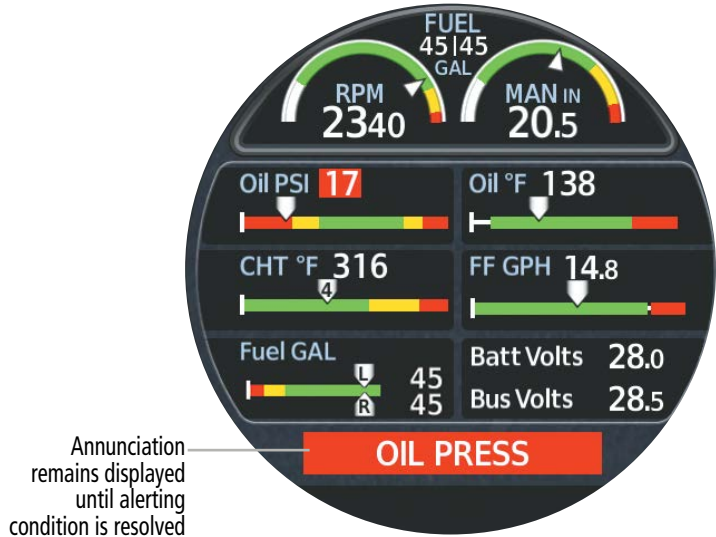
When multiple alerts are issued, the color and text for the highest priority condition is displayed. See the following table for the display hierarchy of annunciations.

Alert Hierarchy	Example
1. Unacknowledged Warning	(Flashing)
2. Acknowledged Warning	
3. Unacknowledged Caution	(Flashing)
4. Acknowledged Caution	

EIS Alert Hierarchy of Annunciations



Flashing Oil Pressure Warning Annunciation



Acknowledged Oil Pressure Warning Annunciation

SYSTEM MESSAGES

The following alphabetized table lists the various System Messages.



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



NOTE: Refer to the current, pertinent flight manual for operational conditions and alert/advisory corrective procedures.

Message	Description
1090ES traffic receiver fault	ADS-B LRU reports that it is unable to receive 1090 Extended Squitter traffic
ADC 1/2/3 MISCOMPARE Or ADC MISCOMPARE	ADC data from one or more units is not within tolerances of the other ADC units
ADC 1/2/3 MISSING Or ADC MISSING	ADC data from one or more units is missing
ADS traffic alerting inoperative	ADS-B LRU reports CSA/TSAA failure
ADS traffic function inoperative	The ADS-B LRU reports a traffic alerting failure
ADS-B In traffic source mismatch	Unit has received ADS-B traffic from a source other than the configured ADS-B traffic source
AHRS 1/2/3: Magnetic model outdated	While on the ground, any interfaced AHRS reports magnetic model out of date; magnetic model database needs to be updated
AHRS 1/2/3 MISCOMPARE Or AHRS MISCOMPARE	AHRS data from one or more units is not within tolerances of the other AHRS units
AHRS 1/2/3 MISSING Or AHRS MISSING	AHRS data from one or more units is missing
AHRS 1/2/3 not receiving GPS aiding	AHRS 1/2 reports not receiving any GPS data, the unit is configured for one or more Garmin SBAS GPS units Or AHRS 3 reports not receiving any GPS data

	Message	Description
System Overview	Audio inoperative	Audio device failure Or Audio clip failed to play Or Cannot communicate with audio device
Flight Instruments	Backlight calibration lost	While on the ground, the unit cannot read LED calibration data, or is detected as corrupt
EIS	Battery operation warning	A battery fault is detected; battery is unavailable
Navigation	Battery unavailable: Capacity test	Battery capacity test if overdue or failed; battery unavailable, capacity test is required
	Battery unavailable: Communication lost	Battery communication is lost
	Battery warning: Charge inhibited	A charge-inhibiting battery fault is detected
Hazard Avoidance	CHT Cooling	Pilot defined engine advisory limitation exceeded
	Database SYNC in progress	Database synchronization is in progress; view 'Status' Page for more information
Autopilot	EGT Difference	Pilot-specified EGT difference is exceeded by one or more engines
	GMC ESP inoperative	GMC Electronic Stability Protection has failed
	GPS 1/2 inoperative	The indicated GPS source failed, or input data not received
IVSI	High BAT voltage	Pilot defined engine advisory limitation exceeded
	High bus voltage	Pilot defined engine advisory limitation exceeded
	High CHT	Pilot defined engine advisory limitation exceeded
	High EGT difference	Pilot defined engine advisory limitation exceeded
	High oil TEMP	Pilot defined engine advisory limitation exceeded
Additional Features	Key stuck: Key knob is stuck	System detects stuck knob(s); the knob is stuck down
Appendices	Low BATT voltage	Pilot defined engine advisory limitation exceeded
	Low bus voltage	Pilot defined engine advisory limitation exceeded
	Low EST fuel remaining	Pilot defined engine advisory limitation exceeded
Index	Or Low Endurance	Estimated fuel on board or endurance is below the pilot defined limit

Message	Description
Low fuel reserve	Pilot defined engine advisory limitation exceeded
Low Oil TEMP	Pilot defined engine advisory limitation exceeded
<LRU> reports service required	While on the ground, the indicated external LRU reports an internal fault and requires service
	While on the ground, external LRU reports service required
	Or While on the ground, external LRU reports invalid calibration
Max Temp Exceeded	Expansion Board has exceeded temperature threshold.
NAV 1/2 inoperative	The indicated NAV source is failed, or input data is not received
Navigation database expired	Database is expiring imminently or has expired
Navigation database not effective yet	Database is not yet active
Obstacle database expired	Database is expiring imminently or has expired
Obstacle database not effective yet	Database is not yet active
System is in Battery Mode	System is operating in battery mode
SafeTaxi database expired	Database is expiring imminently or has expired
SafeTaxi database not effective yet	Database is not yet active
Service required	The system or unit requires service; appears only when the aircraft is on ground
Service soon	Any interfaced AHRS reports not receiving ADC data
	An ADC reports configuration error
	Or SSEC is not expected to be configured and an ADC reports that SSEC is configured
	While on the ground, interfaced Unit(s) have different software version
	SDI check has failed
	While on the ground, the configuration CRC of an AHRS or ADC LRU does not match the unit's stored configuration CRC
	While on the ground, Garmin Engine Sensor (e.g., GEA 110, GEA 71B, etc.) Configuration CRC doesn't match unit's saved CRC

	Message	Description
System Overview	Service soon	The system or unit detects an internal fault but continues to function; appears only when the aircraft is on ground
		When on the ground, Stormscope reports invalid heading data
		When on the ground, external LRU reports configuration module needs service
Flight Instruments	SiriusXM receiver inoperative	SiriusXM receiver has failed Or Communication with GDL 69/69A is lost
EIS		
Navigation	Stormscope inoperative	Stormscope reports failure
		Communication with Stormscope is lost
Hazard Avoidance	SVT could not be enabled	SVT feature could not be unlocked with the unlock provided
	SVT Disabled: Low resolution DB	SVT terrain database resolution is insufficient
	SVT Disabled: Outside DB coverage	Outside of SVT Terrain database coverage area
Autopilot	SVT not available due to databases	SafeTaxi or Basemap database corrupted or unavailable on ADI
	SVT successfully enabled	SVT feature has been enabled in this power cycle
	SVT Trial 1 hour remaining	Less than 1 hour of SVT trial remains
IVSI	SVT Trial 5 hours remaining	1-5 Hours of SVT Trial remain
	TAS/TCAS function inoperative	TAS/TCAS device reports traffic fail Or Communication with TAS/TCAS device is lost
		ADS-B LRU reports TAS/TCAS inoperative or connection lost
Additional Features	TAS/TCAS system in standby	Traffic device reports standby mode for more than 60 seconds while in air
		While airborne, ADS-B LRU reports external traffic system has been in standby for more than 60 seconds
Appendices	Terrain not available due to databases	Navigation, Obstacle, or Terrain database corrupted or unavailable on the ADI
	Traffic function inoperative	TIS-A device reports traffic fail Or Communication with TIS-A device is lost
Index	Traffic system in standby	TIS-A device reports standby mode for more than 60 seconds while in air

Message	Description
Traffic/FIS-B functions inoperative	UAT receiver capable ADS-B LRU reports electrical fault, calibration data fault, SW CRC Fault, or FPGA CRC Fault
	Communication is lost with UAT receiver capable ADS-B LRU
UAT fault	The UAT LRU reports a low battery or fan fault
UAT traffic/data receiver fault	The ADS-B LRU reports that it is unable to receive UAT traffic and FIS-B data
USB and WiFi Unavailable	While on internal battery operation, the unit conserves energy by disabling these functions.
VFR GPS is being used	VFR GPS is being used

System Messages

GLOVE QUALIFICATION



NOTE: *The procedures described in this section should only be performed while the aircraft is on the ground.*

The touchscreen uses capacitive touch technology to sense the proximity of skin to the display. A glove creates a barrier between the skin and the display glass, potentially reducing the ability of the display to detect touches.

This procedure can be used to qualify a glove intended for use with the touchscreen. It is highly recommended to use capacitive touch gloves, as the touchscreen uses capacitive touch technology. Due to differences in finger size, glove size, and touchscreen between the MFI, the qualification procedure is specific to the pilot/glove and MFI combination.

Glove Selection Considerations

- » Thinner gloves perform better than thicker gloves.
- » Leather gloves, and gloves designed specifically for use with capacitive touchscreen devices, are often found to be acceptable.
- » To improve touchscreen sensitivity while wearing gloves, use the pad of the finger instead of the tip during touch interactions.

Glove Qualification Guidance

- » Checklist 1 entitled "Glove Qualification Steps" on the next page, contains the tasks required to qualify a glove.
- » Checklist 2 follows Checklist 1, and contains tasks that are not required to qualify a glove, but may limit how some functions are accessed while wearing a glove.

Glove Qualification Steps

Complete only the tasks for the capabilities relevant to the installed MFI.

1. Sit in the pilot's seat.
2. Start the MFI in normal mode.
3. Perform the tasks listed in each checklist, tapping each key with a non-gloved finger. It is not necessary to record any results for this step.
4. Repeat step 3 using a gloved hand.
5. For each task, determine whether the touchscreen response is the same, or worse, without the glove.
6. Record the results in the applicable column. Items that may cause the operation to be worse will include, but are not limited to:
 - Multiple attempts to select a key.
 - Unintentional selection of adjacent key(s).
 - Excessive force on the touchscreen to select a key
7. If all applicable tasks produce the same response, with and without a glove, the pilot may use the glove in flight.

Glove Qualification Procedure

Pilot: _____

Glove Description: _____

Task	Performance Operation with Glove (Circle One)	
PFD		
Barometric Setting		
Tap the Baro button (Lower right corner) and rotate the knob to set a different barometric value. Example: 29.96.	Pass	Fail
Tap and hold the Baro button for 2 seconds to sync the Baro setting to STD.	Pass	Fail
Heading Bug Setting (If configured for 4-in-1)		
Tap the heading button (Lower left corner) and rotate the knob to set a value different than the current. Example 360°.	Pass	Fail
Tap and hold the heading button for 2 seconds to sync the heading bug to current heading.	Pass	Fail
Preselect Altitude Setting (If the altitude bug is enabled)		
Tap the altitude button (Upper right corner) and rotate the knob to set a value different then the current. Example: 500ft.	Pass	Fail
Tap and hold the altitude button for 2 seconds to sync the altitude bug to the current altitude.	Pass	Fail
Airspeed Bug Setting (If the Airspeed bug is enabled)		
Tap the airspeed button (Upper left corner) and rotate the knob to set a valid airspeed value. Example: 100kts.	Pass	Fail
Tap and hold the airspeed button for 2 seconds to sync the airspeed bug.	Pass	Fail
Menu Options		
Swipe from the very bottom of the indicator bezel (Very bottom of the screen) and swipe up to the middle of the screen with a single motion without lifting the finger.	Pass	Fail
Scroll the menu to the System options by sliding the finger on the menu from right to left until the System option is in view.	Pass	Fail
Select by tapping System .	Pass	Fail
Tap the center of the screen to remove the menu.	Pass	Fail

Glove Qualification Procedures - PFD

System Overview	Task		Performance Operation with Glove (Circle One)	
	HSI			
Flight Instruments	Heading Bug Setting			
	Tap the heading button (Lower left corner) and rotate the knob to set a value different than the current. Example 360°.	Pass	Fail	
EIS	Tap and hold the heading button for 2 seconds to sync the heading bug to current heading.	Pass	Fail	
	CDI Selection (If system is configured to enable CDI button)			
Navigation	Tap the CDI button (Lower center) to select a different CDI source	Pass	Fail	
	CRS Selection (If system is capable of VOR/ILS. CDI source must be set to a Nav source depicting VOR or ILS)			
Hazard Avoidance	Tap the CRS button (Lower right corner) and rotate the knob to set a value different than the current. Example 360°.	Pass	Fail	
	Tap and hold the CRS button for 2 seconds to sync the course value to the current heading.	Pass	Fail	
Autopilot	Menu Options			
	Swipe from the very bottom of the indicator bezel (Very bottom of the screen) and swipe up to the middle of the screen with a single motion without lifting the finger.	Pass	Fail	
IVSI	Scroll the menu to the System options by sliding the finger on the menu from right to left until the System option is in view.	Pass	Fail	
	Select by tapping System .	Pass	Fail	
Additional Features	Tap the center of the screen to remove the menu.	Pass	Fail	

Glove Qualification Procedures - HSI

System Overview	Task	Performance Operation with Glove (Circle One)	
Flight Instruments	MFD		
	Map Page (Use knob to select Map page)		
	Menu Options		
EIS	Swipe from the very bottom of the indicator bezel (Very bottom of the screen) and swipe up to the middle of the screen with a single motion, without lifting the finger.	Pass	Fail
	Scroll the menu to the System options by sliding the finger on the menu from right to left until the System option is in view.	Pass	Fail
Navigation	Select by tapping System .	Pass	Fail
	Tap and hold the back button for 2 seconds to remove the menu.	Pass	Fail
	Range		
Hazard Avoidance	Tap the Range button and rotate the knob to change the zoomed range value.	Pass	Fail
	Pan Mode		
	Touch a point on the map and slide across the screen to pan the display.	Pass	Fail
	Pinch Zoom		
	Zoom out, with two fingers, place on the opposite sides of the screen and ‘pinch’ towards the center.	Pass	Fail
IVSI	Zoom in, with two fingers, place on the center of the screen and slide towards the opposite sides of the screen.	Pass	Fail

Glove Qualification Procedures - MFD

APPENDIX B: DATABASE INFORMATION



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



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



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



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

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



NOTE: 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.'

AVAILABLE DATABASES

This section will provide an overview of the databases available on the MFI. Databases may vary depending on the unit configuration (Americas, Atlantic, or Pacific). See the System Overview Section for information on updating databases.

Databases
Worldwide Basemap
Navigation Database (Garmin or Jeppesen [®])
SafeTaxi [®]
Obstacle
Terrain

Available Databases

Basemap

The Basemap database contains data for the topography and land features, such as river, lakes, and towns. It is updated only periodically, with no set schedule. There is no expiration date.

Navigation Database

The internal navigation database provides location and facility information for thousands of airports, VORs, NDBs, and more. Updates to the navigation database are available every 28 days online (flygarmin.com). There are two navigation database products available: the Garmin Navigation Database or the Jeppesen Navigation Database, which is sourced by Jeppesen.



NOTE: Although the Jeppesen Navigation Database and the Garmin Navigation Database contain much of the same information, pilots may notice differences in behavior, nearest list functionality, direct-to functionality, and 'Map' Page display due to data content variations.



NOTE: After performing a navigation database update, cross check with any external navigator which is providing flight plan data and verify all flight plan(s) (routes) are current. If there is an obsolete aviation point in a saved route, the route is locked and unusable. A new route with current navigation database points will need to be created.

SafeTaxi

The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams aid in following ground control instructions by accurately displaying the aircraft position on the map in relation to taxiways, ramps, runways, terminals, and services. This database is updated on a 56-day cycle.

Obstacle

The obstacle database contains data for obstacles, such as towers, that pose a potential hazard to aircraft. Obstacles 200 feet and higher are included in the obstacle database. It is very important to note that not all obstacles are necessarily charted and therefore may not be contained in the obstacle database. This database is updated on a 56-day cycle.

Terrain



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

The terrain database is updated periodically and has no expiration date.

DATABASE TROUBLESHOOTING TIPS

Problem	Action
Unable to download databases to USB	- Ensure that your USB is plugged directly into your computer and not into a USB hub, computer screen, or keyboard
Database update fails	- Restart the MFI and retry the update - Download the databases again - Ensure the databases were purchased for the system ID of the MFI the database card is being used to update
Database SYNC fails	- Ensure the databases were purchased for the MFI and all interfacing equipment configured for the MFI
Database update fails using Garmin Pilot (Database Concierge)	- Ensure the account for flygarmin.com is active - Download databases for Garmin Pilot on the mobile device prior to connecting to the MFI; after the databases are up to date, connect the mobile device to the MFI while on the ground - Ensure the Database Concierge is enabled on the mobile device and on the MFI
Databases cannot be selected for update	- Restart the MFI while pressing the Small Knob until the Garmin logo is fully illuminated to view all database updates on the database card, regardless of effectivity - Download the databases again - Ensure the databases were purchased for the system ID of the GI 275 for which the database card is being used to update

Database Troubleshooting

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APPENDIX C: AVIATION TERMS AND ACRONYMS

A	Amps, Amperes	AFTN	Aeronautical Fixed Telecommunication Network
ABN	Abnormal	A/G	Air-to-Ground
AC	Advisory Circular, Alternating Current	AGL	Above Ground Level
ACARS	Aircraft Communications Addressing and Reporting System	AHRS	Attitude and Heading Reference System
ACC	Accuracy	AIM	Aeronautical Information Manual
ACFT	Aircraft	AIRB	Airborne
ACK	Acknowledge	AIRMET, AIRM	Airman's Meteorological Information
ACT, ACTV	Active, Activate, Altitude Compensated Tilt	AIRREP	Air Reports
ADAHRS	Air Data, Attitude and Heading Reference System	ALRT	Alert, Alerting
ADC	Air Data Computer	ALT	Altitude
ADF	Automatic Direction Finder	ALT, ALTN	Alternator, Alternate
ADI	Attitude Direction Indicator	ALTM	Altimeter
ADIZ	Air Defense Identification Zone	ALTS	Altitude Select, Selected Altitude Capture Mode
ADM	Administrative Domain	ALTV	VNAV Altitude Capture Mode
ADS-B	Automatic Dependent Surveillance-Broadcast	AM	Amplitude Modulation
ADS-R	Automatic Dependent Surveillance-Rebroadcast	AMP	Amplifier, Ampere
AEA	Aircraft Electronic Association	AMPS	Amperes
AF	Arc to Fix Leg	ANN/ANNUNC	Annunciation/Annunciator
AFCS	Automatic Flight Control System	ANSP	Air Navigation Service Provider
AFM	Airplane Flight Manual	ANT	Antenna
AFMS	Airplane Flight Manual Supplement	AOA	Angle of Attack, ACARS Over AVLC
AFN	ATS Facilities Notification	AOC	Aeronautical Operational Control
AFRM	Airframe	AOG	Aircraft On Ground
		AOPA	Aircraft Owners and Pilots Association

System Overview	AP	Autopilot	ATT	Attitude
	AP DISC	Autopilot Disconnect	AUD	Audio
	APPR, APR	Approach, Approach Control	AUTO	Automatic
Flight Instruments	APT	Airport, Aerodrome, Automatic Pitch Trim	AUTOSEQ	Automatic Sequence
	APTSIGNS	Airport Signs	AUX	Auxiliary
	APU	Auxiliary Power Unit	AVAIL	Available
EIS	APV	Approaches with Vertical Guidance	AVG	Average
	ARINC	Aeronautical Radio Incorporated	AVLC	Aviation VHF Link Control
	ARM	Arm, Armed	AWOS	Automated Weather Observing System
Navigation	ARSPC	Airspace	AZ	Azimuth
	ARTCC	Air Route Traffic Control Center	B	Both Runways
	ARV	Arrival	B ALT	Barometric Altitude
Hazard Avoidance	AS	Airspeed	BC, B/C	Back Course
	ASB	Aviation Support Branch	BARO	Barometer, Barometric Setting
	ASI	Airspeed Indicator	BATT	Battery
Autopilot	ASOS	Automated Surface Observing System	Bearing	The compass direction from the present position to a destination waypoint.
	AT	Auto Throttle	BFO	Beat Frequency Oscillator
	ATAS	ADS-B Traffic Advisory System	BKLT	Backlight
IVSI	ATC	Air Traffic Control	BKSP	Backspace
	ATCRBS	ATC Radar Beacon System	BLKHD	Bulkhead
	ATD	Along-Track Distance	Bluetooth	Wireless standard for data exchange over short distances
Additional Features	ATE	Along-Track Error, Automatic Test Equipment	BOC	Bottom of Climb
	ATIS	Automatic Terminal Information Service	BOD	Bottom of Descent
	ATK	Along Track	BRG	see also Bearing
Index	ATN	Aeronautical Telecommunications Network	BRK	Brake
	ATS	Air Traffic Services	BTM	Bottom

°C	Degrees Celsius	CM	Centimeter
C	Center Runway	CMC	Central Maintenance Computer
CA	Course to Altitude Leg		
CAL	Calibrated	CMPRTR	Comparator
CALC	Calculator	CN	Canada
Calibrated Airspeed	Indicated airspeed corrected for installation and instrument errors.	CNCL	Cancel
		CNFM	Confirm
CAS	Crew Alerting System	CNI	Communication, Navigation, & Identification
CLB	Climb	CNS	Communication, Navigation, & Surveillance
CB	Circuit Breaker		
CCG	Current Climb Gradient	CO	Carbon Monoxide
CD	Course to DME Distance Leg	COM	Communication Radio
CDA	Current Data Authority	COMP	Compensated, Compensation
CDI	Course Deviation Indicator	CONFIG	Configuration
CDU	Control Display Unit	CONUS	Continental United States
CF	Course to Fix Leg	COOL	Coolant
CFG	Configuration	COPLT	Copilot
CFIT	Controlled Flight into Terrain	CORR	Correct, Corrected, Correction
CG	Center of Gravity	Course	The line between two points to be followed by the aircraft.
CH, CHNL	Channel		
CHKLIST	Checklist	Course to Steer	The recommended direction to steer in order to reduce course error or stay on course. Provides the most efficient heading to get back to the desired course and proceed along the flight plan.
CHRG	Charge		
CHT	Cylinder Head Temperature		
CI	Course to Intercept Leg		
CIP	Current Icing Potential		
CL	Class, Centerline	CP	Copilot, Control Panel
CLB	Climb	CPDLC	Controller Pilot Datalink Communications
CLD	Cloud		
CLG	Ceiling	CPL	Couple
CLR	Clear	CR	Course to Radial Leg
CLS	Close	CRG	Cockpit Reference Guide
CLTR	Clutter	CRNT	Current

System Overview	Crosstrack Error	The distance the aircraft is off a desired course in either direction, left or right.	dBZ	Decibels 'Z' (Radar Return)
Flight Instruments	CRS	see also Course, Course to Steer	DCL	Departure Clearance
	CRSR	Cursor	DCLTR, DECLTR	Declutter
	CRU, CRZ	Cruise	DEC	Declination
EIS	CSA	Conflict Situational Awareness	DEC FUEL	Decrease Fuel
	CSC	Current Speed Control	DEG	Degree
	CSTR	Constraint	DEIC, DEICE	De-icing
Navigation	CTA	Control Area	DEL	Delete
	CTAF	Common Traffic Advisory Frequency	DEP	Departure, Departure Control
	CTR	Center	DESC	Descent
Hazard Avoidance	CTRL	Control	Desired Track	The desired course between the active "from" and "to" waypoints.
	Cumulative, CUM	The total of all legs in a flight plan.	DEST, DES	Destination, Destination Airport Identifier
Autopilot	CVDR	Cockpit Voice Data Recorder	DET	Detect, Detected, Detection, Detector
	CVFP	Charted Visual Flight Procedure	DEV	Deviation
	CVR	Cockpit Voice Recorder	DF	Direction Finder, Direct to Fix Leg
IVSI	CVRG	Coverage	DFLT	Default
	CWS	Control Wheel Steering	DG	Directional Gyro
Additional Features	CYC CTR	Cyclic Centering	DGPS	Differential GPS
	CYL	Cylinder	DGRD	Degrade
	CZ	Control Zone	DH	Decision Height
Appendices	D->, →	Direct-To	DIFF	Differential
	D/A	Digital to Analog Converter	Dilution of Precision	A measure of GPS satellite geometry quality on a scale of one to ten (lower numbers equal better geometry, where higher numbers equal poorer geometry).
	D ALT	Density Altitude	DIR	Direction
	D-ATIS	Digital Automatic Terminal Info Service	DIS	Distance
Index	DA	Decision Altitude, Drift Angle	DISENG	Disengage
	DB, DBASE	Database		

Distance	The 'great circle' distance from the present position to a destination waypoint.	ECS	Environmental Control System
DIV	Divert, Diversion	ECU	Engine Control Unit
DL LTNG	Datalink Lightning	EDM	Emergency Descent Mode
DLS	Data Link System	EDR	Excessive Descent Rate
DME	Distance Measuring Equipment	EFC	Expected Further Clearance
DN	Down	Efficiency	A measure of fuel consumption, expressed in distance per unit of fuel.
DNALT	Density Altitude	EGNOS	European Geostationary Navigation Overlay Service
DNGR	Danger	EGT	Exhaust Gas Temperature
DNLK	Downlink	EICAS	Engine Indication and Crew Alerting System
DOD	Department of Defense	EIS	Engine Indication System
DOP	see also Dilution of Precision	ELEC	Electrical
DOPP	Doppler	ELEV	Elevation, Elevator
DP	Departure Procedure, Differential Pressure	ELT	Emergency Locator Transmitter
DPRT	Departure	EMER, EMERG, EMERGCY	Emergency
DQR	Data Quality Requirements	EMI	Electromagnetic Interference
DR	Dead Reckoning	END, ENDUR	Endurance
DSBL	Disabled	Endurance	Flight endurance, or total possible flight time based on available fuel on board.
DSP	Display, Datalink Service Provider, Digital Signal Processor	ENG	Engine
DTG	Distance To Go, Remaining distance to last active FPL waypoint	ENGA	Engage
DTK	see also Desired Track	ENGD	Engaged
DWNGRADE	Downgrade	ENR	Enroute; ETE to Final Destination
E	Empty, East	Enroute Safe Altitude (ESA)	Uses Grid MORAs to determine a safe altitude within ten miles left or right of the desired course on an active flight plan or direct-to.
EAS	Engine and Airframe Systems		
EC	Error Correction		
ECC	Error Correcting Code		
ECL	Electronic Checklist		
ECR	Excessive Closure Rate		

System Overview	ENT	Enter	EXTING	Extinguish, Extinguisher
	EP	Envelope Protection	EXTR	Extract, Extraction
	EPE	see also Estimated Position Error	°F	Degrees Fahrenheit
Flight Instruments	EPU	Estimated Position Uncertainty	FA	Course From Fix to Altitude Leg
	ERR	Error	FAA	Federal Aviation Administration
EIS	ES	Extended Squitter	FADEC	Full Authority Digital Engine Control
	ESA	Emergency Safe Altitude, see also Enroute Safe Altitude	FAF	Final Approach Fix
Navigation	ESP	Electronic Stability and Protection	FAIL	Failure
	Estimated Position Error (EPE)	A measure of horizontal GPS position error derived by satellite geometry conditions and other factors.	FANS	Future Air Navigation System
Hazard Avoidance	Estimated Time Enroute (ETE)	The estimated time it takes to reach the destination waypoint from the present position, based upon current groundspeed.	FAP	Final Approach Point
	Estimated Time of Arrival (ETA)	The estimated time at which the aircraft should reach the destination waypoint, based upon current speed and track.	FAPP	Final Approach
Autopilot	ET	Elapsed Time	FAR	Federal Aviation Regulations
	ETA	see also Estimated Time of Arrival	FBO	Fixed Base Operator
IVSI	ETE	see also Estimated Time Enroute	F/C	Flight Crew
	EVS	Enhanced Vision System	FC	Course From Fix to Distance Leg
Additional Features	EXP	Expand	FCC	Federal Communication Commission
	EXPIRD	Expired	FCST	Forecast
Appendices	EXT	External	FC TN	Function
	EXTD	Extend	FD	Flight Director, Course From Fix to DME Distance Leg
Index			FDE	Fault Detection and Exclusion
			FDR	Flight Data Recorder
			FF, FFLOW	see also Fuel Flow
			FIS-B	Flight Information Services-Broadcast
			FISDL	Flight Information Service Data Link
			FIT	Flight Into Terrain
			FL	Flight Level

FLC, FLCH	Flight Level Change	GA	Go-Around
FLT	Flight, Flight Timer	GAGAN	GPS Aided GEO Augmented Navigation
FLTA	Forward Looking Terrain Avoidance	GAGL	GPS AGL Altitude
FLW	Follow, Following	GAL, GL	Gallon(s)
FM	Course From Fix to Manual Termination Leg	GBAS	Ground Based Augmentation System
FMS	Flight Management System	GBOX	Gearbox
FOB	see also Fuel On Board	GBT	Ground Based Transceiver
FOD	see also Fuel Over Destination	GCS	Ground Clutter Suppression
FPA	Flight Path Angle	GCSS	Garmin Connex Satellite Services
FPL	Flight Plan	GCU	Garmin Control Unit
FPM	Feet Per Minute, Flight Path Marker	GDC	Garmin Air Data Computer
FR	From	GDL	Garmin Satellite Data Link
FREQ	Frequency	GDR	Garmin Data Radio
FRMT	Format	GDU	Garmin Display Unit
FRT	Front	GEA	Garmin Engine/Airframe Unit
FRZ	Freezing	GEAR	Landing Gear
FSD	Full-Scale Deflection	GEN	Generator
FSM	Flight System Messages	GEO	Geographic
FSS	Flight Service Station	GFC	Garmin Flight Control
FT	Foot/Feet	GHz	Gigahertz
Fuel Flow	The fuel flow rate, expressed in units of fuel per hour.	GIA	Garmin Integrated Avionics Unit
Fuel On Board	The total amount of usable fuel on board the aircraft.	GLONASS	Global Orbiting Navigation Satellite Landing System
Fuel Over Destination	The estimated fuel remaining when the aircraft reaches the destination waypoint, based upon current fuel flow.	GLS	Global Navigation Satellite Landing System
FWD	Forward	GMA	Garmin Audio Panel System
G/A	Ground to Air	GMC	Garmin Mode Controller
G/S	Glideslope	GMT	Greenwich Mean Time
		GMU	Garmin Magnetometer Unit
		GND	Ground

System Overview	GOLD	Global Operational Data Link	GW	Gross Weight
	GP	Glidepath	GWX	Garmin Weather Radar
	GPH	Gallons per Hour	H	Hours
Flight Instruments	GPB	Garmin Part Number	H+MM	Hours and Minutes
	GPS	Global Positioning System	HA	Hold Terminating at Altitude Leg
	GPWS	Ground Proximity Warning System	HAL	Horizontal Alert Limit
EIS	Grid MORA (Minimum Off-Route Altitude)	One degree latitude by one degree longitude in size and clears the highest elevation reference point in the grid by: a) 1,000 feet where the highest elevation is <5001MSL or b) 2,000 feet where the highest elevation is >5000MSL	HAT	Height Above Threshold
Navigation			HDG	see also Heading
			HDOP	Horizontal Dilution of Precision
			Heading	The direction an aircraft is pointed, based upon indications from a magnetic compass or a properly set directional gyro.
Hazard Avoidance	Ground Track	See Track	HF	High Frequency, Hold Terminating at Fix Leg
	Groundspeed	The velocity the aircraft is travelling relative to a ground position.	HFOM	see also Horizontal Figure of Merit
Autopilot	GRP	Geographic/Ground Reference Point	Hg	Mercury
	GRS	Garmin Reference System	HI	High
IVSI	GS	Ground Speed, Glideslope	HI SENS	High Sensitivity
	GSA	Garmin Servo Adapter	HLD	Hold, Holding, Holding Pattern
Additional Features	GSD	Glideslope/Glidepath Deviation, Garmin Data Concentrator	HM	Hold with Manual Termination Leg
	GSL	Geometric/Geodetic Sea Level	HNS	Hybrid Navigation Sensor
Appendices	GSR	Garmin Satellite Radio	Horizontal Figure of Merit	A measure of the uncertainty in the aircraft's horizontal position.
	GSU	Garmin Sensor Unit	HOV	Hover
	GTC	Garmin Touchscreen Controller	HOV-P	Hover Prediction
Index	GTS	Garmin Traffic System	HP	High Pressure, Horsepower
	GTX	Garmin Transponder	hPa	Hectopascal

HPI	Hover Power Indicator	IG	Imperial Gallon
HPL	Horizontal Protection Level	IGE	In Ground Effect
HR	Hour	ILI	Imminent Line Impact
HRZN HDG	Horizon Heading	ILS	Instrument Landing System
HSDB	High-Speed Data Bus	IM	Inner Marker
HSI	Horizontal Situation Indicator	IMC	Instrument Meteorological Conditions
HT	Heat, Height	IN	Inch
HTR	Heater	IN Hg, "HG	Inches of Mercury
HUL	Horizontal Uncertainty Level	INACTV	Inactive
HWND	Headwind	INBD	Inboard
HYD	Hydraulic	INBND	Inbound
Hz	Hertz (cycles per second)	INC FUEL	Increase Fuel
HZN	Horizon	IND	Indicator, Indicated
I	Inner Marker	Indicated	Information provided by properly calibrated and set instrumentation on the aircraft panel.
IAF	Initial Approach Fix	INDX	Index
IAP	Instrument Approach Procedure	INFO	Information
IAS	Indicated Air Speed	INH, INHIB	Inhibit
IAT	Indicated Air Temperature	INOP	Inoperative
IATA	International Air Transport Association	INS	Inertial Navigation System
IAU	Integrated Avionics Unit	INSTR	Instrument
IBD, INBD	Inboard	INT	Intersection(s)
ICAO	International Civil Aviation Organization	INTEG	Integrity (RAIM unavailable)
ICE	Icing	INTERN, INTRL	Internal
ICS	Intercom System	INV	Invalid
ID	Identification/Morse Code Identifier	IOI	Imminent Obstacle Impact
IDENT, IDNT	Identification	IR	Infrared
IEEE	Institute of Electrical & Electronics Engineers	IrDA, IRDA	Infrared Data Association
IF	Initial Fix	IRST	Infrared Surveillance and Tracking
IFR	Instrument Flight Rules		

System Overview	ISA	International Standard Atmosphere; ISA Relative Temperature	Leg	The portion of a flight plan between two waypoints.
Flight Instruments	ISO	International Standards Organization	LEN	Length
	ISOL	Isolation	LGND	Legend
	ITI	Imminent Terrain Impact	LIFR	Low Instrument Flight Rules
EIS	ITT	Inter-Turbine Temperature, Interstage Turbine Temperature	LI-ION	Lithium Ion
	KEYSTK	Key Stuck	LIM	Limit
Navigation	KG	Kilogram	LMM	Location Middle Marker
	KHz	Kilohertz	LNAB	Lateral Navigation
	KM	Kilometer	LO	Low
Hazard Avoidance	KT	Knot	LOA	Letter of Authorization
	L	Left, Left Runway	LOC	Localizer
Autopilot	LAT	Latitude, Lateral	LOI	Loss of Integrity (GPS)
	LB	Pound	LOM	Location Outer Marker
	LBL	Label	LON, LONG	Longitude, Longitudinal
	LCD	Liquid Crystal Display	LP	Localizer Performance, Low Pressure
IVI	LCL	Local	LPV	Localizer Performance with Vertical Guidance
	LDA	Landing Distance Available	LRU	Line Replaceable Unit
	LDG	ETA at Final Destination	LSB V	Lower Sideband Voice
Additional Features	LED	Light Emitting Diode	LT	Left, Light
	Left Over Fuel On Board	The amount of fuel remaining on board after the completion of one or more legs of a flight plan or direct-to.	LTNG	Lightning
Appendices	Left Over Fuel Reserve	The amount of flight time remaining, based on the amount of fuel on board after the completion of one or more legs of a flight plan or direct-to, and a known consumption rate.	LVL	Level
			M	Meter, Middle Marker, Mach
Index			Mach Number	Mach number is the ratio of the true airspeed to the speed of sound.
			MAG	Magnetic
			MAG VAR	Magnetic Variation
			MAHP	Missed Approach Hold Point
			MAINT	Maintain
			MAL	Malfunction
			MAN	Manual

MAN IN	Manifold Pressure (inches Hg)	Minimum Safe Altitude (MSA)	Uses Grid MORAs to determine a safe altitude within ten miles of the aircraft present position.
MAN SQ	Manual Squelch		
MANSEQ	Manual Sequence		
MAP	Missed Approach Point	MKR	Marker Beacon
MAPROC	Missed Approach Procedure	MM	Middle Marker
MASQ	Master Avionics Squelch	MMO (VMO)	Maximum Speed
MAX	Maximum	MOA	Military Operations Area
MAXSPD	Maximum Speed (overspeed)	MOD	Modification, Modify
MB	Marker Beacon, Millibar(s)	MON	Monitor, Monitored, Monitoring
MCDU	Multifunction Control and Display Unit	MORA	Minimum Off-Route Altitude
MCLB	Maximum Climb Thrust	MOV	Movement
MCP	Maximum Continuous Power	MPEL	Maximum Permissible Exposure Level
MCRZ	Maximum Cruise Thrust	MPM	Meters per Minute
MDA	Barometric Minimum Descent Altitude	MSA	see also Minimum Safe Altitude
MEA	Minimum Enroute Altitude	MSAS	Multi-functional Satellite Augmentation System
MEM	Memory		
MEPT	Manual Electric Pitch Trim	MSG	Message
MET	Manual Electric Trim	MSL	Mean Sea Level
METAR	Aviation Routine Weather Report	MT, M	Meter
METRO	Metropolitan	MTG	Mounting
MFD	Multi Function Display	MTN	Mountain
MGRS	Military Grid Reference System	MTOWG	Maximum Takeoff Gross Weight
MGT	Measured Gas Temperature	MTOW	Maximum Takeoff Weight
MHz	Megahertz	mV	Millivolt(s)
MIC	Microphone	MVFR	Marginal Visual Flight Rules
MID	Middle	N	North
MIN	Minimum, Minute	NATS	North Atlantic Tracks System
		NAV	Navigation
		NAVAID	Navigation Aid

System Overview	NCR	Negative Climb Rate	000I	Out of the gate, Off the ground, On the ground, and In the gate
	NDA	Next Data Authority		
	NDB	Non-Directional Beacon	OROCA	Off Route Obstacle Clearance Altitude
Flight Instruments	NEG	Negative		
	NEXRAD	Next Generation Radar	OUTBD	Outboard
	NG	Gas Producer Rotation Speed	OUTBND	Outbound
	NM	Nautical Mile(s)	OVBD	Overboard
EIS	NMPG	Nautical Miles per Gallon	OVFL	Overflow
	NoPT	No Procedure Turn Required (procedure shall not be executed without ATC clearance)	OVFLY	Overfly, Overflying
Navigation			OVHD	Overhead
	NORM	Normal	OVHT	Overheat
	NOTAM	Notice To Airman	OVLIM	Overlimit
Hazard Avoidance	NP	Power Turbine Speed	OVLD	Overload
	NPA	Non-Precision Approach	OVPR	Overpressure
	NR	Rotor Speed	OVR, OVRD	Override
Autopilot	NRST	Nearest	OVRN	Overrun
	NWHL	Nosewheel	OVSPD	Overspeed
	NWS	National Weather Service, Nosewheel Steering	OVTMP	Overtemperature
IVSI	O	Outer Marker	OXY	Oxygen
	OAT	Outside Air Temperature	P ALT	Pressure Altitude
Additional Features	OBD, OUTBD	Outboard	P-ATT	Pitch Attitude
	OBS	Omni Bearing Selector, Observation, Observe, Observed	PA	Precision Approach, Passenger Address, Proximity Advisory
Appendices	OBSCR	Obscuration	PB	Push Button
	OCL	Oceanic Clearance	PASS, PAX	Passenger(s)
	OEM	Original Equipment Manufacturer	PC	Personal Computer
			PDA	Premature Descent Alerting
	OFST	Offset	PDC	Pre-Departure Clearance
Index	OGE	Out of Ground Effect	PED	Personal Electronic Device
	OM	Outer Marker	PERF	Performance
			PFD	Primary Flight Display

PG	Pilot's Guide	Q	Engine Torque
PI	Procedure Turn to Course Intercept Leg	QFE	Field Elevation Pressure
PIREP	Pilot Report	QNE	Pressure Altitude
PIT, PTCH	Pitch	QNH	Sea Level Pressure
PLT	Pilot	QTY	Quantity
PNR	Prior Notice Required	R	Right, Right Runway
POA	Plain Old ACARS	RA	Resolution Advisory, Radio Altimeter, Radar Altimeter
POB	Persons (Souls) on Board	RAD	Radial
POF	Phase of Flight	RAD ALT	Radio Altimeter, Radar Altimeter
POH	Pilot's Operating Handbook	RAIM	Receiver Autonomous Integrity Monitoring
POHS	Pilot's Operating Handbook Supplement	RAM	Random Access Memory
POS, POSN	Position	RAT	Ram Air Temperature
POSS	Possible	RCVR	Receiver
PPH	Pounds per Hour	R/D	Radial/Distance
PPM	Parts per Million	RDR	Radar
PPOS, P. POS	Present Position	REC	Record, Recorder
PREFLT	Preflight	RECIRC	Recirculate/Recirculating
PRES, PRESS, P	Pressure	REF	Reference
PREV	Previous	REGL	Regulator
PRI	Primary	REM	Remaining (fuel remaining), Reminder, Removed, Remote
PRL	Parallel	REQ	Request
PRN	Pseudo Random Noise	REQD	Required
PROC	Procedure(s), Procedure Turn	RES	Reserve (fuel reserve entered by pilot)
PROP	Propeller	REST	Restricted, Restriction
PROX	Proximity	RET	Return
PSI	Pounds per Square Inch, Power Situation Indicator	REV	Reverse, Revision, Revise
PT	Procedure Turn	RF	Radio Frequency, Constant Radius Turn to Fix Leg
PTK	Parallel Track	RFM	Rotorcraft Flight Manual
PTT	Push-to-Talk		
PWR	Power		

System Overview	RLC	Required Line Clearance	S	South
	RMI	Radio Magnetic Indicator	SA	Selective Availability
	RMT	Remote	SAIB	Special Airworthiness Information Bulletin
Flight Instruments	RNAV	Area Navigation		
	RNG	Range	SAR	Search and Rescue
	RNP	Required Navigation Performance	SAT SATCOM	Static Air Temperature Satellite Communication
EIS	RNWW, RWY	Runway	SBAS	Satellite-Based Augmentation System
	ROASS	Runway Overrun Awareness and Alerting System	S-CLB	Step Climb
	ROC	Required Obstacle Clearance, Rate of Climb	SC	Short Circuit
Navigation	ROD	Rate of Descent	SCIT	Storm Cell Identification and Tracking
	ROL	Roll	S-DES	Step Descent
	ROM	Read Only Memory	SD	Secure Digital
Hazard Avoidance	ROT	Rotary	SEC	Second(s)
	RPM	Revolutions Per Minute	SECT	Section
	RQRD	Required	SEG	Segment
Autopilot	RST FUEL	Reset Fuel	SEL, SLCT	Select
	RSV	Reserve (fuel reserve entered by pilot)	SELCAL	Selective Calling
	RT	Right	SENS	Sense, Sensitivity
IVSI	RTC	Required Terrain Clearance	SEQ	Sequence, Sequencing
	RTE	Route	SERV	Service, Servicing, Served
	RTR	Router	SET	Setup
Additional Features	RUDICS	Router-Based Unrestricted Digital Interworking Connectivity Solution	SFC	Surface
			SHT	Short
			SIAP	Standard Instrument Approach Procedures
Appendices	RVRSNRY	Reversionary		
	RVSI	Required Vertical Speed Indicator	SID	Standard Instrument Departure
	RVSM	Reduced Vertical Separation Minimums	SIG SIG/AIR	Signal SIGMET/AIRMET
Index	RX	Receive	SIGM	SIGMET

SIGMET	Significant Meteorological Information	STN	Station
SIM	Simulator	STR	Strip
SITA	Societe Internationale de Telecommunications	STRMSCP	Stormscope
SLD	Supercooled Large Droplet	SUA	Special Use Airspace
SLP/SKD	Slip/Skid	SUB	Substitute
SLW	Slow	SUPPRESS	Suppression
SM	Statute Mile	SURF	Surface
SMBL	Symbol	SUSP	Suspend
SMK	Smoke	SVBL	Serviceable
SMS	Short Message System	SVT	Synthetic Vision Technology
SNGL	Single	SW	Software
SOB	Souls on Board	SYN TERR	Synthetic Terrain
SPBK	Speed Brake	SYN VIS	Synthetic Vision
SPC	Space	SYNC	Synchronize
SPD	Speed	SYNTH	Synthesizer
SPI	Special Position Identification	SYS	System
SPKR	Speaker	T	True
SQ, SQL	Squelch	T HDG	True Heading
SRVC, SVC	Service	T/R	Thrust Reverser
SSEC	Static Source Error Correction	TA	Traffic Advisory, Transition Altitude
SSID	Wireless Service Set Identifier	TAC	Tactical
STAB	Stabilization	TACAN, TCN	Tactical Air Navigation System
STAL	Stall	TAF	Terminal Aerodrome Forecast
STAR	Standard Terminal Arrival Route	TAS	True Airspeed, Traffic Advisory System
STAT	Status	TAT	Total Air Temperature
STATS	Statistics	TAWS	Terrain Awareness and Warning System
STBY	Standby	TCA	Terminal Control Area
STC	Sensitivity Time Constant, Supplemental Type Certificate	TCAS	Traffic Alert Collision Avoidance System
STD	Standard	TCH	Threshold Crossing Height

System Overview	TD	Touchdown	Track	Direction of aircraft movement relative to a ground position; also 'Ground Track'.
	TEL	Telephone		
	TEMP	Temperature		
Flight Instruments	TERM	Terminal	Track Angle Error	The angle difference between the desired track and the current track.
	TERR	Terrain		
	T/F	To/From		
EIS	TF	Track Between Two Fixes Leg	TRFC	Traffic
	TFR	Temporary Flight Restriction	TRK	see also Track
	TGT	Target	TRN	Terrain
Navigation	TH	True Heading	TRSA	Terminal Radar Service Area
	THLD	Threshold	TRUNC	Truncated
	THR	Thrust	TSO	Technical Standard Order
Hazard Avoidance	TIS	Traffic Information Service	TST	Test
	TIS-B	Traffic Information Service-Broadcast	TTA	Time-to-Alert
	TIT	Turbine Inlet Temperature	TTK	True Track
Autopilot	TKE	see also Track Angle Error	TTL	Total
	TL	Transition Level	TTS	Text to Speech
	TLA	Throttle Lever Angle, Thrust Lever Angle	TUR	Turbine
IVSI	TMA	Terminal Maneuvering Area	TURB	Turbulence
	TMR/REF	Timer/Reference	TURN	Procedure Turn
	TNK	Tank	TWND	Tailwind
Additional Features	TO	To, Takeoff	TWIP	Terminal Weather Information for Pilots
	TOC	Top of Climb	TWR	Tower
	TOD	Top of Descent, Time to TOD	TWY	Taxiway
Appendices	TOGA, TO/GA	Take-Off, Go-Around	TX	Transmit
	TOLD	Takeoff and Landing Data	UA	Routine PIREP
	TOPO	Topographic	UAT	Universal Access Transceiver
Index	TORA	Takeoff Run Available	UHF	Ultra-High Frequency
	TOT	Total	UNABL	Unable
	TPA	Traffic Pattern Altitude	UNAVAIL	Unavailable
			UNLIM	Unlimited
			UPLK	Uplink

US	United States	Vertical Speed Required	The vertical speed necessary to descend/climb from a current position and altitude to a defined target position and altitude, based upon current groundspeed.
USB V	Upper Sideband Voice		
USR	User		
UTC	Coordinated Universal Time		
UTM/UPS	Universal Transverse Mercator/ Universal Polar Stereographic Grid	V_{FE}	Maximum Flap Extended Speed
UUA	Urgent PIREP	VFOM	see also Vertical Figure of Merit
V	Volts, Vertical	VFR	Visual Flight Rules
V DEV	Vertical Deviation	VHF	Very High Frequency
V, Vspeed	Velocity (airspeed)	VI	Heading Vector to Intercept Leg
V₁	Takeoff Decision Speed	VIB	Vibration
V₂	Takeoff Safety Speed	V_{LE}	Maximum Landing Gear Extended Speed
V_A	Maneuvering Speed	V_{LNDx}	Approach Speed (Flaps at x°)
VA	Heading Vector to Altitude Leg	V_{LO}	Maximum Landing Gear Operating Speed
VAC	Volts Alternating Current	VLD	Valid
VAL	Vertical Alert Limit	VLOC, VOR/L	VOR/Localizer Receiver
VAPP	VOR Approach Mode	VM	Heading Vector to Manual Termination Leg
V_{APP}, V_{AC}	Approach Climb Speed	V_{MC}	Minimum Control Speed
VAR	Variable, Variation	VMC	Visual Meteorological Conditions
VCO	Voice Call Out	V_{MO} (M_{MO})	Maximum Operating Speed
VD	Heading Vector to DME Distance Leg	VNAV, VNV	Vertical Navigation
VDC	Volts Direct Current	V_{NE}	Never-Exceed Speed
VDI	Vertical Deviation Indicator	VOL	Volume
VDL	VHF Datalink	VOR	VHF Omnidirectional Range
VECT	Vector	VOR/D	VOR/DME
VERT	Vertical	VOR/I	VOR/ILS
Vertical Figure of Merit	A measure of the uncertainty in the aircraft's vertical position.		

System Overview	VORTAC	VHF Omnidirectional Range Station and Tactical Air Navigation	WSPD	Wind Speed
	VPATH, VPTH	Vertical Path	WGS-84	World Geodetic System - 1984
Flight Instruments	VPL	Vertical Protection Level	WI-FI, WIFI	Wireless Local Area Network based on IEEE 802.11
	VPROF	VNAV Profile, Vertical Profile	WILCO	Will Comply
	V_R	Takeoff Rotate Speed	WNSHR, WSHEAR	Windshear
EIS	VR	Heading Vector to Radial Leg	WL	Wings Level
	V_{REF}	Landing Approach Speed, Reference Landing Speed	WOG	Weight on Gear
	VRP	Visual Reporting Point	WOW	Weight on Wheels
Navigation	VS	Vertical Speed	WPT	Waypoint(s)
	V_{SB}	Maximum Speedbrake Speed	WT	Weight
	VSD	Vertical Situation Display	W/V	Wind Velocity
Hazard Avoidance	VS	Vertical Speed Indicator	WW	World Wide
	V_{SR}	Stall Speed	WX	Weather
	VSR, VS REQ	see also Vertical Speed Required	WXR	Weather Radar
Autopilot	V_T	Takeoff Flap Retraction Speed	XFD	Crossfeed
	VTE	Vertical Track Error	XFER, XFR	Transfer
	VTF	Vector to Final	XFLOW	Crossflow
IVSI	VTK	Vertical Track	XM LTNG	SiriusXM Lightning
	V_{TIRE}	Maximum Tire Speed	XMIT	Transmit
	V_X	Best Angle of Climb Speed	XMSN	Transmission
Additional Features	V_Y	Best Rate of Climb Speed	XPDR	Transponder
	V_{YSE}	Best Single-Engine Rate of Climb Speed	XTALK	Cross-Talk
Appendices	W	Watt(s), West	XTE	Crosstrack Error
	WAAS	Wide Area Augmentation System	XTK	Cross-Track, Crosstrack Error
	WARN	Warning	YD	Yaw Damper
Index	WATCH	Weather Attenuated Color Highlight	Z	Reflectivity Factor
	WDIR	Wind Direction		

APPENDIX D: DISPLAY SYMBOLS

VFR SYMBOLS

Item	Symbol
Unknown	
Non-towered, Non-serviced	
Towered, Non-serviced	
Non-towered, Serviced	
Towered, Serviced	
Soft Surface, Non-serviced	
Soft Surface, Serviced	
Soft Surface, Private	
Paved, Private	
Heliport	

Airports

IFR SYMBOLS

Item	Symbol
Intersection	
Visual Reporting Point	
LOM (Compass Locator at Outer Marker)	
NDB (Non-Directional Radio Beacon)	
VOR	
VOR/DME	
ILS/DME or DME Only	
VORTAC	
TACAN	

Item	Symbol
Interstate Highway	
US Highway	
State Highway	
National Highway	
Small City	
Medium City	
Large City	

Miscellaneous

Nav aids

Item	Symbol
Low-Altitude	
High-Altitude	

Airways

AIRSPACE SYMBOLS

Item	Symbol
Class B, Class E, CTA	
Class A, Class C, TMA	
Class D	
Mode C Veil	
TRSA	
MOA	
Danger, Alert, or Training Area	
Restricted, Prohibited, or Warning Area	
Radar Area	
ATZ, TIZ	
MATZ	
ADIZ	
Misc./Unknown	

Airspace

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Hazard
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