



Garmin G5

Electronic Flight Instrument Part 23 AML STC Pilot's Guide





©2016 Garmin International or its subsidiaries
All Rights Reserved

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 prior written consent 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 and to print one copy of this manual or of any revision hereto, provided such electronic or printed copy of this manual or revision must contain the complete text of this copyright notice and provided further any unauthorized commercial distribution of this manual or any revision hereto is strictly prohibited.

Garmin® and flyGarmin® are registered trademarks of Garmin International or its subsidiaries. G5™ is a trademark of Garmin International or its subsidiaries. These trademarks may not be used without the express permission of Garmin.

Garmin International, Inc
1200 E. 151st Street Olathe, KS 66062 USA
Telephone: 913-397-8200
Technical Support and Field Service Engineers: 888.606.5482
www.flyGarmin.com

Garmin (Europe) Ltd.
Liberty House
Bull Copse Road
Hounsdown Business Park
Southampton, SO40 9LR, UK
Telephone: +44 (0) 23 8052 4000
Fax: +44 (0) 23 8052 4004

Garmin AT, Inc.
2345 Turner Rd. SE
Salem, OR 97302 USA
Telephone: 503.581.8101



RECORD OF REVISIONS

Revision	Revision Date	Description
1	7/21/16	Initial Release



INFORMATION SUBJECT TO EXPORT CONTROL LAWS

This document may contain information which is subject to the Export Administration Regulations (“EAR”) issued by the United States Department of Commerce (15 CFR, Chapter VII, Subchapter C) and which may not be exported, released, or disclosed to foreign nationals inside or outside of the United States without first obtaining an export license. A violation of the EAR may be subject to a penalty of up to 10 years imprisonment and a fine of up to \$1,000,000 under Section 2410 of the Export Administration Act of 1979. Include this notice with any reproduced portion of this document.



NOTE:

The display uses a lens with a special coating that may be sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and a cleaner that is specified as safe for anti-reflective coatings. Avoid any chemical cleaners or solvents that can damage plastic components.



NOTE:

Use of polarized eyewear may cause the display to appear dim or blank.



NOTE

All images used in this document are current at the time of publication but are subject to change and may not be up to date.



TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1 SYSTEM DESCRIPTION.....	1
1.1 G5 Electronic Flight Instrument.....	1
1.2 Bezel Overview	2
1.3 MicroSD™ Cards	3
2 OPERATION.....	4
2.1 G5 Annunciations.....	4
2.2 G5 Attitude	4
2.3 Backlight Intensity	5
3 ACCESSING FUNCTIONALITY	6
3.1 Pages	6
3.2 Menu	6
3.3 PFD Page.....	7
4 SYSTEM MESSAGES	16



1 SYSTEM DESCRIPTION

1.1 G5 Electronic Flight Instrument

The G5 Electronic Flight Instrument contains integrated attitude/air data sensors that provide display of attitude and secondary display of air data information. The G5 features a bright, sunlight readable, 3.5-inch color display. In the case of aircraft power loss, the G5 battery sustains the G5 flight display with up to 4 hours of power.



G5 Electronic Flight Instrument

1.2 Bezel Overview



G5 Bezel Overview

Power Button		Press to turn unit ON. Press and hold for 5 seconds to turn unit OFF. Once on, press to adjust the backlight.
microSD™ Card Slot		Insert microSD card to update software and log data.
Knob	Press	Press to access the Menu From the Menu, press to select the desired menu item. Press to accept the displayed value when editing numeric data or selecting from a list.
	Turn	From the Main Menu, turn the Knob to move the cursor to the desired menu item. Rotate to adjust the barometric setting. Turn to select the desired value when editing numeric data or selecting from a list.



1.3 microSD™ Cards

The G5 data card slot uses micro Secure Digital (SD) cards. The microSD™ card can be used for software updates and data logging. The maximum supported card size is 32G.

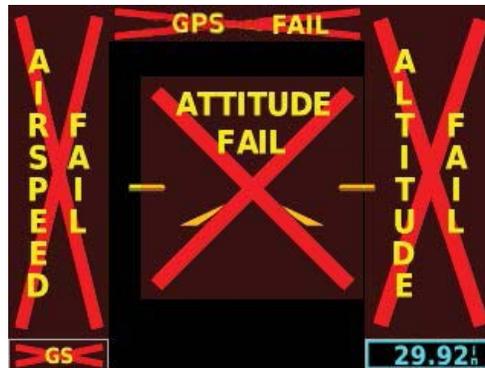
Installing a microSD™ Card:

- 1) Insert the microSD™ card in the microSD™ card slot with the card contacts facing down (the card should be flush with the face of the bezel).
- 2) To eject the card, gently press on the microSD™ card to release the spring latch.

2 OPERATION

2.1 G5 Annunciations

When a G5 function fails, a large red 'X' is displayed over the instrument(s) or data experiencing the failure. Upon G5 power-up, certain instruments remain invalid as equipment begins to initialize. All instruments should be operational within one minute of power-up. If any instrument remains flagged and it is not likely an installation related problem, the G5 should be serviced by a Garmin-authorized repair facility.



G5 Failure Indications

2.2 G5 Attitude

The G5 calculates aircraft attitude using information from its built-in inertial sensors. The G5 also uses GPS and airspeed data to provide the most accurate attitude information. The G5 should display valid attitude within the first minute of power-up.

If the G5 senses that the attitude solution is valid, but not yet within the internal accuracy limits, "ALIGNING" is displayed. The displayed attitude information is still accurate and usable while this indication is shown. The G5 can align itself both while taxiing and during level flight.



Attitude Aligning Indication



If the G5 senses that the attitude solution is invalid, “ALIGNING KEEP WINGS LEVEL” is displayed. No attitude information is displayed while this indication is shown. The G5 can align itself both while taxiing and during level flight.



Attitude Aligning Keep Wings Level Indication

If the G5 inertial sensors fail, “ATTITUDE FAIL” is displayed in addition to a red-X flag. No attitude information is displayed while this indication is shown.



Attitude Failure Indication

2.3 Backlight Intensity

When set to Auto, the backlight is automatically adjusted according to ambient light conditions. When set to Manual, the backlight level is set by the pilot.

Adjusting backlight intensity:

- 1) While the unit is turned on, press the **Power** Button.
- 2) Turn the Knob to adjust the backlight intensity.
- 3) Press the Knob to close the backlight page.

Setting the backlight intensity to automatic:

- 1) While the unit is turned on, press the Power Button.
- 2) Press the **Power** Button again to select **Auto**.
- 3) Press the Knob to close the backlight page.



3 ACCESSING FUNCTIONALITY

3.1 Pages

The G5 is in PFD page format only.



PFD Page

3.2 Menu

Press the Knob to access the G5 Menu. Navigate the menu by rotating the Knob and make selections by pressing the Knob.

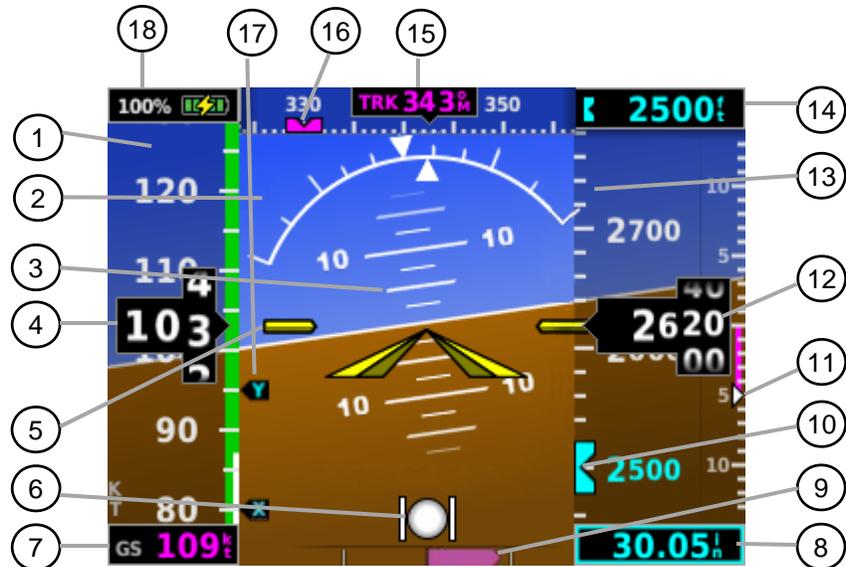


PFD Page Menu

3.3 PFD Page

The G5 PFD Page displays a horizon, airspeed, attitude, altitude, and vertical speed.

The following flight instruments and supplemental flight data are displayed on the PFD Page:



G5 PFD Flight Instruments

- | | | | |
|---|-----------------------------|---|--------------------------|
| ① | Airspeed Indicator | ⑩ | Selected Altitude Bug |
| ② | Attitude Indicator | ⑪ | Vertical Speed Indicator |
| ③ | Pitch Scale | ⑫ | Current Altitude |
| ④ | Current Airspeed | ⑬ | Altimeter |
| ⑤ | Aircraft Symbol | ⑭ | Selected Altitude |
| ⑥ | Slip/Skid Indicator | ⑮ | Ground Track |
| ⑦ | Ground Speed (GS) | ⑯ | Selected Ground Track |
| ⑧ | Altimeter Barometer Setting | ⑰ | Vspeed Reference |
| ⑨ | Turn Rate Indicator | ⑱ | Battery Status Indicator |



3.3.1 Airspeed Indicator



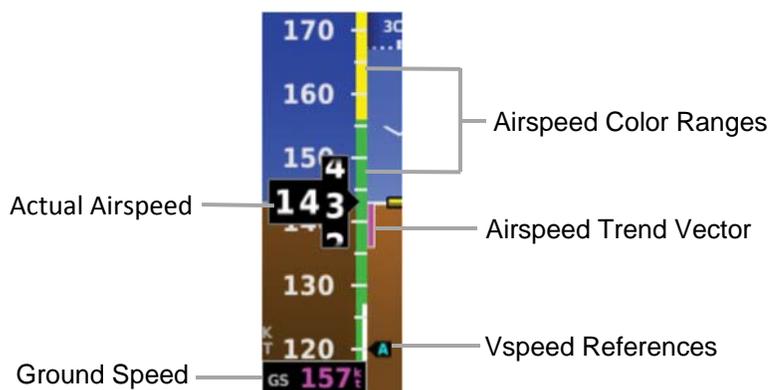
NOTE:

The G5 Vspeed Reference values depend upon the aircraft's specific system configuration and may vary from the examples discussed in this section.

The Airspeed Indicator displays airspeed on a rolling number gauge using a moving tape. The numeric labels and major tick marks on the moving tape are marked at intervals of 10 MPH or KT, as indicated at bottom of airspeed tape). The actual airspeed is displayed inside the black pointer. The pointer remains black until reaching never-exceed speed (VNE), at which point it turns red.

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

The Airspeed Trend Vector is a vertical, magenta line, extending up or down on the airspeed scale, shown to the right of the color-coded speed range strip. The end of the trend vector corresponds to the predicted airspeed in 6 seconds if the current rate of acceleration is maintained. If the trend vector crosses VNE, the text of the actual airspeed readout changes to yellow. The trend vector is absent if the speed remains constant or if any data needed to calculate airspeed is not available due to a system failure.



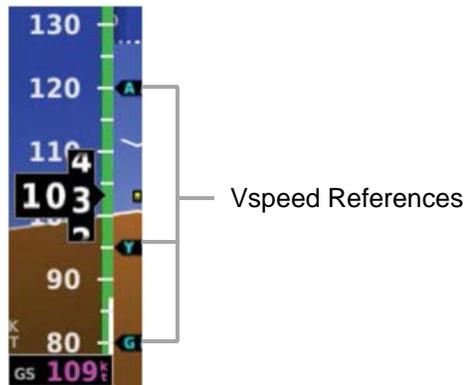
Airspeed Indicator



3.3.2 Vspeed Reference

Vspeed references including VNE, Vno, Vso, Vs1, Vfe, Va, Vx, Vy, VYse, Vg, Vr, are displayed on the G5 (as configured during installation.)

When airspeed is present, the Vspeeds configured are displayed at their respective locations to the right of the airspeed scale; otherwise, the Vspeeds are displayed at the bottom of the airspeed indicator.



Vspeed References

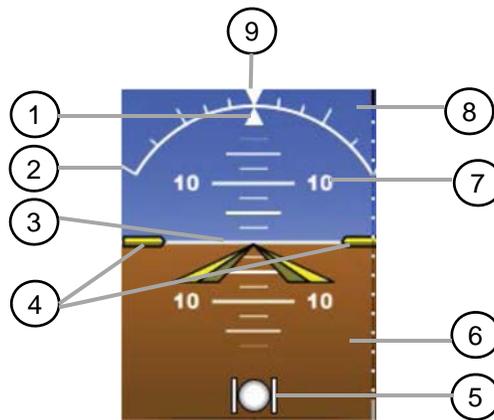
3.3.3 Attitude Indicator

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

The horizon line is part of the pitch scale. Pitch markings occur at 2.5° intervals through all pitch ranges. When the aircraft enters an unusual pitch attitude, red extreme pitch warning chevrons pointing toward the horizon are displayed on the Attitude Indicator starting at 60° above and 40° below the horizon line.

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

Slip/skid is indicated by the location of the ball.



Attitude Indicator

- ① Roll Pointer
- ② Roll Scale
- ③ Horizon Line
- ④ Aircraft Symbol
- ⑤ Slip/Skid Indicator
- ⑥ Land Representation
- ⑦ Pitch Scale
- ⑧ Sky Representation
- ⑨ Roll Scale Zero



3.3.4 Altimeter

The Altimeter displays 400 feet of barometric altitude values at a time on a rolling number gauge using a moving tape. Numeric labels and major tick marks are shown at intervals of 100 feet. Minor tick marks are at intervals of 20 feet. The current altitude is displayed in the black pointer.

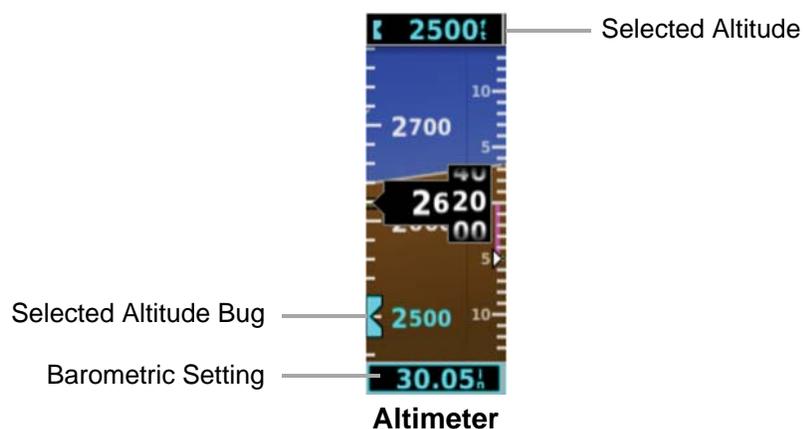
The Selected Altitude is displayed above the Altimeter in the box indicated by a selection bug symbol. A bug corresponding to this altitude is shown on the tape. If the Selected Altitude exceeds the range shown on the tape, the bug appears at the corresponding edge of the tape.

Setting the selected altitude:

- 1) Press the Knob to display the Menu.
- 2) Select **Altitude** and use the Knob to change the Selected Altitude.

Syncing to the current altitude:

- 1) Press the Knob to display the Menu.
- 2) Select **Altitude** and press and hold the Knob to sync the Selected Altitude to the current altitude.



3.3.5 Barometric Pressure

The barometric pressure setting is displayed below the Altimeter in inches of mercury (in Hg).

Selecting the altimeter barometric pressure setting:

Turn the Knob to set the barometric pressure.



3.3.6 Altitude Alerting

The Altitude Alerting function provides the pilot with a visual alert when approaching the Selected Altitude. Whenever the Selected Altitude is changed, the Altitude Alerter is reset. The following will occur when approaching the Selected Altitude:

- Passing within 1000 feet of the Selected Altitude, the Selected Altitude (shown above the Altimeter) flashes for 5 seconds.
- When the aircraft passes within 200 ft of the Selected Altitude, the Selected Altitude flashes for 5 seconds to indicate that the aircraft is approaching the selected altitude.
- After reaching the Selected Altitude, if the pilot flies outside the deviation band (± 200 Feet of the Selected Altitude), the Selected Altitude changes to yellow text on a black background, flashes for 5 seconds.

Deviation of ± 200 ft



Altitude Alerting Visual Annunciation

3.3.7 Turn Rate Indicator

The Turn Rate Indicator is located at the bottom of the PFD Page. A magenta Turn Rate Trend Vector shows the current turn rate. A standard-rate turn (3 deg/sec) is shown on the indicator by the trend vector stopping at the standard turn rate tick mark.



Turn Rate
Trend Vector

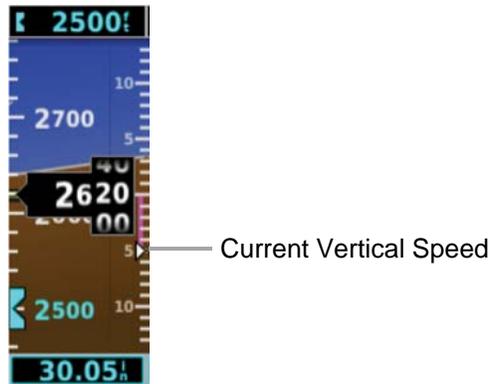
Turn Rate Indicator
(Standard Rate Tick Marks)

Turn Rate Indicator



3.3.9 Vertical Speed Indicator (VSI)

The Vertical Speed Indicator displays the aircraft vertical speed using a non-moving tape to the right of the altimeter. The current vertical speed is displayed using a white arrow along the tape.



Vertical Speed Indicator

3.3.10 Battery Status Indicator

The current charge level of the battery is indicated by the filled-in portion of the battery icon. The battery icon turns yellow or red to indicate a low-battery condition.



When the G5 is powered by the battery, the estimated time until the battery is empty is displayed in hours and minutes. Otherwise, the current charge level of the battery in percent is displayed as a numeric value.

When the G5 is connected to external power and the battery is being charged, a lightning bolt symbol appears over the battery icon.



Other battery indications:

	Battery charger hardware fault, or temperature too high or low to charge the battery safely
	Battery fault
	Battery is not present

4 SYSTEM MESSAGES

The following table shows G5 system messages that may appear along the bottom of the display. These messages remain while the condition persists or until cleared by pressing the knob.

<i>Message</i>	<i>Meaning</i>
External Power Lost	Aircraft power has been removed from the G5
Critical battery fault! Powering off...	Battery has critical fault condition and the unit is about to power off to avoid damage to the battery.
Battery fault	Battery has a fault condition - contact Garmin if it persists.
Battery charger fault	Battery charger has a fault condition - contact Garmin if it persists.
Low battery	Battery charge level is low
Hardware fault	Unit has a hardware fault - contact Garmin for service
Power supply fault	Unit power supply fault detected - contact Garmin for service if it persists
Unit temperature limit exceeded	Unit is too hot or too cold
Network address conflict	Another G5 with the same address is detected on the network (most commonly a wiring error on one of the units)
Communication error	General communication error (most commonly appears in conjunction with Network Address Conflict message)
Factory calibration data invalid	Unit calibration data not valid - return to Garmin
Magnetic field model database out of date	Internal magnetic field database is out of date - software update required
Using external GPS data	GPS data from another network LRU is being used. The unit's internal GPS receiver is enabled, but unable to establish a GPS fix