

## SECTION 9

# Pilot's Operating Handbook Supplement AS-22

## Garmin G5 Stand-by Attitude Indicator



This supplement is applicable and must be inserted into Section 9 of the Pilot's Operating Handbook when a Garmin G5 Stand-by Attitude Indicator is installed in the AQUILA AT01-100/200. The information in this supplement adds to or replaces information in the basic Pilot's Operating Handbook.

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.025.

03.03.21  
  
 Date, Signature Office of Airworthiness

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### 0.1 RECORD OF REVISIONS

Issue	Reason for Change	Effectuated Pages	Date of Issue
A.01	Initial Issue	All	01.06.2018
A.02	also valid for AT01-200	All	02.03.2020
A.03	Extension to Stby ASI and Altimeter	All	25.05.2020
A.04	update of minimum required SW version	All	03.03.2021

### 0.2 LIST OF CURRENT PAGES

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## 1. GENERAL

The aircraft is equipped with a Garmin G5 flight instrument display configured as a Stand-by Attitude Indicator.

For a detailed description and full operating instructions please refer to the current issue of the GARMIN G5 Pilot's Guide.

<b>NOTE</b>
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*The current issue of the GARMIN G5 Pilot's Guide must be kept on board the aircraft and be available to the crew at all times.*

## 2. OPERATING LIMITATIONS

### System Requirements

- The G5 Stand-by Attitude Indicator must utilize the following or later software versions:

Component	Software Version
G5 Stand-by Attitude Indicator	6.82 (STC version only)

- The backup battery is required for the G5 used as a Stand-by Attitude Indicator.

### Use of Secondary Instruments

The original type design approved instruments for airspeed, altitude and vertical speed remain the primary indications for these parameters.

The G5 Electronic Flight Instrument is installed as a Stand-by for Attitude Indicator, Airspeed Indicator and Altimeter only.

### Kinds of Operation Limits / Minimum Equipment

There is no change regarding the information in the basic Pilot's Operating Handbook.

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### 3. EMERGENCY PROCEDURES

If necessary, the G5 can be isolated from the aircraft power supply system by pulling the **G5 ATT** circuit breaker.

#### G5 Failure Indications

If a G5 function fails, a large red 'X' is typically 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, the G5 should be serviced by a Garmin-authorized repair facility.



#### Attitude Failure

Attitude failure is indicated by removal of the sky/ground presentation, a red X, and a yellow "ATTITUDE FAIL" on the display. Rate-of-turn and slip information will not be available.

1. Continue flight using remaining instruments at D/VFR
2. Carry out a precautionary landing at the nearest airfield at N/VFR

**WARNING**

*Before returning the aircraft to service, the problem must be resolved.*

#### Attitude Aligning / Keep Wings Level

If the "ALIGNING KEEP WINGS LEVEL" indication occurs during flight, the G5 has detected an invalid attitude solution and will not display any attitude information.

1. Use remaining instruments to maintain wings level flight. The system will display attitude when internal accuracy tolerances have been met.
2. If attitude does not return at N/VFR, carry out a precautionary landing at the nearest airfield.

**WARNING**

*Before returning the aircraft to service, the problem must be resolved.*

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**Attitude Aligning**

If the “ALIGNING” indication occurs during flight and attitude remains displayed, the attitude display is acceptable for use for flight. The message will clear when the attitude solution is within the systems internal accuracy tolerances. It is recommended to maintain wings level to reduce the time for the system to align.

**Loss of Electrical Power to the G5**

In the event of a loss of aircraft electrical power to the G5, the stand-by attitude indicator will continue to function on its internal battery. Internal battery endurance is indicated on the G5 display in hours and minutes. The charging symbol will be removed and the internal battery will not be charged.

**Loss of Electrical Power to the GAD 29B (If Installed)**

In the event of a loss of aircraft electrical power to the optional GAD 29B, the heading and course datum will be unavailable to the autopilot and the autopilot may deviate from the intended path or may disconnect.

**GPS Failure**

The G5 stand-by attitude indicator calculates aircraft attitude using information from its built-in inertial sensors. GPS and airspeed data are used to provide the most accurate attitude information. If none of these additional sources of information are available, attitude calculations will still be valid but accuracy may be slightly affected.

**Airspeed / Altitude Fail**

Use primary or remaining instruments (basic POH 3.13.4) for airspeed, altitude and vertical speed.

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## 4. NORMAL PROCEDURES

### G5 Power Button and Knob

The G5 display will power on with the application of aircraft power. The G5 power button is used to turn the display on and off. Press and hold the power button to turn the display off. The knob performs the following functions:

<b>PRESS</b>	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.
<b>TURN</b>	From the Menu, turn the Knob to move the cursor to the desired menu item. Rotate to adjust the baro setting and altitude pre-select. Turn to select the desired value when editing numeric data or selecting from a list.

### Backlight Intensity Adjustment

#### 4.5.3 Before Taxiing:

2. Avionics and flight instruments SET

Pressing the power button brings up the backlight controls as well as the current battery status. The backlight level adjusts automatically via a photocell. Temporary adjustments to the backlight level can be made by turning the knob on the lower right corner of the unit to adjust. When power is cycled to the unit, the backlight level is reset to use the photocell.

For a detailed description and full operating instructions, please refer to the current issue of the GARMIN G5 Pilot's Guide.

<b>NOTE</b>
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*Use of polarized eyewear may cause the display to appear dim or blank.*

## 5. PERFORMANCE

There is no change regarding the information in the basic Pilot's Operating Handbook.

## 6. WEIGHT AND BALANCE

There is no change regarding the information in the basic Pilot's Operating Handbook.

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## 7. SYSTEMS DESCRIPTION

### Functions and Operation

The aircraft is equipped with a Garmin G5 flight instrument display configured as a Stand-by Attitude Indicator. It features a bright, sunlight readable, 3.5-inch color display which is sized to fit in a standard 3-1/8-inch instrument cutout. The G5 contains integrated attitude and air data sensors that provide display of attitude and secondary air data information.

The G5 receives a GPS input for attitude aiding via an additional GPS antenna on top of the fuselage and is connected to the aircraft Pitot / Static system for secondary air data information. It has an internal lithium-ion battery that provides up to 4 hours of emergency power.

The G5 has the capability to display system messages to the crew along the bottom of the display. A system message is indicated through a white indication on the G5. Messages can be displayed by pressing the G5 knob, and selecting the Message menu item.



Message	Meaning
<b>External Power Lost</b>	Aircraft power has been removed from the G5.
<b>Critical battery fault! Powering off</b>	Battery has critical fault condition and the unit is about to power off to avoid damage to the battery.
<b>Battery fault</b>	Battery has a fault condition – unit needs service.
<b>Battery charger fault</b>	Battery charger has a fault condition – unit needs service.
<b>Low battery</b>	Battery charge level is low.
<b>Hardware fault</b>	Unit has a hardware fault – unit needs service.
<b>Power supply fault</b>	Unit power supply fault detected – unit needs service.
<b>Unit temperature limit exceeded</b>	Unit is too hot or too cold.
<b>Factory calibration data invalid</b>	Unit calibration data not valid – unit needs service.
<b>GPS receiver fault</b>	The G5 on-board GPS receiver has a fault.

For a detailed description and full operating instructions please refer to the current issue of the GARMIN G5 Pilot's Guide.

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### **Electrical protection for the G5 Stby AI**

The **G5 ATT** circuit breaker supplies power to the G5 instrument for normal power operation and to charge the internal battery.

The **GAD** circuit breaker supplies power to the optional GAD 29B adapter for normal power operation.

## **8. HANDLING, SERVICE AND MAINTENANCE**

### **Display Cleaning**

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 ANTIREFLECTIVE 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.

### **Battery Handling:**

- Do not leave the battery exposed to a heat source or in a high temperature environment.
- To help prevent damage, store the battery out of direct sunlight.
- For maximum battery longevity, store within a temperature range of 32° to 77°F (0° to 25°C).
- Do not use a sharp object to remove the battery.
- Do not disassemble, puncture, damage, or incinerate the device or battery.
- Keep the battery away from children.
- Only replace the battery with the approved replacement from Garmin. Using another battery presents a risk of fire or explosion.
- Contact your local waste disposal department to dispose of the device and battery in accordance with applicable local laws and regulations.

<b>WARNING</b>
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*If these guidelines are not followed, the lithium-ion battery may experience a shortened life span or may present a risk of damage to the device, fire, chemical burn, electrolyte leak, and/or injury.*

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