

SERVICE ALERT

NO.: 2144 Rev A

TO: Owners/Operators of Aircraft with Experimental G3X or G3X Touch Installations including GSU 25C ADAHRS models

DATE: June 10, 2021

SUBJECT: Noise Induced Erroneous Attitude

PRODUCTS AFFECTED

GSU 25C ADAHRS (011-02929-50) units with serial numbers 5Q2000000 through 5Q2099999, installed in experimental G3X or G3X Touch systems are affected.

NOTE

GSU 25A/B/D ADAHRS units are not affected.

NOTE

Certified G3X Touch and GFC 500 installations are not affected.

ISSUE

The GSU 25C Air Data, Attitude, and Heading Reference System (ADAHRS) can be subjected to significant amounts of acoustic noise energy that may result in erroneous attitude information displayed on the system.

If a Garmin AFCS is installed, this erroneous attitude information may adversely affect the flight director performance. When the autopilot is engaged with an active flight director mode, this issue may cause the aircraft to deviate from the intended flight path. When the autopilot is not engaged, this issue may result in inadvertent activation of the pitch or roll Electronic Stability Protection (ESP) function.

NOTE

For G3X Touch systems, software v8.81 provides miscompare monitoring between a GSU 25 and G5 backup attitude instrument by default, if equipped. This alert may be used to alert of degraded attitude performance.

This issue has been observed on the following two specific GSU 25C installation locations but may occur in other installation locations if subject to significant amounts of acoustic noise energy:

- Wing of a tube-and-fabric airframe when flown through precipitation
- Beneath the baggage floor of an aluminum airframe in a small, enclosed compartment

NOTE

Section 19.4.2 of the G3X/G3X Touch installation Manual (Garmin P/N 190-01115-01) prohibits placing the ADAHRS near sources of acoustic noise.

PILOT ACTION

Do the following if your primary flight display is showing signs of degraded attitude performance:

- Cease AFCS operation
- Avoid flights into Instrument Meteorological Conditions (IMC)
- Disable ESP (Refer to Section 35.4.12 of the G3X/G3X Touch Installation Manual, Garmin P/N 190-01115-01)

WARNING

If degraded attitude performance is observed in flight, disable ESP. Refer to the applicable pilot's guide for instructions on how to disable ESP in flight.

- For troubleshooting purposes, perform an Engine Run-Up Vibration Test (Refer to Sections 34.4.3.3 or 35.4.7.3 of the G3X/G3X Touch Installation Manual, Garmin P/N 190-01115-01)

WARNING

Do not fly if the system does not pass this post-installation checkout.

- Contact your aircraft kit manufacturer or Garmin Experimental Product Support for further guidance

RESOLUTION

In general, relocation of the ADAHRS or modification of the installation is recommended.

REFERENCES

CubCrafters – SK-SA001 – Installation of Isolator Bushings for Garmin GSU 25C ADAHRS Used With Garmin G3X Display – <http://cubcrafters.com/c/publications/>

Van's Aircraft - SB-00028 - GSU25C G3X Noise Induced Erroneous Attitude - <https://www.vansaircraft.com/service-information-and-revisions>