

TITLE

NAVIGATION - TRANSMITTAL OF GARMIN SB 2046, GRS 77 SOFTWARE VERSION 3.04 - PITCH/ROLL OFFSET CALIBRATION PROCEDURE (G1000 WITH DUAL GRS AND THREE DISPLAYS)

EFFECTIVITY**MODEL**

510 (Citation Mustang)

SERIAL NUMBERS

-0001 and On, that have incorporated SB510-34-16, SB510-34-17R1, R2, R3 or SB510-34-18

REASON

Under rare circumstances (such as unusual jumps in GPS velocity) a dual AHRS reset may occur if the Pitch/Roll offset procedure was performed without valid GPS signal.

DESCRIPTION

This service letter transmits Garmin SB 2046, GRS 77 Software Version 3.04 - Pitch/Roll Offset Calibration Procedure (G1000 with dual GRS and three displays).

NOTE: You must do the GMU-44 Magnetometer Calibration procedure after performing the Pitch/Roll Offset procedure in the Garmin Service Bulletin. You must acquire and maintain valid GPS during the performance of the GMU magnetometer calibration and pitch/roll offset procedures. (Refer to the Model 510 Maintenance Manual, Chapter 34, Garmin Attitude Heading Reference System - Adjustment/Test.)

COMPLIANCE

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June 9, 2020

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CONSUMABLE MATERIAL

No specialized consumable materials are required to complete this service document.

TOOLING

No specialized tooling is required to complete this service document.

REFERENCES

Garmin Service Bulletin NO.: 2046 Rev A, GRS 77 Software Version 3.04 - Pitch/Roll Offset Calibration Procedure (G1000 with dual GRS and three displays)

Cessna Model 510 Maintenance Manual

NOTE: To make sure all publications used are complete and current. Refer to www.txtavsupport.com.



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SERVICE BULLETIN

NO.: 2046 Rev A

TO: Textron Aviation
DATE: March 18, 2020
SUBJECT: GRS 77 Software Version 3.04 - Pitch/Roll Offset Calibration Procedure
(G1000 with dual GRS and three displays)

PRODUCTS AFFECTED

GRS 77 units with Software Version 3.04, installed as part of a G1000 with dual GRS and three displays are affected.

PURPOSE

Under rare circumstances (such as unusual jumps in GPS velocity) a dual AHRS reset may occur if the Pitch/Roll offset procedure was performed without valid GPS signal.

DESCRIPTION

To prevent a dual AHRS reset, Garmin recommends the post installation Pitch/Roll Offset procedure documented in the INSTRUCTIONS Section of this service bulletin.



NOTE

After successful completion of the Pitch/Roll Offset procedure documented in the INSTRUCTIONS Section of this bulletin, the post installation Magnetometer Calibration procedure must be performed. Refer to the applicable maintenance manual.

WARRANTY INFORMATION

This modification is not warranty reimbursable.

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INSTRUCTIONS



NOTE

Ensure aircraft is in a position with GPS coverage before performing the procedure. This can be accomplished by performing the procedure with the aircraft outside a hangar on a ramp area, or inside a hangar with GPS repeaters in use.



NOTE

This procedure must be performed for both GRS 77 units installed in the aircraft.



NOTE

This procedure must be carried out with the engine off.

GRS / GMU CALIBRATION

SELECT GRS UNIT: GRS77 #2 SELECT PROCEDURE: PITCH / ROLL OFFSET COMMUNICATION STATUS: GPS, AIR DATA, MAGNETOMETER

BEFORE CALIBRATION:

- 1 Level the aircraft to within 0.25 deg of zero-pitch and zero-roll.
- 2 Ready to enter the GRS77 AHRS Ground Pitch / Roll Aircraft Level Compensation Mode.

CALIBRATE

CALIBRATION PROCEDURE:

For calibration, the operator must verify that each of the following statements is true.
Select CONFIRM AIRCRAFT IS LEVEL to acknowledge.
The calibration status will then be displayed.

- 1 The aircraft pitch is level.
- 2 The aircraft roll is level.
- 3 The aircraft is motionless.

CONFIRM AIRCRAFT IS LEVEL

1. Start the system in configuration mode.
2. Level the aircraft to within $\pm 0.25^\circ$ of zero pitch and zero roll.
3. Select the GRS Page Group.
4. Display the GRS/GMU Calibration page.

5. Unlock page by pressing the following softkeys in sequence:
 - a) Softkey 9
 - b) Softkey 10
 - c) Softkey 11
 - d) Softkey 12
6. Power off both GRS units and both GDC units by pulling the circuit breakers.
7. While remaining in configuration mode on PFD 1, turn off PFD 2 by pulling the circuit breaker.
8. Restart PFD 2 in normal mode.
9. Press Sensors softkey on PFD 2.
10. Select GRS 1 as the active source
11. Confirm heading and attitude (pitch/roll) information are not displayed (red X).
12. Power up GRS 1 while leaving both GDC powered off.
13. Make sure GPS status in the PFD page of "GRS / GMU CALIBRATION" is a green checkmark.
14. After 50-70 seconds, make sure valid Pitch and Roll are displayed on PFD 2.



NOTE

If valid Pitch and Roll are not displayed after 90 seconds, the GRS 77 AHRS is not receiving valid GPS signal.

15. Using the GDU controls on PFD 1 in config mode highlight GRS 1.
16. Select either GRS 1 or GRS 2 for calibration.
17. Touch Enter after selecting which GRS 77 unit to calibrate. The select procedure field is now blinking. The small right knob can now be used to select which calibration/validation procedure to run.
18. Select PITCH/ROLL OFFSET, then touch Enter. If the PITCH/ROLL OFFSET selection is still blinking, touch Enter again.
19. Follow the checklist items displayed on the PFD and touch Enter as each one is completed or confirmed. When the CALIBRATE field is blinking, touch Enter to begin the procedure.
20. After several seconds, a new checklist appears in the lower half of the PFD. Touch Enter as each item is confirmed. When the CONFIRM AIRCRAFT IS LEVEL field is blinking, touch Enter to continue.
21. The result of the pitch/roll offset compensation is displayed on the PFD. If successful, the AHRS records the required pitch and roll offsets, informs the operator of a successful conclusion and returns to normal operation.
22. Touch Enter to conclude this procedure.
23. Repeat this procedure for GRS 2 if needed. In Step 10 select GRS 2 as active source. In Step 12 power up GRS 2 only.



NOTE

As documented in the applicable maintenance manual, Calibration Procedure A-1 must be successfully completed prior to Calibration Procedure B. If A-1 is repeated, then Procedure B must also be repeated.

RESOLUTION

This issue has been fixed in GRS 77 software versions 3.05 and later.



NOTE

Once new software is loaded perform the Pitch/Roll Offset procedure as documented in the applicable maintenance manual.