

Crossbow Service Letter			
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Crossbow Service Letter
AHR500-94-01
AHR500GA-202 Attitude Performance

Rev A

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1 Equipment: AHR500GA-202

2 Service Letter Number:

AHR500-94-01

3 Effectivity

This Service Letter applies to the following articles:

AHR500GA-202, all part numbers 8350-0062-XX where XX is "-01" through and including "-26."

4 Reason

The AHR500GA-202 can give misleading attitude information in certain combinations of acceleration and deceleration during turning maneuvers.

5 Description

This Letter describes the conditions, how to recognize the conditions, and procedures for continued safe operation.

6 Compliance

Mandatory

7 Cancellation

This Service Letter will be cancelled by a future Service Letter on or before 6/30/04 outlining an AHR500GA-202 update procedure.

8 Warranty Information

This update will be covered under Crossbow warranty. The warranty is limited to repair or replacement of the AHR500GA and does not cover removal or installation costs.

9 References

None

10 Background

The AHR500GA-202 is designed to provide correct attitude and heading information during all flight conditions. However, under certain circumstances, misleading bank and heading indications have been observed. The condition can be detected by comparison to backup mechanical attitude indicators, magnetic compass or the outside horizon if flying VFR.

The circumstances are described below:

- 1) During turns, combined with or directly following acceleration or deceleration of the aircraft, pilots have observed erroneous bank indications and heading indications from some AHR500GA-202 articles. The AHRS will recover to the correct attitude and heading after several minutes of flight. Bank errors of 15 degrees have been observed; heading errors of 30 degrees have been observed.
- 2) During sustained acceleration or deceleration of a minute or more, pilots have observed erroneous pitch indications and heading indications on some AHR500GA-202 articles. The

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AHRS will recover to the correct attitude and heading after several minutes of flight. Pitch attitude errors up to 10 degrees have been observed; heading errors up to 20 degrees have been observed.

- 3) During sustained maneuvers with large roll, pitch, and heading changes, erroneous bank and heading indications have been observed on some AHRS500GA-202 articles. The AHRS will recover to the correct attitude and heading after several minutes of flight without large maneuvers. Bank errors of up to 15 degrees have been observed; heading errors of 30 degrees have been observed.

11 Operator Action

The following procedure should be followed to test the AHRS500GA-202 for erroneous bank and heading indications.

Fly the airplane in a standard lazy 8 maneuver and cross-check the AHRS500GA attitude indication and heading indication on the Primary Flight Display with other flight instruments and the visible horizon during the lazy 8 maneuver. Heading comparisons with the "whiskey barrel" floated compass will not be valid except during straight and level flight. The AHRS500GA should indicate correct attitude and heading during the lazy 8 maneuver and following the lazy 8 maneuver. Improper AHRS500GA operation will result in a significant bank or heading indication offset on the primary flight display that takes 1 to 2 minutes to return to correct indication during straight and level flight.

If the AHRS500GA does not track the lazy 8 maneuver properly or provides erroneous attitude or heading information at the end of the lazy 8 maneuver, the AHRS500GA should be removed and replaced.

Transfer the flight data recorded by the Chelton system during the lazy 8 maneuver to a media card in accordance with Chelton operating instructions and return the flight data recording with the removed AHRS500GA.

The replacement AHRS500GA must be installed and aligned in accordance with Crossbow AHRS500GA Installation Manual provided with the article.

The AHRS500GA will normally re-erect to the correct attitude over a 120 second period during straight and level flight without acceleration or deceleration.

The operator should continually cross-check the AHRS500GA derived attitude indication and heading indication on the Primary Flight Display with other instruments and the visible horizon during sustained acceleration or deceleration or during sustained maneuvers with large pitch and bank angle changes. If erroneous attitude or heading behavior is suspected or detected, return to level, non-accelerated flight for 120 seconds for correction of the attitude and heading indication.

12 Service Information

As a Crossbow Technology customer you have access to product support services, which include:

- Single-point return service
- Web-based support service
- Same day troubleshooting assistance
- Worldwide Crossbow representation
- Installation assistance available

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Contact Directory

United States: Phone: 1-408-965-3300 (7 AM to 7 PM PST)

Fax: 1-408-324-4840 (24 hours)

Email: techsupport@xbow.com

Non-U.S.: refer to website www.xbow.com

Return Procedure

Before returning any equipment, please contact Crossbow to obtain a Returned Material Authorization number (RMA). Be ready to provide the following information when requesting an RMA:

- Name and Address
- Telephone, Fax, Email
- Equipment Model Number
- Equipment Part Number
- Equipment Serial Number
- Installation Date
- Failure Date
- Fault Description