

Crossbow Service Letter			
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Crossbow Service Letter Update

NAV425-06-01

NAV425EX-200 Field Issues

Rev A

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1 Equipment: NAV425EX-200

2 Service Letter Number

NAV425EX-06-01

3 Effectivity

This Service Letter applies to the following articles:

NAV425EX-200, all part numbers 8350-0121-XX where XX is "-01" through and including "-08."

4 Reason

The NAV425EX-200 can give misleading attitude information under certain combinations of power-up and GPS outages.

5 Description

The Crossbow Letter NAV425-06-01 describes the progress made to date and the plan to repair NAV425EX-200 products. Several users have experienced intermittent problems with the NAV425EX which resulted in our service letters of 10/21/05 and 12/31/05.

Crossbow has been working on solutions to these issues and testing to verify the solutions over the past several weeks. We stand behind all of our products and have invested significantly in design, testing, and outside laboratory verification work for the NAV425EX.

6 Compliance

Mandatory

7 Warranty Information

This update will be covered under Crossbow warranty. The warranty is limited to repair or replacement of the NAV425EX-200 and does not cover removal or installation costs.

8 References

Service Letter NAV425EX-05-02_A and NAV425EX-05-02_B

9 Status Update

9.1 Intermittent attitude failure at startup

This problem appears as an incorrect attitude or failed attitude on initial startup. Recycling power will correct the problem.

The first cause of startup problem was a bad power supply regulator chip. The power supply board was redesigned utilizing an improved chip design. Crossbow has field tested engineering units with a several of our customers for additional testing and discovered a second intermittent startup issue masked by the initial fault. The second issue was caused by a hardware initialization problem in the accelerometer sensors. The accelerometer manufacturer has worked with Crossbow to fix the internal initialization problem.

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9.2 Difficulty Locking GPS

Several customers have had problems acquiring and maintaining GPS lock. Crossbow has tested and recommends an avionics type external antenna. The GPS satellite signals, even at altitude, are small, microwatt level signals. Some of the composite materials, windshield materials, and of course a metal aircraft, can attenuate or distort the GPS signal making it difficult for the GPS receiver to maintain lock. The external antenna improves the GPS signal and helps achieve GPS lock. The tested and recommended antenna is made by Antcom (model 2G15A-XS-1) and is available from <http://www.antcom.com/lp.htm>

9.3 EMI/Radio Interference

Several customers experienced Electromagnetic Interference (EMI) with the NAV425EX while using VHF radios. Symptoms included incorrect attitude indication while keying the microphone during transmissions to ATC.

Most EMI suppression systems rely on a very low resistance path to ground to get rid of the unwanted EMI signals. It is difficult to achieve very low ground return resistance (milliohms!) with long lightweight cables and composite airframe construction. Finding solutions that work in metal and composite construction aircraft has involved several changes in the EMI protection in the NAV425EX including a re-design and re-layout of the connector/EMI protection board assembly. Composite aircraft with higher ground impedances will also need an in-line EMI filter placed between the cable connector and the NAV425EX for additional protection. These changes have demonstrated significant improvement in overall EMI performance in our in-house EMI facility and an outside EMI test laboratory.

9.4 GPS Lock/Unlock under Dynamics

Customers with high performance aircraft have reported an incorrect attitude display after losing and then reacquiring GPS during high dynamic maneuvers. Improvements have been made to the NAV425EX firmware to reduce this effect and smooth the transition from operation with/without GPS.

10 Next Actions and Schedule

Production units with all the updates will be completed this week. The production units will immediately start a final set of verification testing. These units will also be field tested with customers who experienced some of the intermittent issues listed above to be ensure that we have solved the problems to our satisfaction and our customer's satisfaction.

We expect to release a complete update package that will address all the above issues by 3/15/06. The first production units built will form a rotating pool of NAV425EXs on an exchange basis to minimize aircraft down time. Further details will appear at this location on this website.

The intermittent nature of the issues and their dependence on the aircraft environment will require several weeks of field testing before the solutions are verified. In parallel with the field testing, Crossbow will build production NAV425EXs for a rotating pool of units that will be available to customers for exchange when the testing is completed.

We currently anticipate a pool availability date of 3/30/06. Instructions for the return will be included in the next service letter on or before 3/30/06. **DO NOT RETURN YOUR UNIT AT THIS TIME.**

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11 Crossbow Commitment

Crossbow is committed to providing fully tested solutions for these issues as quickly as possible. As part of our ISO quality system, we strive to learn from all of experiences, good and bad, to continually improve Crossbow products and service. Our lessons learned over the past few months with these issues have improved our testing processes and driven strategic investments in our aviation products capability including:

- New product test procedures to uncover intermittent type issues earlier
- Purchased a dedicated test aircraft to eliminate our reliance on rental aircraft availability and customer/partner flight testing
- Purchased a second inertial rate table for testing and calibration of all AHRS systems
- Setup an in-house EMI test facility for design and test of radio interference and other EMI problems

Crossbow continues to invest heavily in the NAV425EX product and all of our AHRS products to provide you with leading technology, reliable, and safe AHRS systems that operate over the whole aircraft environment. We value your business and apologize for the delay and inconvenience we have caused our customers.

Contact Directory

United States: Phone: 1-408-965-3300 (8 AM to 5 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